



September 2, 2020

Via Electronic Filing

Public Utility Commission of Oregon
Attn: Filing Center
201 High St. SE, Suite 100
Salem, OR 97301

**Re: Docket No. UE 374 - In the Matter of PACIFICORP, dba PACIFIC POWER,
Request for a General Rate Revision.**

Enclosed for filing in the above-caption docket please find the Sierra Club Cross-Examination Exhibits. The Confidential versions of the Cross-Examination Exhibits will be served in accordance with OAR 860-001-0070(3) and the Commission's Covid-19 Response outlined in Order 20-088 on all eligible party representatives electronically via encrypted password protected ZIP folders

If you have any questions or require any additional information, please do not hesitate to contact me.

Respectfully submitted,

Ana Boyd
Research Analyst
Sierra Club Environmental Law Program
2101 Webster Street, Suite 1300
Oakland, CA 94612
415-977-5649
ana.boyd@sierraclub.org

**BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON**

In the Matter of

PACIFICORP d/b/a PACIFIC POWER,

Request for a General Rate Revision

UE 374

CERTIFICATE OF SERVICE

I hereby certify that on this 2nd day of September, 2020, I have served the foregoing Sierra Club Cross-Examination Exhibits upon all party representatives on the official service list for this proceeding. The public version of these documents was served upon parties via email, and the confidential version of these documents was served pursuant to General Protective Order No. 20-040 upon all eligible party representatives electronically via encrypted password protected ZIP folders.

PACIFICORP

Etta Lockey (C)
Matthew McVee (C)
825 NE Multnomah St, Ste. 2000
Portland, OR 97232
etta.lockey@pacificorp.com
matthew.mcvee@pacificorp.com
oregondockets@pacificorp.com

STAFF

Marianne Gardner (C)
Public Utility Commission of Oregon
PO Box 1088
Salem, OR 97308-1088
marianne.gardner@state.or.us

Sommer Moser (C)
PUC Staff - Department Of Justice
1162 Court St. NE
Salem, OR 97301
sommer.moser@doj.state.or.us

AWEC

Brent Coleman (C) (HC)
Tyler C Pepple (C) (HC)
Davison Van Cleve, PC
1750 SW Harbor Way, Ste 450
Portland, OR 97201
blc@dvclaw.com
tcp@dvclaw.com

OREGON CITIZENS UTILITY BOARD

Robert Jenks (C) (HC)
Michael Goetz (C) (HC)
610 SW Broadway, Ste 400
Portland, OR 97205
bob@oregoncub.org
mike@oregoncub.org
dockets@oregoncub.org

KWUA & OFBF

Paul S Simmons (C) (HC)
Somach Simmons & Dunn, PC
500 Capitol Mall, Ste.1000
Sacramento, CA 95814
psimmons@somachlaw.com

Crystal Rivera (C) (HC)
Somach Simmons & Dunn
500 Capitol Mall Ste. 1000
Sacramento CA 95814
crivera@somachlaw.com

Lloyd Reed (C) (HC)
Reed Consulting
10025 Heatherwood Lane
Highlands Ranch CO 80126
lloyd.reed@lloydreedconsulting.com

CALPINE SOLUTIONS

Greg Bass
401 West A St., Ste. 500
San Diego, CA 92101
greg.bass@calpinesolutions.com

Gregory M. Adams (C)
Richardson Adams, PLLC
P.O. Box 7218
Boise, ID 83702
greg@richardsonadams.com

Kevin Higgins (C)
Energy Strategies LLC
215 State St, St 200
Salt Lake City, UT 84111-2322
khiggins@energystrat.com

TESLA INC

Bill Ehrlich (C) (HC)
3500 Deer Creek Rd
Palo Alto, CA 94304
wehrlich@tesla.com

Francesca Wahl (C) (HC)
6800 Dumbarton Circle
Fremont, CA 94555
fwahl@tesla.com

Kevin Auerbacher (C) (HC)
601 13th St NW, 9th Fl North
Washington, DC 20005
kauerbacher@tesla.com

John Dunbar (C) (HC)
Dunbar Law LLC
621 SW Morrison St., Ste. 1025
Portland, OR 97205
jdunbar@dunbarlawllc.com

VITESSE LLC

R. Bryce Dalley (C)
Facebook, Inc.
24005 Bertsinger Rd.
Ridgefield, WA 98642
rbd@fb.com

Liz Ferrell (C)
Facebook, Inc.
1 Hacker Way
Menlo Park, CA 94205
eferrell@fb.com

Irion A Sanger (C)
Sanger Law PC
1041 SE 58th Place
Portland, OR 97215
irion@sanger-law.com

CHARGEPOINT INC

Steve Elzinga (C)
Alexandra Leumer (C)
693 Chemeketa St NE
Salem, OR 97301
steve@shermlaw.com
alexandra.leumer@chargepoint.com

Scott Dunbar (C)
Keyes Fox & Wiedman LLP
1580 Lincoln St, Ste 880
Denver, CO 80203
sdunbar@kfwlaw.com

SBUA

Diane Henkels (C)
621 SW Morrison St, Ste 1025
Portland, OR 97205
diane@utilityadvocates.org

William Steele (C)
Bill Steele And Associates, LLP
PO Box 631151
Highlands Ranch, CO 80164
wa.steele@hotmail.com

WALMART

Steve W Chriss (C)
2001 SE 10th St
Bentonville, AR 72716-0550
stephen.chriss@wal-mart.com

Vicki M Baldwin (C)
Parsons Behle & Latimer
201 S Main St, Ste 1800
Salt Lake City, UT 84111
vbaldwin@parsonsbehle.com

FRED MEYER

Justin Bieber (C)
215 South State Street, Ste .200
Salt Lake City, UT 84111
jbieber@energystrat.com

Kurt J Boehm (C)
Jody Kyler Cohn (C)
Boehm Kurtz & Lowry
36 E Seventh Street, Ste. 1510
Cincinnati, OH 45202
kboehm@bkllawfirm.com
jkylercohn@bkllawfirm.com

Dated this 2nd day of September, 2020 at Redwood City, CA.

/s/ Ana Boyd

Ana Boyd
Research Analyst
Sierra Club Environmental Law Program
2101 Webster Street, Suite 1300
Oakland, CA 94612
ana.boyd@sierraclub.org

**BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON**

UE 374

In the Matter of

PACIFICORP d/b/a PACIFIC POWER,

Request for a General Rate Revision

SIERRA CLUB'S PRE-FILED AND
CROSS-EXAMINATION EXHIBITS

Sierra Club Pre-Filed Exhibits in UE 374

Witness	Exhibit No.	Description
Jeremy Fisher	Sierra Club/100	Highly Confidential Opening Testimony of Jeremy Fisher, PhD
	Sierra Club/101	Curriculum Vitae of Jeremy Fisher, PhD
	Sierra Club/102	Public Discovery Responses
	Sierra Club/103	Confidential Direct Testimony of Rick Link in 20000-418-EA-12 (Wyo.P.S.C.) (provided as an attachment to PacifiCorp Response to Sierra Club Data Request 1.1)
	Sierra Club/104	Redacted Rebuttal Testimony of Rick Link in 20000-418-EA-12 (Wyo.P.S.C.)
	Sierra Club/105	WY DEQ Bart Appeal Settlement Agreement (November 2010)
	Sierra Club/106	PacifiCorp Emission Reduction Plan (Nov. 2, 2010)
	Sierra Club/107	PacifiCorp Comments on WY Regional Haze Plan (Aug. 26, 2013) (excerpt)
	Sierra Club/108	Confidential Rebuttal Testimony of Dana Ralston in UE-152253 (Wash. U.T.C) (provided as an attachment to PacifiCorp Response to Sierra Club Data Request 1.8(c))
	Sierra Club/109	Redacted Supplemental Rebuttal Testimony of Cindy A. Crane in UE-152253 (Wash. U.T.C)
	Sierra Club/110	PacifiCorp Response to Sierra Club Data Request 4.9 in Docket No. 13-035-184 (Utah P.S.C.)
	Sierra Club/111	Hearing Transcript of Ms. Cindy Crane in Docket No. 20000-418-EA-12 (Wyo.P.S.C)
	Sierra Club/112	"Attach Sierra Club 3.27" in Docket No. LC 70

Witness	Exhibit No.	Description
	Sierra Club/113	Andrew Graham, <i>Life beneath the earth in Wyo's only underground coal mine</i>
	Sierra Club/114	Supplemental Testimony of Jeremy Twitchell in Docket No. UE-152253 (Wash.U.T.C.)
	Sierra Club/115	Confidential Attachment 1.5-2 to PacifiCorp Response to Sierra Club Data Request
	Sierra Club/116	PacifiCorp, <i>2012 Natural Gas Request for Proposals Workshop</i> (Oct. 29, 2013)
	Sierra Club/117	PacifiCorp Response to Sierra Club Data Request 4.10 in Docket No. 13-035-184 (Utah P.S.C.)
	Sierra Club/118	PacifiCorp Dec. 5, 2013 Memorandum (provided as a confidential attachment to PacifiCorp Response to Sierra Club Data Request 1.4)
	Sierra Club/119	Highly Confidential Exhibit B Re: Bridger EPC Contract
	Sierra Club/120	Direct Testimony of Susan Arigoni in Docket No. 11A-917E (Colo. P.U.C.)
	Sierra Club/121	Confidential Technical Workshop: Review of Existing Analysis on Craig and Hayden Environmental Investments (provided as a confidential attachment to PacifiCorp Response to Sierra Club 2.6)
	Sierra Club/122	Confidential Attachment to PacifiCorp Response to Sierra Club Data Request 2.6-2 (Hayden PVRR)
	Sierra Club/123	Confidential Hayden SCR Recommendation Memo (provided as a confidential attachment to PacifiCorp Response to Sierra Club Data Request 2.4)
	Sierra Club/124	Confidential Attachment to PacifiCorp Response to Sierra Club Data Request 2.4 (Xcel Energy Projects)
	Sierra Club/125	Direct Testimony of James Hill in Docket No. 10M-245E (Colo. P.U.C.)
David Posner	Sierra Club/200	Opening Testimony of David Posner
	Sierra Club/201	Curriculum Vitae of David Posner
	Sierra Club/202	Morgan Stanley, The second wave of clean energy, (December 10, 2019)
	Sierra Club/203	American Electric Power, 2019 AEP Fact Book (2019)
	Sierra Club/204	U.S. Securities and Exchange Commission, Alliant Energy Form 10-K for the fiscal year ended December 31, 2019
Ezra Hausman	Sierra Club/300	Opening Testimony of Ezra Hausman, PhD
	Sierra Club/301	Resume of Ezra D. Hausman, Ph.D.

Witness	Exhibit No.	Description
	Sierra Club/302	Oregon Governor Kate Brown's Executive Order No. 20-04
	Sierra Club/303	Oregon Governor Kate Brown's Executive Order No. 17-20
	Sierra Club/304	Oregon Global Warming Commission's 2018 Biennial Report to the Legislature for the 2019 Legislative Session
	Sierra Club/305	Selected Public Data Responses
Jeremy Fisher	Sierra Club/400	Confidential Rebuttal Testimony of Jeremy Fisher, PhD
	Sierra Club/401	Exhibit DR-2C to the Direct Testimony of Dana Ralston in UE-152253 (Wash. U.T.C.) (provided as a confidential attachment to Sierra Club Data Request 1.8)
	Sierra Club/402	Exhibit DR-3C to the Direct Testimony of Dana Ralston in UE-152253 (Wash. U.T.C.) (provided as a confidential attachment to Sierra Club Data Request 1.8)
	Sierra Club/403	Selected Sierra Club Public Data Responses
	Sierra Club/404	Confidential Attachment "Bridger Summary Analysis.xlsx." Summary tab to PacifiCorp Response to Sierra Club Data Request 9.1
	Sierra Club/405	Confidential Rebuttal Testimony of Rick Link in 20000-418-EA-12 (Wyo. P.S.C.)
	Sierra Club/406	2013 PacifiCorp IRP Confidential Vol. III
	Sierra Club/407	Redacted Direct Testimony of Jeremy Fisher in 20000-418-EA-12 (Wyo. P.S.C.)
	Sierra Club/408	Redacted Rebuttal Testimony of Chad Teply in 20000-418-EA-12 (Wyo. P.S.C.) (excerpt)
	Sierra Club/409	PacifiCorp Response to Wyoming Industrial Energy Consumers Data Request 1.83 in 20000-418-EA-12 (Wyo. P.S.C.)
	Sierra Club/410	Confidential Letter from PacifiCorp Energy's William K. Lawson to Wyoming DEQ's David Finley (Jan. 29, 2009) (provided as a confidential attachment to PacifiCorp Response to Sierra Club Data Request 9.6)
	Sierra Club/411	Exhibit Sierra Club/114, 2003 PacifiCorp Control Report in UE 246
	Sierra Club/412	Exhibit Sierra Club/115, Air Quality Reference Case Investments 2005 in UE 246
	Sierra Club/413	Cal. P.U.C Advice Letter 507-E (July 21, 2014)
	Sierra Club/414	Docket No. UE-191024 et al. Proposed Settlement Stipulation (Wash. U.T.C)

Witness	Exhibit No.	Description
Ezra Hasuman	Sierra Club/500	Rebuttal Testimony of Ezra Hausman, PhD
Jeremy Fisher	Sierra Club/600	Confidential Supplemental Rebuttal Testimony of Jeremy Fisher, PhD
	Sierra Club/601	PacifiCorp Response to Sierra Club Data Request 8.2 – 1st Revised
	Sierra Club/602	Confidential attachment to PacifiCorp Response to Sierra Club 8.2, 1st Revised (excerpt)

Cross-Examination Exhibits

Exhibit No.	Description
Sierra Club/700	WA UTC Exhibit CAT-21C, April 24, 2013 SCR Memorandum (provided as a confidential attachment to PacifiCorp Response to Sierra Club Data Request 4.1)
Sierra Club/701	PacifiCorp Response to Sierra Club Data Request 11.1
Sierra Club/702	PacifiCorp Response to Sierra Club Data Request 11.2
Sierra Club/703	Confidential PacifiCorp Response to Sierra Club Data Request 11.3
Sierra Club/704	PacifiCorp Response to Sierra Club Data Request 11.4
Sierra Club/705	PacifiCorp Response to Sierra Club Data Request 11.5
Sierra Club/706	Confidential PacifiCorp Response to Sierra Club Data Request 11.6
Sierra Club/707	Confidential PacifiCorp Response to Sierra Club Data Request 11.7
Sierra Club/708	Confidential Attachment to Sierra Club 9.1, "BCC Production-Operating Cost Schedules (4-unit Coal Operation).xlsx", tab "OPEX"
Sierra Club/709	Confidential Attachment to Sierra Club 9.1, "BRIDGER (2015 IRP).xlsx"
Sierra Club/710	Confidential Attachment to Sierra Club 9.1, "Bridger Summary Analysis.xlsx"
Sierra Club/711	Confidential Attachment to Sierra Club 1.8, "BRIDGER.xlsx"
Sierra Club/712	Confidential Attachment to Sierra Club 12.1-1, "BRIDGER.xlsx"
Sierra Club/713	Confidential Ralston Workpaper "CONF Exhibit_PAC_2603_CONF and WPs.xlsx "
Sierra Club/714	Confidential Link Workpaper "Link Figures 11, 12, 14.xlsx"
Sierra Club/715	Attachment to PacifiCorp Response to Sierra Club Data Request 1.6
Sierra Club/716	PacifiCorp Response to Sierra Club Data Request 12.5
Sierra Club/717	Confidential PacifiCorp Response to Sierra Club Data Request 7.1
Sierra Club/718	Confidential Attachment to Sierra Club 7.1-1
Sierra Club/719	PacifiCorp Response to Sierra Club Data Request 7.2
Sierra Club/720	Confidential Attachment to Sierra Club 7.2-2: "PIRA_REDACTED_Nominal\$_10.10.13 PROPRIETARY CONF.xlsx"

Exhibit No.	Description
Sierra Club/721	Confidential Attachments to PacifiCorp Response to Sierra Club 8.3 - 1st supp.
Sierra Club/722	PacifiCorp Response to Sierra Club Data Request 12.2
Sierra Club/723	Attachment to Sierra Club 12.2 (Gateway West)
Sierra Club/724	Attachment to Sierra Club 12.2 (Aeolus West)

**PUBLIC UTILITY COMMISSION
OF OREGON**

UE 374

SIERRA CLUB EXHIBIT 700

CONFIDENTIAL

Cross-Examination Exhibit

**This exhibit is confidential pursuant to Protective Order 20-040 and
is provided under separate cover.**

Docket No. UE 374
Exhibit Sierra Club/701

**PUBLIC UTILITY COMMISSION
OF OREGON**

UE 374

SIERRA CLUB EXHIBIT 701

Cross-Examination Exhibit

UE 374/PacifiCorp
August 27, 2020
Sierra Club Data Request 11.1

Sierra Club Data Request 11.1

Refer to Exhibit PAC/2603 and the Reply Testimony of Dana Ralston (PAC/2600) at Ralston/10:11-11:7, with respect to the October 2013 mine plan, specifically that “SCR benefits would have decreased by approximately \$16.7 million over the 10- year budget period”.

- (a) Confirm or deny: the \$16.7 million value is a present value calculated through the period 2014-2023 only. If denied, provide evidence and work papers showing that the present value was calculated through a different period.
- (b) Please confirm whether Mr. Ralston calculated a differential in the SCR benefits through 2030 using the October 2013 mine plan? If he did not, please explain why not. If so, provide that calculation.
- (c) Please confirm whether Mr. Ralston calculated a differential in the SCR benefits through 2037 using the October 2013 mine plan. If he did not, please explain why not. If so, provide that calculation.

Response to Sierra Club Data Request 11.1

- (a) Confirmed.
- (b) Not confirmed. The October 2013 mine plan was developed to support PacifiCorp’s 2014 10-year business plan process. As such, updated Jim Bridger plant million British thermal unit (MMBtu) requirements were only available through 2023.
- (c) Please refer to the Company’s response to subpart (b) above.

Docket No. UE 374
Exhibit Sierra Club/702

**PUBLIC UTILITY COMMISSION
OF OREGON**

UE 374

SIERRA CLUB EXHIBIT 702

Cross-Examination Exhibit

UE 374/PacifiCorp
August 27, 2020
Sierra Club Data Request 11.2

Sierra Club Data Request 11.2

Refer to the work papers supporting Exhibit PAC/2603, “CONF Exhibit_PAC_2603_CONF and WPs.xlsx, tabs “January 2013 Mine Plan” and “October 2013 Mine Plan”.

- (a) Provide a \$/MMBtu estimate of the cost of coal procured from Bridger coal company for years 2014-2030 in January 2013 and October 2013.

Response to Sierra Club Data Request 11.2

- (a) Please refer to Confidential Attachment Sierra Club 11.2 for Bridger Coal Company delivered coal cost. Bridger Coal Company coal costs after 2023 are high level estimates without Jim Bridger plant generation forecast and are only used to derive final reclamation contributions.

Confidential information is designated as Protected Information under the protective order in this proceeding and may only be disclosed to qualified persons as defined in that order.

**PUBLIC UTILITY COMMISSION
OF OREGON**

UE 374

SIERRA CLUB EXHIBIT 703

CONFIDENTIAL

Cross-Examination Exhibit

**This exhibit is confidential pursuant to Protective Order 20-040 and
is provided under separate cover.**

Docket No. UE 374
Exhibit Sierra Club/704

**PUBLIC UTILITY COMMISSION
OF OREGON**

UE 374

SIERRA CLUB EXHIBIT 704

Cross-Examination Exhibit

UE 374/PacifiCorp
August 27, 2020
Sierra Club Data Request 11.4

Sierra Club Data Request 11.4

Refer to PAC/4100 Ralston/9:11-19, specifically “my reply testimony made clear that the two-unit/no SCR analysis under the October 2013 mine plan would remove the \$28.3 million reclamation cost increase.”

- (a) Confirm that a two-unit / no SCR analysis following the October 2013 mine plan would not have accelerated surface reclamation costs relative to a four-unit analysis. If denied, provide a precise reason why a two-unit / no SCR analysis after October 2013 would continue to have accelerated surface reclamation costs.
- (b) Confirm that Mr. Ralston’s estimate of a \$16.7 million SCR benefit differential (see line 17) resulting from the October 2013 mine plan does not include a specific year-by-year two-unit scenario, calibrated to fuel supply as known in October 2013. If denied, provide a citation and reference to a two-unit scenario updated to October 2013, and provide underlying work papers.
- (c) Confirm that Mr. Ralston’s estimate of a \$16.7 million SCR benefit differential does not adjust for the lack of accelerated surface reclamation costs relative to a four-unit analysis. If denied, explain, in detail, how Mr. Ralston’s estimate accounts for a change in surface reclamation costs.

Response to Sierra Club Data Request 11.4

- (a) Confirmed.
- (b) Confirmed.
- (c) Not confirmed for the four-unit scenario. In both the January 2013 and October 2013 four-unit scenarios, the surface mine was assumed to operate until 2037.

Docket No. UE 374
Exhibit Sierra Club/705

**PUBLIC UTILITY COMMISSION
OF OREGON**

UE 374

SIERRA CLUB EXHIBIT 705

Cross-Examination Exhibit

UE 374/PacifiCorp
August 27, 2020
Sierra Club Data Request 11.5

Sierra Club Data Request 11.5

Refer to the work papers supporting PAC/2603, “CON Exhibit_PAC_2603_CONF and WPs.xlsx”, tab “October 2013 Mine Plan,” lines 140-143, labeled “two unit scenario” and NPV calculation, respectively.

- (a) Confirm that the values in line 141 represent the total cost of fuel delivered to Jim Bridger in a two-unit scenario, from the years 2014-2023. If denied, provide a clarification on what is represented by the values in line 141.
- (b) Confirm that the values in line 141 are derived from a January 2013 two-unit scenario fuel plan for Jim Bridger, as used in the Utah and Wyoming CPCNs. If denied, provide a clarification on source of the values in line 141.
- (c) Refer, in addition, to work papers provided in Attach Sierra Club 9.1 CONF. Provide a citation to the source of line 141 of CONF Exhibit_PAC_2603_CONF and WPs.xlsx, tab “October 2013 Mine Plan” as contained in Mr. Ralston’s work papers. If the source of these values are not contained in work papers as previously provided, provide a work paper showing the derivation of line 141.
- (d) Confirm that the two unit scenario for Jim Bridger as derived in the January 2013 contemplated accelerated surface reclamation and associated recovery of surface reclamation dollars, as shown in Exhibit PAC/706. If denied, explain.

Response to Sierra Club Data Request 11.5

- (a) Denied. The values represent a cash cost of fuel delivered. Cash coal costs exclude depreciation, depletion, amortization and coal inventory adjustments.
- (b) Confirmed.
- (c) The derivation is calculated by multiplying Bridger 2-unit annual coal cash price¹ by the System Optimizer (SO) model PAC Share Two-Unit annual Fuel Requirement². In addition, this calculation was performed by Mr. Fisher in WA UE-152253³.
- (d) Confirmed.

¹ Link Confidential Workpapers\SO Inputs and Outputs, CONF\Base Gas, Base CO2 (Gas, Outputs) CONF\StaMoFuel-C_M1209_16_B315_B416_NC.out

² Confidential Exhibit 705

³ UE-152253_CONFIDENTIAL Fisher Workpapers_Revised cash and capital costs from Exhibit No. RTL-7C, Confidential Figure 3.xlsx, “SOModel – Base” tab, line 169

**PUBLIC UTILITY COMMISSION
OF OREGON**

UE 374

SIERRA CLUB EXHIBIT 706

CONFIDENTIAL

Cross-Examination Exhibit

**This exhibit is confidential pursuant to Protective Order 20-040 and
is provided under separate cover.**

**PUBLIC UTILITY COMMISSION
OF OREGON**

UE 374

SIERRA CLUB EXHIBIT 707

CONFIDENTIAL

Cross-Examination Exhibit

**This exhibit is confidential pursuant to Protective Order 20-040 and
is provided under separate cover.**

**PUBLIC UTILITY COMMISSION
OF OREGON**

UE 374

SIERRA CLUB EXHIBIT 708

CONFIDENTIAL

Cross-Examination Exhibit

**This exhibit is confidential pursuant to Protective Order 20-040 and
is provided in Excel format.**

**PUBLIC UTILITY COMMISSION
OF OREGON**

UE 374

SIERRA CLUB EXHIBIT 709

CONFIDENTIAL

Cross-Examination Exhibit

**This exhibit is confidential pursuant to Protective Order 20-040 and
is provided in Excel format.**

**PUBLIC UTILITY COMMISSION
OF OREGON**

UE 374

SIERRA CLUB EXHIBIT 710

CONFIDENTIAL

Cross-Examination Exhibit

**This exhibit is confidential pursuant to Protective Order 20-040 and
is provided in Excel format.**

**PUBLIC UTILITY COMMISSION
OF OREGON**

UE 374

SIERRA CLUB EXHIBIT 711

CONFIDENTIAL

Cross-Examination Exhibit

**This exhibit is confidential pursuant to Protective Order 20-040 and
is provided in Excel format.**

**PUBLIC UTILITY COMMISSION
OF OREGON**

UE 374

SIERRA CLUB EXHIBIT 712

CONFIDENTIAL

Cross-Examination Exhibit

**This exhibit is confidential pursuant to Protective Order 20-040 and
is provided in Excel format.**

**PUBLIC UTILITY COMMISSION
OF OREGON**

UE 374

SIERRA CLUB EXHIBIT 713

CONFIDENTIAL

Cross-Examination Exhibit

**This exhibit is confidential pursuant to Protective Order 20-040 and
is provided in Excel format.**

**PUBLIC UTILITY COMMISSION
OF OREGON**

UE 374

SIERRA CLUB EXHIBIT 714

CONFIDENTIAL

Cross-Examination Exhibit

**This exhibit is confidential pursuant to Protective Order 20-040 and
is provided in Excel format.**

**PUBLIC UTILITY COMMISSION
OF OREGON**

UE 374

SIERRA CLUB EXHIBIT 715

Cross-Examination Exhibit

This exhibit is provided in Excel format.

Docket No. UE 374
Exhibit Sierra Club/716

**PUBLIC UTILITY COMMISSION
OF OREGON**

UE 374

SIERRA CLUB EXHIBIT 716

Cross-Examination Exhibit

UE 374/PacifiCorp
August 31, 2020
Sierra Club Data Request 12.5

Sierra Club Data Request 12.5

Refer to PAC/3800 at Link/7:17-Link/8:1 and PAC/2300 at Link/23:13-18.

- (a) Provide any records in the Company's possession on market forwards, for as far forward as in the Company's possession, obtained by or produced for the Company between September 1, 2013 through December 1, 2013. For clarity, this requests market forward records as produced or provided to the Company at any time from September 1, 2013 through December 1, 2013 for the forward period extending December 2013 through the next 84 months.

Response to Sierra Club Data Request 12.5

- (a) The Company objects to this request as overly burdensome and onerous that would not lead to a meaningful outcome. Notwithstanding the foregoing objections, the Company responds as follows:

The Company has provided all the available information in its possession for September 2013 and December 2013 related to natural gas and electricity prices quarterly forecasts with its responses to Sierra Club Data Request 7.1, Sierra Club Data Request 12.3, and Sierra Club Data Request 12.4.

**PUBLIC UTILITY COMMISSION
OF OREGON**

UE 374

SIERRA CLUB EXHIBIT 717

CONFIDENTIAL

Cross-Examination Exhibit

**This exhibit is confidential pursuant to Protective Order 20-040 and
is provided under separate cover.**

**PUBLIC UTILITY COMMISSION
OF OREGON**

UE 374

SIERRA CLUB EXHIBIT 718

CONFIDENTIAL

Cross-Examination Exhibit

**This exhibit is confidential pursuant to Protective Order 20-040 and
is provided in Excel format.**

Docket No. UE 374
Exhibit Sierra Club/719

**PUBLIC UTILITY COMMISSION
OF OREGON**

UE 374

SIERRA CLUB EXHIBIT 719

Cross-Examination Exhibit

UE 374/PacifiCorp
July 6, 2020
Sierra Club Data Request 7.2

Sierra Club Data Request 7.2

Refer to the Reply Testimony of Mr. Rick Link, PAC/2300 at Link/25:3-12.

- (a) For each of the three different third-party experts consulted for long-term price forecasts, provide Mr. Link's calculated nominal levelized price of Opal gas prices (in \$/MMBtu) for the most recent forecast preceding the September 2013 OFPC.
- (b) For each of the three different third-party experts consulted for long-term price forecasts, provide Mr. Link's calculated nominal levelized price of Opal gas prices (in \$/MMBtu) for the first forecast post-dating the September 2013 OFPC.

Response to Sierra Club Data Request 7.2

- (a) Please refer to Confidential Attachment Sierra Club 7.2-1 which provides the nominal levelized price of Opal gas (dollars per million British thermal units (\$/MMBtu)) as calculated from the published forecasts of three expert third-party subscription services. The provided long-term price forecasts were the most then-current available prior to PacifiCorp's publication of the September 2013 official forward price curve (OFPC). Note: the confidential attachment referenced above provides the third-party information that is in the Company's possession. The provided third-party information is proprietary and is provided subject to the terms and conditions of the protective order/confidentiality agreement in this proceeding.
- (b) Please refer to Confidential Attachment Sierra Club 7.2-2 which provides the nominal levelized price of Opal gas (\$/MMBtu) as calculated from the published forecasts of three expert third-party subscription services. The provided long-term price forecasts were the most then-current available following PacifiCorp's publication of the September 2013 OFPC. Note: the confidential attachment referenced above provides the third-party information that is in the Company's possession. The provided third-party information is proprietary and is subject to the terms and conditions of the protective order/confidentiality agreement in this proceeding.

Confidential information is designated as Protected Information under the protective order in this proceeding and may only be disclosed to qualified persons as defined in that order.

**PUBLIC UTILITY COMMISSION
OF OREGON**

UE 374

SIERRA CLUB EXHIBIT 720

CONFIDENTIAL

Cross-Examination Exhibit

**This exhibit is confidential pursuant to Protective Order 20-040 and
is provided in Excel format.**

**PUBLIC UTILITY COMMISSION
OF OREGON**

UE 374

SIERRA CLUB EXHIBIT 721

CONFIDENTIAL

Cross-Examination Exhibit

**This exhibit is confidential pursuant to Protective Order 20-040 and
is provided under separate cover.**

Docket No. UE 374
Exhibit Sierra Club/722

**PUBLIC UTILITY COMMISSION
OF OREGON**

UE 374

SIERRA CLUB EXHIBIT 722

Cross-Examination Exhibit

UE 374/PacifiCorp
September 1, 2020
Sierra Club Data Request 12.2

Sierra Club Data Request 12.2

Refer to PAC/4200 at Vail/46:16-Vail/47:7, referring to the transmission constraints mitigated by Gateway Segment D.2:

- (a) Identify the transmission studies produced by or available to the Company prior to December 1, 2013 which specifically identify the constraints and mitigations noted here.
- (b) Provide the transmission studies identified in (a) above.
- (c) Refer to Vail/46:17-18. How much “additional renewable generation” is added in eastern Wyoming before the “first transmission constraint” is identified? Identify the nameplate capacity and specific type of generation tested in the reliability or transmission model.
- (d) Refer to Vail/46:17-18. As of December 1, 2013, in what year did PacifiCorp anticipate adding the “additional” amount of renewable generation identified in (c), above? Identify the source of information (IRP or other) specifying that amount of renewable generation in that year, if possible.
- (e) Refer to Vail/46:20-22. How much additional renewable generation is added in the model when Mr. Vail refers to “increasing renewable generation” causing “the next transmission constraint”? Identify the nameplate capacity and specific type of generation tested in the reliability or transmission model.
- (f) Refer to Vail/46:20-22. As of December 1, 2013, in what year did PacifiCorp anticipate adding the “increasing renewable generation” that caused “the next transmission constraint” as identified in (e), above? Identify the source of information (IRP or other) specifying that amount of renewable generation in that year, if possible.
- (g) Refer to Vail/47:1-6. Under the “high transfer conditions” identified here, does the transmission model assume that Jim Bridger 3 & 4 are operational, or not?
- (h) Refer to Vail/47:1-6. Specify the “high transfer conditions” studied here.
- (i) Refer to Vail/47:6-7. Explain, in detail, why the existing 345 lines west of Jim Bridger would be overloaded “even if Units 3 and 4 at Jim Bridger were retired.”?
- (j) Refer to Vail/47:1-7. Did PacifiCorp examine the need for each individual segment of the Gateway West or Gateway South projects in the absence of

Despite PacifiCorp's diligent efforts, certain information protected from disclosure by the attorney-client privilege or other applicable privileges or law may have been included in its responses to these data requests. PacifiCorp did not intend to waive any applicable privileges or rights by the inadvertent disclosure of protected information, and PacifiCorp reserves its right to request the return or destruction of any privileged or protected materials that may have been inadvertently disclosed. Please inform PacifiCorp immediately if you become aware of any inadvertently disclosed information.

UE 374/PacifiCorp
September 1, 2020
Sierra Club Data Request 12.2

generation from Jim Bridger 3 & 4? If so, identify and provide such studies. If not, why not?

- (k) Refer to Vail/47:1-7. Did PacifiCorp examine alternative mitigations (i.e. line upgrades, substation upgrades, voltage support at key locations) to relieve transmission constraints from new expected renewable energy in the absence of generation from Jim Bridger 3 & 4? If so, identify and provide such studies. If not, why not?

Response to Sierra Club Data Request 12.2

- (a) Prior to December 1, 2013, Western Electricity Coordinating Council (WECC) Path Rating studies were performed for nine transmission paths that were impacted by the addition of the Energy Gateway Project. The Western Interconnection transmission model used for the studies reflected the entire Energy Gateway Transmission project. Specific to the Energy Gateway West, the following report was prepared:

“Energy Gateway Project – Stage 1, Bridger / Anticline West (New Path 19), Path C (New Path 20) Southbound, Aeolus West (New Path) Phase 2 Path Rating Report,” Revision 5.0, dated March 24, 2010.

Subsequent to completing this technical study, PacifiCorp completed the “Aeolus West Transmission Path Transfer Capability Assessment” study, Revision 2.1, dated March 30, 2018, that focused specifically on adding the Energy Gateway West – Subsegment D.2 (Aeolus – Bridger/Anticline) Project prior to other Energy Gateway project facilities in Wyoming.

- (b) Please refer to Attachment SC 12.2 which provides copies of the reports referenced in the Company’s response to subpart (a) above.
- (c) The current Wyoming transmission system has an existing transmission constraint on the TOT 4A transmission path. The addition of the D.2 Project mitigated this constraint and allowed for the addition of the LGI Q0706 (250 megawatts (MW)) wind generation, and with the addition of 230 kV network improvements an additional 1,020 MW of queued wind generation requests could be integrated. Higher Wyoming east to west transfers were realized on the Aeolus West transmission path, which was formed by combining the D.2 Project 500 kilovolt (kV) line flows with the TOT 4A path lines flows.

Path rating studies referenced in (a) above assumed Wyoming renewable resources that were included in the Revised 2008 Integrated Resource Plan (IRP) Preferred Portfolio (May 28, 2009) totaling 2,156 MW, which would be added between 2008 and 2018. Additionally, please refer to the preferred portfolio selections of the 2013 IRP indicating 432 MW of Wyoming Wind in 2024 and an additional 218 MW of Wyoming Wind in 2025 (Table 8.7). As

UE 374/PacifiCorp
September 1, 2020
Sierra Club Data Request 12.2

described in Table 7.5, Energy Gateway Scenario Definitions, the preferred portfolio EG-02 Case-07a included Gateway segment D.

- (d) The Energy Gateway West - Subsegment D.2 and ancillary projects identified in the related interconnection studies for the renewable projects, enabled interconnection of another 1,270 MW of new wind facilities. Any further interconnections in the eastern Wyoming area would require addition of the Energy Gateway South (Aeolus-Clover) Project as referenced in the Surrebuttal Testimony of Company witness Rick A. Vail, Exhibit PAC/4200, Vail 46/22 through Vail 47/1.
- (e) Per PacifiCorp's 2017R Request for Proposals, this renewable generation would need to be in-service in 2020. Please refer to the Company's response to subpart (d) above.
- (f) The WECC 2021-22 heavy winter base case that was used for the simulation reflected generation resource requirements in a time period before Jim Bridger unit retirements were considered.
- (g) The higher transfer conditions referenced are specific to flows on both Aeolus West and Aeolus South being increased to as high a 1,700 MW.
- (h) With both Energy Gateway West – Subsegment D.2 (Aeolus – Bridger/Anticline) and Energy Gateway South (Aeolus – Clover) projects in-service, loaded simultaneously to 1,700 MW, if it is assumed that Jim Bridger Unit 3 and Jim Bridger Unit 4 are retired, there are enough remaining resources at Jim Bridger coupled with eastern Wyoming wind generation to load the Bridger West transmission path to the 2,400 MW path rating. Under this high transfer condition, if the Gateway South line trips the remaining power will flow on the Aeolus West and Bridger West transmission paths overloading the existing 345 kV lines west of Jim Bridger above their thermal ratings.
- (i) Not specifically. The scope and nature of the Energy Gateway Project has been modified over time to meet the resource needs of PacifiCorp customers.

The determination of the status of the PacifiCorp coal fleet is driven by economics and regulatory requirements that are reflected in the IRP analysis. Once a coal retirement decision is made, a formal large generator interconnection (LGI) request will be submitted to PacifiCorp Transmission to trigger a detailed evaluation to determine the impact that this coal retirement would have on the PacifiCorp transmission system. Short of such a request, any determination on the impacts of such a coal retirement are considered preliminary.
- (j) The rating of the Bridger West transmission path was increased from 2,200 MW to 2,400 MW in 2011, prior to the completion of the Bridger/Anticline West path rating, which increased transfers west of Bridger/Anticline by 1,700 MW, up to 4,100 MW. As part of the 2011 path rating analysis, every facility

Despite PacifiCorp's diligent efforts, certain information protected from disclosure by the attorney-client privilege or other applicable privileges or law may have been included in its responses to these data requests. PacifiCorp did not intend to waive any applicable privileges or rights by the inadvertent disclosure of protected information, and PacifiCorp reserves its right to request the return or destruction of any privileged or protected materials that may have been inadvertently disclosed. Please inform PacifiCorp immediately if you become aware of any inadvertently disclosed information.

UE 374/PacifiCorp
September 1, 2020
Sierra Club Data Request 12.2

was reviewed and upgraded as necessary. Therefore, any increase in the Bridger West transmission system will require transmission additions between Anticline and Populus. Technical studies evaluating the Bridger/Anticline path rating of 4,100 MW are included in the attached report:

“Energy Gateway Project – Stage 1, Bridger / Anticline West (New Path 19), Path C (New Path 20) Southbound, Aeolus West (New Path) Phase 2 Path Rating Report,” Revision 5.0, dated March 24, 2010.

Despite PacifiCorp's diligent efforts, certain information protected from disclosure by the attorney-client privilege or other applicable privileges or law may have been included in its responses to these data requests. PacifiCorp did not intend to waive any applicable privileges or rights by the inadvertent disclosure of protected information, and PacifiCorp reserves its right to request the return or destruction of any privileged or protected materials that may have been inadvertently disclosed. Please inform PacifiCorp immediately if you become aware of any inadvertently disclosed information.

Docket No. UE 374
Exhibit Sierra Club/723

**PUBLIC UTILITY COMMISSION
OF OREGON**

UE 374

SIERRA CLUB EXHIBIT 723

Cross-Examination Exhibit

Energy Gateway Project – Stage 1
Bridger / Anticline West (New Path 19)
Path C (New Path 20) Southbound
Aeolus West (New Path)
Phase 2 Path Rating Report

Submitted by

WECC Phase 2 - Bridger Area Study Group

Date;

November 24, 2010

Revision 5.0

Executive Summary	5
1. Introduction	6
1.1. Project Description	6
1.2. Plan of Service	6
1.3. Planned Operating Date	6
2. Transfer Capability	6
3. Study Methods and Standards	7
3.1. Steady-State Case Stressing	7
3.2. Post Transient	7
3.3. Reactive Margin	8
3.4. Transient Stability	8
3.5. Generation Drop via Remedial Action Schemes (RAS)	8
4. Path Definitions	8
4.1. Aeolus West (New)	8
4.2. Aeolus South (New)	9
4.3. Bridger West 345 kV (Existing)	9
4.4. Bridger / Anticline West (Modified)	9
4.5. Path C (Existing – After completion of the Populus –Terminal Project)	9
4.6. Monument – Naughton (Internal Path)	10
4.7. West of Rock Springs / Firehole (Internal Path)	10
5. Project Base Case Modifications	10
5.1. SVC Tie Line Modeling	10
5.2. Line and Transformer Rating Conflicts	10
5.3. Phase Shifter Tap Steps	10
5.4. SVDs to Shunt Conversions	10
5.5. Other System Modeling Changes / Corrections	10
5.6. PacifiCorp System Updates / Corrections	11
6. Path Studies	11
6.1. Aeolus West vs. Aeolus South	11
6.1.1. Base Case Development	11
6.1.2. Post-Transient Analysis	12
6.1.3. Reactive Margin Analysis	13
6.1.4. Transient Stability Analysis	13
6.2. Aeolus West vs. Bonanza West	14
6.2.1. Base Case Development	14
6.2.2. Post-Transient Analysis	14
6.2.3. Reactive Margin Analysis	15
6.2.4. Transient Stability Analysis	15
6.3. Aeolus West vs. Tot 1a	16
6.3.1. Base Case Development	16
6.3.2. Post-Transient Analysis	16
6.3.3. Reactive Margin Analysis	18
6.3.4. Transient Stability Analysis	18
6.4. Bridger / Anticline West vs. Aeolus South	19
6.4.1. Base Case Development	19

6.4.2.	Post-Transient Analysis	19
6.4.3.	Reactive Margin Analysis	20
6.4.4.	Transient Stability Analysis	20
6.5.	Bridger / Anticline West vs. Path C Southbound	21
6.5.1.	Base Case Development	21
6.5.2.	Post-Transient Analysis	21
6.5.3.	Reactive Margin Analysis	22
6.5.4.	Transient Stability Analysis	23
6.6.	Bridger / Anticline West vs. Bonanza West	23
6.6.1.	Base Case Development	23
6.6.2.	Post-Transient Analysis	23
6.6.3.	Reactive Margin Analysis	24
6.6.4.	Transient Stability Analysis	24
6.7.	Bridger / Anticline West vs. Idaho – Montana (Path 18)	25
6.7.1.	Base Case Development	25
6.7.2.	Post-Transient Analysis	25
6.7.3.	Reactive Margin Analysis	26
6.7.4.	Transient Stability Analysis	27
6.8.	Bridger / Anticline West vs. Monument – Naughton	27
6.8.1.	Base Case Development	27
6.8.2.	Post-Transient Analysis	27
6.8.3.	Reactive Margin Analysis	29
6.8.4.	Transient Stability Analysis	29
6.9.	Bridger / Anticline West vs. Rock Springs / Firehole	29
6.9.1.	Post-Transient Analysis	29
6.9.2.	Reactive Margin Analysis	31
6.9.3.	Transient Stability Analysis	31
6.10.	Bridger / Anticline West with the MSTI Project	31
6.10.1.	Base Case Development	31
6.10.2.	Post-Transient Analysis	31
6.10.3.	Reactive Margin Analysis	32
6.10.4.	Transient Stability Analysis	33
6.11.	Path C Southbound vs. Idaho – Montana (Path 18)	33
6.11.1.	Base Case Development	33
6.11.2.	Post-Transient Analysis	33
6.11.3.	Reactive Margin Analysis	35
6.11.4.	Transient Stability Analysis	35
6.12.	Path C Southbound vs. Bonanza West	35
6.12.1.	Base Case Development	35
6.12.2.	Post-Transient Analysis	36
6.12.3.	Reactive Margin Analysis	38
6.12.4.	Transient Stability Analysis	38
6.13.	Path C Southbound with the MSTI Project	39
6.13.1.	Base Case Development	39
6.13.2.	Post-Transient Analysis	39
6.13.3.	Reactive Margin Analysis	40
6.13.4.	Transient Stability Analysis	40

6.14. Path C Southbound vs. Monument – Naughton	41
6.14.1. Base Case Development	41
6.14.2. Post-Transient Analysis	41
6.14.3. Reactive Margin Analysis	42
6.14.4. Transient Stability Analysis	42
6.15. Path C Southbound vs. Rock Springs - Firehole	42
6.15.1. Base Case Development	42
6.15.2. Post-Transient Analysis	43
6.15.3. Reactive Margin Analysis	44
6.15.4. Transient Stability Analysis	44
7. Contingencies Studied	44
8. Study Conclusions / Recommendations	45
Appendix 1 – Post-Transient and Dynamic Contingency Lists	48
Appendix 2 - Nomograms	52
Appendix 3 – Post-transient Results Tables	67
Appendix 4 – Dynamic Stability Results Tables	90
Appendix 5 – Gateway West Study Plan	110
Appendix 21	150
TSS Approved Exceptions to the NERC/WECC Standards	150

Appendix 21 – Pages C20 – C23 from TSS Accepted Exceptions to NERC/WECC Standards

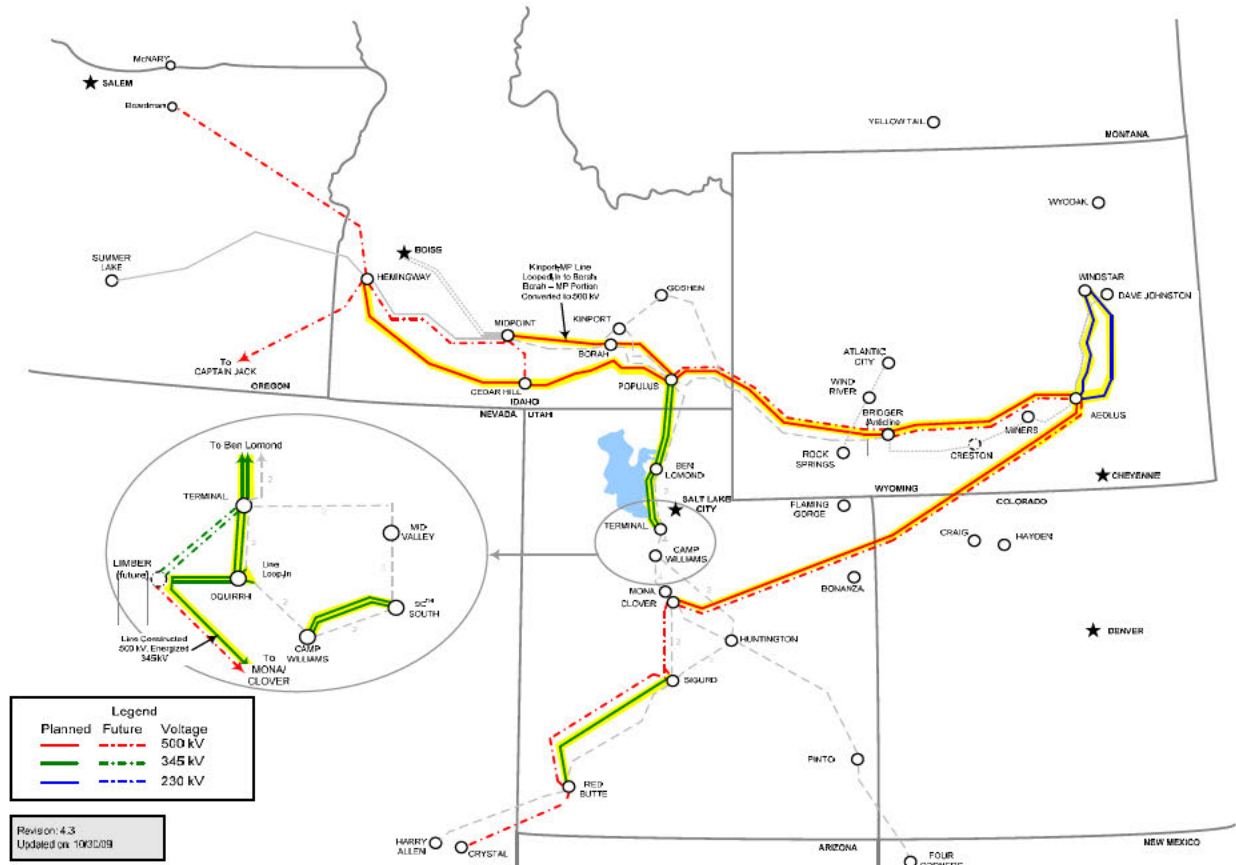
APPENDIX FILES; Located on Idaho Power’s FTP Site at; <https://fileexch.idahopower.com>

- Appendix 6-1; See file; Appendix_6-1.pdf Aeolus West vs. Aeolus South – Base Case & PT Plots
- Appendix 6-2; See file; Appendix_6-2.pdf Aeolus West vs. Aeolus South – Dynamics plots
- Appendix 7-1; See file; Appendix_7-1.pdf Aeolus West vs. Bonanza West – Base Case & PT Plots
- Appendix 7-2; See file; Appendix_7-2.pdf Aeolus West vs. Bonanza West– Dynamics plots
- Appendix 8-1; See file; Appendix_8-1.pdf Aeolus West vs. Tot 1a – Base Case & PT Plots
- Appendix 8-2; See file; Appendix_8-2.pdf Aeolus West vs. Tot 1a– Dynamics plots
- Appendix 9-1; See file; Appendix_9-1.pdf Bridger West vs. Aeolus South - Base Case & PT Plots
- Appendix 9-2; See file; Appendix_9-1.pdf Bridger West vs. Aeolus South– Dynamics plots
- Appendix 10-1; See file; Appendix_10-1.pdf Bridger West vs. Path C South – Base Case & PT Plots
- Appendix 10-2; See file; Appendix_10-2.pdf Bridger West vs. Path C South– Dynamics plots
- Appendix 11-1; See file; Appendix_11-1.pdf Bridger West vs. Bonanza West – Base Case & PT Plots
- Appendix 11-2; See file; Appendix_11-2.pdf Bridger West vs. Bonanza West – Dynamics plots
- Appendix 12-1; See file; Appendix_12-1.pdf Bridger West vs. Idaho – Montana (18) Base Case+PT Plots
- Appendix 12-2; See file; Appendix_12-2.pdf Bridger West vs. Idaho – Montana (18) – Dynamics plots
- Appendix 13-1; See file; Appendix_13-1.pdf Bridger West vs. Monument–Naughton Base Case+PT Plots
- Appendix 13-2; See file; Appendix_13-2.pdf Bridger West vs. Monument - Naughton– Dynamics plots
- Appendix 14-1; See file; Appendix_14-1.pdf Bridger West vs. Rock Spgs / FH– Base Case & PT Plots
- Appendix 14-2; See file; Appendix_14-2.pdf Bridger West vs. Rock Spgs / Firehole– Dynamics plots
- Appendix 15-1; See file; Appendix_15-1.pdf Bridger West vs. MSTI – Base Case & PT Plots
- Appendix 15-2; See file; Appendix_15-2.pdf Bridger West vs. MSTI– Dynamics plots
- Appendix 16-1; See file; Appendix_16-1.pdf Path C South vs. Idaho–Montana (18) Base Case+ PT Plots
- Appendix 16-2; See file; Appendix_16-2.pdf Path C South vs. Idaho – Montana (18) – Dynamics plots
- Appendix 17-1; See file; Appendix_17-1.pdf Path C South vs. Bonanza West– Base Case & PT Plots
- Appendix 17-2; See file; Appendix_17-2.pdf Path C South vs. Bonanza West– Dynamics plots
- Appendix 18-1; See file; Appendix_18-1.pdf Path C South vs. MSTI– Base Case & PT Plots
- Appendix 18-2; See file; Appendix_18-2.pdf Path C South vs. MSTI– Dynamics plots
- Appendix 19-1; See file; Appendix_19-1.pdf Path C South vs. Monument-Naughtn– Base Case+ PT Plots
- Appendix 19-2; See file; Appendix_19-21.pdf Path C South vs. Monument - Naughton– Dynamics plots
- Appendix 20-1; See file; Appendix_20-1.pdf Path C South vs. Rock Spgs / Firehole– Base Case & PT Plots
- Appendix 20-2; See file; Appendix_20-2.pdf Path C South vs. Rock Spgs / Firehole– Dynamics plots

Executive Summary

PacifiCorp plans to build a 500 kV transmission Project to deliver wind power from central Wyoming to central Utah and eastern Idaho. The Project consists of 500 kV transmission from central Wyoming to central Utah and a second set of 500 kV lines from Wyoming to the eastern Idaho area and eventually to the lower Columbia River system in north central Oregon. The project also consists of a 230 kV collector system in Wyoming, which delivers the output of various wind farms to a 500 / 230 kV central hub called Aeolus. Just to the northwest of the existing Dave Johnston plant, a second 230 kV hub station called Windstar will be developed with 230kV tie lines to Aeolus. See Figure 1 for a geographic depiction of the proposed facilities that comprise ‘Stage 1’ of the ultimate build-out plan for the system. As noted in the Legend, Stage 1 consists of the solid lines only.

Figure 1
Gateway Energy Project
Stage 1 - Transmission Plan



This study covers the “Bridger Area” and includes the following primary paths;

- Aeolus West
- Bridger / Anticline West
- Path C Southbound

This study shows that the proposed project meets all applicable NERC Planning Standards and WECC System Performance Criteria with minor modifications to the originally proposed plan of service.

At the start of this study, Idaho Power and PacifiCorp agreed that the Bridger West 345 kV path be studied only at 2400 MW, a 200 MW upgrade from the existing rating of 2200 MW.

1. Introduction

This report establishes that, at the proposed transfer levels, the Bridger Area of the Gateway West system has little to no impact on paths external to PacifiCorp and Idaho.

1.1. Project Description

As shown in Figure 1, the Gateway West system consists of a 230kV collector system for various wind farms in central and western Wyoming. These systems either connect to the “Tot 4a” 230kV lines or connect directly to the Windstar and Aeolus hubs. From Aeolus extends a 500 kV line to Anticline, in the Bridger vicinity, and then on to Populus. Other portions of the Gateway West project will consist of 500 kV lines from Populus to Midpoint and Hemmingway, and on to Slatt substation in Oregon. A second 500 kV line from Aeolus will extend through northwestern Colorado and into a new substation called Mona Annex (or Clover) located with a few miles of the existing Mona 345kV station.

1.2. Plan of Service

.See Appendix 5 for the Gateway West Study Plan (2010 01 19 V9 - Phase I II GW Study Plan.doc) for a detailed listing of the project components.

1.3. Planned Operating Date

The plan of service provides for the Aeolus West stage one facilities to be operational by 2016 or 2017. The Aeolus South stage two facilities will be operational by 2017 to 2019

2. Transfer Capability

This report intends to prove that the Gateway West Project has little or no significant impact to paths external to PacifiCorp. In the few instances where impacts are identified, simultaneous flow impacts will be respected. In some cases, impact remediation facilities will be installed.

Early on in this study, a request was received to analyze possible increases in the study plan table of desired capacities to allow some flexibility of delivery to Aeolus South or Aeolus West. Table 1 shows the originally proposed path ratings and actual ratings achieved.

Table 1

WECC Path Name / Number	Proposed Stage 1 Rating	Path Rating Achieved in this study
Aeolus West ¹ (New)	1500 MW	2672 MW
Bridger / Anticline West (19)	3900 MW	4100 MW
Path C (20) Southbound	2250 MW	2250 MW

The above ratings are all based on a heavy summer representation for the 2019 time frame. An analysis of a lighter load condition to study Path C northbound was requested, but a PRG approved base case was not delivered in time to be included in this study. The Path C northbound path rating will be addressed in a separate report.

The path transfer capability is limited due to NERC/WECC reliability performance requirements. The NERC/WECC “Reliability Criteria” is available at the following link: <http://www.wecc.biz/documents/library/procedures/CriteriaMaster.pdf>

3. Study Methods and Standards

3.1. Steady-State Case Stressing

Details of how each study base case was developed can be found in the Base Case Development sections of the studied system flow conditions.

3.2. Post Transient

The power flow conditions generated above are modeled with single line (N-1) outages, credible double line (N-2) outages, breaker failure outages, as well as risk assessment outages to evaluate the NERC/WECC category B, and C performance. All modeled system bus voltages and line, transformer, and series capacitor current flows are monitored. Voltage deviations greater than 5% and significant overloaded elements, with greater than a 2% change in flow, are reported in the tables located in the appendices. Engineering judgment was used to determine whether the overloading was relevant to the area. For example, some contingencies in the PACE area caused parallel transformer tap changers in B.C.Hydro and Alberta to head in opposite directions, leading to circulating Vars overloading the transformers. These loading issues are clearly a defect in modeling built into the original base cases and these loadings have not been included in the reports.

For PacifiCorp’s Wyoming system, voltages less than .90 pu are reported. For Montana buses on Path 18 for Level B and C contingencies, .90 pu voltage is required. For Idaho and PacifiCorp Path 18 buses, voltages less than .87 pu are limiting for Level B and C contingencies. For Level C contingencies, under-voltage load tripping at Amps, Peterson Flats, and Big Grassy is allowed to restore system voltages.

¹ The study plan definition of Aeolus West as only the Aeolus – Anticline 500 kV line. During the course of this study, the definition was modified to include three 230 kV lines.

Violations of the NERC/WECC allowed performance are identified in the summary paragraphs for each path relationship / nomogram section.

3.3. Reactive Margin

Idaho Power's reactive margin requirements are;

- For N-1 outages; 500 MVAR for 500 kV and 250 MVAR for 345 and 230 kV.
- For N-2 outages; 400 MVAR for 500 KV and 200 MVAR for 345 and 230 kV

For this study, Idaho is assumed to be the owner of the following margin tested buses;

- Borah 500
- Borah 345
- Kinport 345
- Midpoint 500
- Hemmingway 500
- Cedar Hill 500

The WECC also requires that new rated paths or facilities be scheduled at 2.5% for all level C contingencies and 5% over their rated capacities for Level B contingencies to test for voltage collapse. Each starting nomogram corner case was modified to increase the flow by 5% and checked that a solution was attained for each outage.

3.4. Transient Stability

Utilizing GE PSLF software, select single line (N-1) and double line (N-2) and other outages were studied to evaluate transient stability performance. Relevant bus voltage and frequency violations of the NERC/WECC allowed performance are documented in Appendix 4.

3.5. Generation Drop via Remedial Action Schemes (RAS)

In order to maintain PacifiCorp's current level of reserve requirements (for Bridger contingencies), Wyoming wind generation dropping via RAS was limited to 600 MW for single line outage contingencies (N-1) and 1200 MW for double line outage contingencies.

4. Path Definitions

Both new and existing path definitions are as follows, with a '*' denoting the metering points.

4.1. Aeolus West (New)

The Aeolus West transmission path is a constrained path and is defined as the sum of the flows on the following lines: (this defn differs from the study plan)

- Aeolus* – Anticline 500 kV
- Platte* – Latham 230 kV
- Mustang* - Bridger 230 kV

- Riverton* - Wyopo 230 kV

4.2. Aeolus South (New)

The Aeolus South path is a constrained path and is defined as the sum of the flows on only one line:

- Aeolus* – Mona Annex 500 kV

4.3. Bridger West 345 kV (Existing)

The Bridger / Anticline West constrained path and is defined as the sum of the flows on the following lines:

- Bridger* – 3 Mile Knoll 345 kV
- Bridger* – Populus 345 kV #1
- Bridger* – Populus 345 kV #2

Bridger West, comprising only the existing 345 kV lines from Bridger, is currently rated at 2200 MW. With the Gateway West Project, this path rating is planned to increase to 2400 MW.

4.4. Bridger / Anticline West (Modified)

The Bridger / Anticline West constrained path and is defined as the sum of the flows on the following lines:

- Anticline* – Populus 500 kV
- Bridger* – 3 Mile Knoll 345 kV
- Bridger* – Populus 345 kV #1
- Bridger* – Populus 345 kV #2

With the Gateway West Project this Path is anticipated to be rated at 4100 MW.

4.5. Path C (Existing – After completion of the Populus –Terminal Project)

Path C is a constrained path and is defined as the sum of the flows on the following lines:

- Terminal – Populus* 345 kV
- Ben Lomond – Populus* 345 kV #2
- Ben Lomond – Populus* 345 kV #3
- Treasureton – Brady* 230 kV
- Fish Creek – Goshen* 161 kV
- Malad - American Falls *138 kV
- 3 Mile Knoll 138 / 345* kV Transformer
- 3 Mile Knoll* - Hooper Spur 138 kV

After completion of the Populus – Terminal Project, Path C will have a southbound rating of 1600 MW and a northbound rating of 1250 MW. With the Gateway West Project, the Path C rating goals are 2250 MW bi-directional.

4.6. Monument – Naughton (Internal Path)

Monument – Naughton is a path internal to PacifiCorp, is not registered with the WECC, and is defined as the sum of the flows on the following lines:

- Monument PST* – Craven Creek 230 kV
- Monument PST* – Naughton 230 kV

4.7. West of Rock Springs / Firehole (Internal Path)

Monument – Naughton is a path internal to PacifiCorp, is not registered with the WECC, and is defined as the sum of the flows on the following lines:

- Rock Springs* – Palisade 230 kV
- Firehole* - Mansface 230 kV

5. Project Base Case Modifications

The following describes various changes to the base cases to resolve PSLF solution convergence issues.

5.1. SVC Tie Line Modeling

At St. George, Red Butte, Platte, and Aeolus, tie lines between the SVC and the main substation bus had too low an impedance to obtain reliable solutions in PSLF. These impedances were adjusted to be above the Z threshold to get the cases to reliably converge. In some instances, the Red Butte SVC had to be disconnected to obtain a valid solution.

5.2. Line and Transformer Rating Conflicts

From the original WECC base cases there are some instances where the emergency ratings (MVA2) are lower than the normal ratings (MVA1). The consequences of this are that the Post-transient flow program output would get clogged with reports of overloads that are not real. To reduce the erroneous reports, a program was run to set the emergency ratings at least equal to the normal ratings.

5.3. Phase Shifter Tap Steps

Most of the controlled flow phase shifter tap steps were changed to zero degrees to allow for fine tuning of the path flows.

5.4. SVDs to Shunt Conversions

In the PacifiCorp system, many of the Static Var Devices (SVDs) were disconnected and replaced with shunt capacitors and reactors to allow forcing of the devices to correct voltage profiles while keeping generator reactive within reasonable limits.

5.5. Other System Modeling Changes / Corrections

Several cases involving heavy Path C southbound flows resulted in Aeolus flows greater than 1700 MW. To keep the Aeolus south flows within the 1700 MW limit, a small portion of the

series capacitors closest to Aeolus were bypassed (by modifying the bank impedance) on the Aeolus – Mona Annex 500 kV line.

On the starting base case, errors were noted on the PDCI B-Face table such that the PDCI flows were being incorrectly reported. This was corrected via an epcl routine.

5.6. PacifiCorp System Updates / Corrections

Through the course of the study, modeling errors were noted in both the existing system in the Gateway West proposed facilities. To track case versions, these changes also describe case version code changes;

1. Early on in the studies, a reactive deficiency at Bonanza was noted. At the recommendation of Deseret Energy, the 345 kV line reactor was removed from the Bonanza – Mona 345 kV line and a 60 MVar shunt capacitor was added to the Bonanza 138 kV bus. A previously suggested load addition at Chapita 138 was not added due to the lack of a plan of service study. At about the same time it was noted that the SVDs modeled at the Tot 4a 230kV buses were causing the PT cases to diverge. To fix this problem, the SVDs were converted to shunts and switched via RAS in the switching files. These changes, along with a rating change of the Malad – American Falls 138 kV line were incorporated into cases identified by the version code ‘8h5’.
2. An error was found in the conversion of the cases from PSSE to PSLF in the shunt tables. In PSSE, shunts are part of the bus records, and if they are off line, they are simply deleted from the record. When converting to PSLF, this information is lost. An EPCL was developed to incorporate the original shunt tables from the parent WECC case. The case version code for this change was ‘8h6’.
3. In the approved project case, only transformer and phase shifters connected to Anticline 500 kV to Bridger 345. A change was requested to add the 5 mile section of 345 kV line between Anticline and Bridger with the transformers and phase shifters located at Anticline. Also, the addition of Riverton – Wyopo 230 kV line to the Aeolus West interface. The case version code for this change was ‘8h7’.
4. Errors were noted in the representation of the Aeolus area shunts and SVC. The SVC was increased to +450 MVar. At this same time, the fixed SVD at Spence was removed and replaced with a switchable shunt and the Pinto phase shifter impedance was corrected. The case version code for this change was ‘8h8’.
5. After it was found that the Platte – Miners and Platte – Latham 230 kV lines were constraining Aeolus West flows, it was decided to change the emergency rating (MVA2) to the 30 minute rating of 521 MVA for both of these lines. As the network topology did not change, the version code remained at ‘8h8’.

6. Path Studies

6.1. Aeolus West vs. Aeolus South

6.1.1. Base Case Development

The Gateway West Project base case was modified to stress Aeolus West to 2672 MW with several cases spanning a range of Aeolus South flows. The primary resource for stressing Aeolus West was the Wyoming Wind developments. Aeolus South flows were stressed by varying; 1) Current Creek generation, 2) IPP DC flows and the wind generation connected to IPP 345, and lastly, Nevada generation and Tot 2C flows.

For cases with Aeolus South flows at 1700 MW, Aeolus West flows were fine tuned by varying schedules from WAPA (73) to the Northwest (40). Shunt capacitors were added to Mona Annex 500 kV to support the high flows into central Utah. Path flows for each of the above cases are shown on Appendix 3-1. The resulting nomogram is shown on Appendix 2-1.

Finally, two margin test cases were developed with 5% additional flows across 1) Aeolus West path and 2) Aeolus South path. These cases are shown near the bottom of Appendix 3-1.

6.1.2. Post-Transient Analysis

Appendix 3-1 contains the tables associated with the post-transient study results for the import cases. A discussion of several of the prominent outages follows.

- **Anticline – Populus 500 kV Line (Contingency B01 and RAS variations)**

This outage results in overloads on the Bridger – 3 Mile Knoll 345 kV line. In the cases, the line is rated at 1840 Amps and this loading information has been requested for design input to PacifiCorp to determine the magnitude of rating increase needed to rebuild the single conductor portions of the line capable of withstanding the most severe contingencies imposed by the Gateway West Project. Several RAS options are shown to allow selection of line upgrade costs vs. the risks inherent with RAS.

- **Aeolus – Anticline 500 kV Line (Contingency B35 and RAS variations)**

This contingency diverges without any RAS actions. However with RAS actions as noted for the B35g, (600 MW of Aeolus area generation dropping, 500 kV switchable capacitors applied, additional 230kV capacitors at Mustang, Riverton, and additional capacitors on Path 18) becomes the limiting contingency for both nomogram corners. This outage results in overloads on the Miners – Platte 230 kV line even when the 521 MVA 30 minute emergency rating is used, and thereby sets the PT limit for this contingency.

- **Aeolus – Mona Annex (Clover) 500 kV Line (Contingency B36 and RAS variations)**

This contingency also diverges without any RAS actions. However, with 600 MW of generation dropping and 500 kV and 230 kV switchable capacitor applications, the contingency problems are fully resolved.

- **Bridger – Populus 345 kV Lines 1 & 2 (C02 and RAS variations)**

This outage results in overloads on the Bridger – 3 Mile Knoll 345 kV line. However, as noted above, the loading numbers are to be used as a design input for rebuilding the limiting conductor sections. Some voltage deviation problems are noted, but these issues are fully mitigated with RAS switching.

- **Bridger – Populus & Bridger – 3 Mile Knoll 345 kV Lines (C03 and RAS variations)**

This outage resulted in overloads of the Bridger – Rock Springs 230kV line. Follow-up cases with Bridger generation dropping and additional RAS action on Path 18 resolve both the loading problem and the voltage deviation issues on Path 18.

- **Palo Verde 2-unit loss with FACRI (N-2)**

This contingency, with FACRI action and Desert SW load dropping planned for this event resulted in overloads of Springer – Gladstone 115 kV line for one corner point of the nomogram and an overload of Merwin – View Tap 115kV line for the other corner point. Springer – Gladstone is a known problem for which remediation is already planned. The Merwin – View tap problem is also a known problem related to north to south flows on transmission into the Vancouver, WA and Portland, OR loads.

6.1.3. Reactive Margin Analysis

Both corner points of the nomogram were tested with +5% flow cases as noted near the bottom of Appendix 3-1. Both corner +5% cases solved for all contingencies (with appropriate RAS actions), indicating sufficient reactive margins for both Level B and Level C contingencies. Idaho's reactive margin requirements were also met for all contingencies (with appropriate RAS actions).

6.1.4. Transient Stability Analysis

As shown on Appendix 4-1, dynamic simulations were run on both nomogram corner points. Contingency B08 and B09 with RAS variations, resulted in back swing under-frequency deviations. However, these deviations are within the exceptions for Bridger that are filed with the WECC. See Appendix 21 for details of the TSS Approved exceptions for Bridger.

Contingency B15 (Aeolus – Anticline 500 kV line) also produced voltage and frequency deviations. However, these were mitigated with some of the RAS actions simulated in the PT contingencies.

Contingency B16 (Aeolus – Mona Annex 500 kV line) also produced voltage deviations. However, these were mitigated with some of the RAS actions simulated in the PT contingencies. Blundel #2 also lost synchronism and went out-of-step. Blundel #2 is known as having modeling problems where the unit losses synchronism for very remote faults. This result is not relevant to this study.

6.2. Aeolus West vs. Bonanza West

6.2.1. Base Case Development

The Gateway West Project base case was modified to stress Aeolus West to 2666 MW with several cases with Bonanza West flows at 785 MW and 685 MW. The primary resource for stressing Aeolus West was the Wyoming Wind developments. Bonanza West flows were stressed by varying; 1) Current Creek generation, and 2) IPP DC flows and the wind generation connected to IPP 345. From the starting point (2666, 785) Aeolus West flows were cut by 100 MW to 2566 MW by varying schedules from WAPA (73) to the Northwest (40). Path flows for each of the above cases are shown on Appendix 3-2. The resulting nomogram is shown on Appendix 2-2.

Two margin test cases were developed with 5% additional flows across 1) Aeolus West path and 2) Bonanza West path. These cases are shown near the bottom of Appendix 3-2.

6.2.2. Post-Transient Analysis

Appendix 3-2 contains the tables associated with the post-transient study results for the Aeolus West vs. Bonanza West cases. A discussion of several of the prominent outages follows.

- **Anticline – Populus 500 kV Line (Contingency B01 and RAS variations)**

This outage results in overloads on the Bridger – 3 Mile Knoll 345 kV line. In the cases, the line is rated at 1840 Amps and this loading information has been requested for design input to PacifiCorp to determine the magnitude of rating increase needed to rebuild the single conductor portions of the line capable of withstanding the most severe contingencies imposed by the Gateway West Project. Several RAS options are shown to allow selection of line upgrade costs vs. the risks inherent with RAS.

- **Bridger – 3 Mile Knoll 345 kV Lines (B04 and RAS variations)**

For this outage, loadings are within emergency ratings. However, voltage deviations and deviations from the .90 pu standard for Path 18 are noted. Subsequent simulations with RAS actions fully resolve these issues.

- **Aeolus – Anticline 500 kV Line (Contingency B35 and RAS variations)**

This contingency diverges without any RAS actions. However with RAS actions as noted for the B35g, (600 MW of Aeolus area generation dropping, 500 kV switchable capacitors applied, additional 230kV capacitors at Mustang, Riverton, and additional capacitors on Path 18) becomes the limiting contingency for both nomogram corners. This outage results in overloads on the Miners – Platte 230 kV line even with the 521 MVA 30 minute emergency rating, and thereby sets the PT limit for this contingency.

- **Aeolus – Mona Annex (Clover)500 kV Line (Contingency B36 and RAS variations)**

This contingency also diverges without any RAS actions. However, with 600 MW of generation dropping and 500 kV and 230 kV switchable capacitor applications, the contingency problems are fully resolved.

- **Bonanza – Mona 345 kV Line (B40 and B40a with RAS)**

For this outage, a total of 10 elements overload, with the worst being the Bonanza – Vernal 138 kV line that loads to 133.42% of its emergency rating. Contingency 40a, with the existing Bonanza generation dropping RAS, fully resolves the loading and voltage deviations issues.

- **Bridger – Populus 345 kV Lines 1 & 2 (C02 and RAS variations)**

This outage results in overloads on the Bridger – 3 Mile Knoll 345 kV line. However, as noted above, the loading numbers are to be used as a design input for rebuilding the limiting conductor sections. Some voltage deviation problems are noted, but these issues are fully mitigated with RAS switching.

- **Bridger – Populus & Bridger – 3 Mile Knoll 345 kV Lines (C03 and RAS variations)**

This outage resulted on overloads of the Bridger – Rock Springs 230kV line. Follow-up cases with Bridger generation dropping and additional RAS action on Path 18 resolve both the loading problem and the voltage deviation issues on Path 18.

- **Palo Verde 2-unit loss with FACRI (N-2)**

This contingency, with FACRI action and Desert SW load dropping planned for this event resulted in overloads of Springer – Gladstone 115 kV line. Springer – Gladstone is a known problem for which remediation is already planned.

6.2.3. Reactive Margin Analysis

Both corner points of the nomogram were tested with +5% flow cases as noted near the bottom of Appendix 3-2. Both corner +5% cases solved for all contingencies (with appropriate RAS actions), indicating sufficient reactive margins for both Level B and Level C contingencies. Idaho's reactive margin requirements were also met for all contingencies (with appropriate RAS actions).

6.2.4. Transient Stability Analysis

As shown on Appendix 4-2, dynamic simulations were run on both nomogram corner points. Contingency B08 and B09 with RAS variations, resulted in back swing under-frequency deviations. For contingency B09c, the backswing exceeded the “exceptions” for Bridger that are filed with the WECC. See Appendix 21 for details of the TSS Approved exceptions for Bridger. If this deviation is determined to be acceptable and not a risk to tripping the Bridger units, an amendment to the WECC exceptions list could easily resolve this issue.

Contingency B15 (Aeolus – Anticline 500 kV line) also produced voltage and frequency deviations. However, these were mitigated with some of the RAS actions simulated in the PT contingencies.

Contingency B16 (Aeolus – Mona Annex (Clover) 500 kV line) for the second base case (785, 2666) also produced voltage deviations and a over-excitation limiter (OEL1) relay trip of the Bonanza unit. Follow-up RAS cases with generation drop RAS and capacitor switching did not resolve the OEL trips. A further investigation into the OEL1 relay resulted in new relay data from Deseret Energy. However, the new data also resulted in a trip of Blundel #2 in addition to the OEL trip of Bonanza. After checking the dynamics plots it was found that the excitation current was well below the OEL1 trip setting. A further test with the trip functions of the OEL relay disabled produced stable operation and generator field currents well within the maximums. From this, it is concluded to be a relay / modeling problem and is not a problem associated with Gateway West transfers. If a more detailed analysis determines Bonanza OEL1 relay settings to be correct and the field current to be a real problem, a 60 MVar switchable cap (#2) could be added to get the generator off its excitation / Var limits. This sensitivity analysis is provided on line 86 of Appendix 4-2.

6.3. Aeolus West vs. Tot 1a

6.3.1. Base Case Development

The Gateway West Project base case was modified to stress Aeolus West to 2672 MW with several cases with Tot 1a flows at 650 MW and 550 MW. The primary resource for stressing Aeolus West was the Wyoming Wind developments. Tot 1a flows were stressed by varying; 1) Bonanza generation, 2) Craig / Hayden generation, 3) Current Creek generation, and 4) IPP DC flows and the wind generation connected to IPP 345. Craig #3 generation was modeled at 430² MW which is above the governor limit shown in the dynamics data file. From the starting point (2672, 650) Aeolus West flows were cut by 100 MW to 2572 MW by varying schedules from WAPA (73) to the Northwest (40). Path flows for each of the above cases are shown on Appendix 3-3. The resulting nomogram is shown on Appendix 2-3.

One margin test cases was developed with 5% additional flows across the Aeolus West path and Tot 1a. These cases are shown near the bottom of Appendix 3-3.

6.3.2. Post-Transient Analysis

Appendix 3-3 contains the tables associated with the post-transient study results for the Aeolus West vs. Bonanza West cases. A discussion of several of the prominent outages follows.

- **Anticline – Populus 500 kV Line (Contingency B01 and RAS variations)**

² An email request for this modeling change was made to Tri-State on June 17, 2010. As of this writing, no response has been received.

This outage results in overloads on the Bridger – 3 Mile Knoll 345 kV line. In the cases, the line is rated at 1840 Amps and this loading information has been requested for design input to PacifiCorp to determine the magnitude of rating increase needed to rebuild the single conductor portions of the line capable of withstanding the most severe contingencies imposed by the Gateway West Project. Several RAS options are shown to allow selection of line upgrade costs vs. the risks inherent with RAS.

- **Bridger – 3 Mile Knoll 345 kV Lines (B04 and RAS variations)**

For this outage, loadings are within emergency ratings. However, voltage deviations and deviations from the .90 pu standard for Path 18 are noted. Subsequent simulations with RAS actions fully resolve these issues.

- **Aeolus – Anticline 500 kV Line (Contingency B35 and RAS variations)**

This contingency diverges without any RAS actions. However with RAS actions as noted for the B35g, (600 MW of Aeolus area generation dropping, 500 kV switchable capacitors applied, additional 230kV capacitors at Mustang, Riverton, and additional capacitors on Path 18) becomes the limiting contingency for both nomogram corners. This outage results in overloads on the Miners – Platte 230 kV line even with the 521 MVA 30 minute emergency rating, and thereby sets the PT limit for this contingency.

- **Aeolus – MonanX (Clover) 500 kV Line (Contingency B36 and RAS variations)**

This contingency also diverges without any RAS actions. However, with 600 MW of generation dropping and 500 kV and 230 kV switchable capacitor applications, the only issues remaining are voltage deviations greater than 5% in the Bonanza area. A shunt capacitor, discussed later in this report, may be available to bring the Bonanza generator off of its upper Var limit and thereby reduce the voltage deviations to acceptable limits.

- **Bonanza – Mona 345 kV Line (B40 and B40a with RAS)**

For this outage, a total of 10 elements overload, with the worst being the Boanza – Vernal 138 kV line that loads to 133.42% of its emergency rating. Contingency 40a, with the existing gen drop RAS, fully resolves the loading and voltage deviations issues.

- **Bridger – Populus 345 kV Lines 1 & 2 (C02 and RAS variations)**

This outage results in overloads on the Bridger – 3 Mile Knoll 345 kV line. However, as noted above, the loading numbers are to be used as a design input for rebuilding the limiting conductor sections. Some voltage deviation problems are noted, but these issues are fully mitigated with RAS switching.

- **Bridger – Populus & Bridger – 3 Mile Knoll 345 kV Lines (C03 and RAS variations)**

This outage resulted on overloads of the Bridger – Rock Springs 230kV line. Follow-up cases with Bridger generation dropping and additional RAS action on Path 18 resolve both the loading problem and the voltage deviation issues on Path 18.

- **Palo Verde 2-unit loss with FACRI (N-2)**

This contingency, with FACRI action and Desert SW load dropping planned for this event resulted in overloads of Springer – Gladstone 115 kV line. Springer – Gladstone is a known problem for which remediation is already planned.

6.3.3. Reactive Margin Analysis

As shown near the bottom of Appendix 3-3, One simultaneous case was developed with +5% on Aeolus West and Tot 1a. This case solved for all contingencies (with appropriate RAS actions), indicating sufficient reactive margins for both Level B and Level C contingencies. Idaho's reactive margin requirements were also met for all contingencies (with appropriate RAS actions).

6.3.4. Transient Stability Analysis

As shown on Appendix 4-3, dynamic simulations were run on both nomogram corner points. Contingency B08 and B09 with RAS variations, resulted in back swing under-frequency deviations. For contingency B09c, the backswing exceeded the exceptions for Bridger that are filed with the WECC. See Appendix 21 for details of the TSS Approved exceptions for Bridger. If this deviation is determined to be acceptable and not a risk to tripping the Bridger units, an amendment to the WECC exceptions list could easily resolve this issue.

Contingency B15 (Aeolus – Anticline 500 kV line) also produced voltage and frequency deviations. However, these were mitigated with some of the RAS actions simulated in the PT contingencies.

Contingency B16 (Aeolus – Mona Annex (Clover) 500 kV line) for the second base case (650, 2522) resulted in an over-excitation limiter (OEL1) relay trip of the Bonanza unit. Follow-up RAS cases with generation drop RAS and capacitor switching did not resolve the OEL trips. A further investigation into the OEL1 relay resulted in new relay data from Deseret Energy. However, was not successful in elimination of the Bonanza OEL trip. After checking the dynamics plots it was found that the excitation current was well below the OEL1 trip setting. A further test with the trip functions of the OEL relay disabled. The resulting run produced stable operation and generator field currents well within the maximums. From this, it is concluded to be a relay / modeling problem and is not a problem associated with Gateway West transfers. If a more detailed analysis determines Bonanza OEL1 relay settings to be correct and the field current to be a real problem, a 60 MVar switchable cap (#2) could be added to get the generator off its excitation / Var limits.

6.4. Bridger / Anticline West vs. Aeolus South

6.4.1. Base Case Development

The Gateway West Project base case was modified to stress Bridger / Anticline West to 4100 MW with several cases spanning a range of Aeolus South flows from 1500 MW to 1700 MW. The primary resource for stressing Bridger / Anticline West was the Wyoming Wind developments. Aeolus South flows were controlled by varying; 1) Current Creek generation, 2) IPP DC flows and the wind generation connected to IPP 345, and lastly, Nevada generation and Tot 2C flows.

For cases with Aeolus South flows at 1700 MW, Bridger / Anticline West flows were fine tuned by varying schedules from WAPA (73) to the Northwest (40). Shunt capacitors were added to Mona Annex (Clover) 500 kV to support the high flows into central Utah. Path flows for each of the above cases are shown on Appendix 3-4. The resulting nomogram is shown on Appendix 2-4.

Finally, two margin test cases were developed with 5% additional flows across 1) Aeolus West path and 2) Aeolus South path. These cases are shown near the bottom of Appendix 3-4.

6.4.2. Post-Transient Analysis

Appendix 3-4 contains the tables associated with the post-transient study results for the import cases. A discussion of several of the prominent outages follows.

- **Anticline – Populus 500 kV Line (Contingency B01 and RAS variations)**

This outage results in overloads on the Bridger – 3 Mile Knoll 345 kV line. In the cases, the line is rated at 1840 Amps and this loading information has been requested for design input to PacifiCorp to determine the magnitude of rating increase needed to rebuild the single conductor portions of the line capable of withstanding the most severe contingencies imposed by the Gateway West Project. Several RAS options are shown to allow selection of line upgrade costs vs. the risks inherent with RAS.

- **Aeolus – Anticline 500 kV Line (Contingency B35 and RAS variations)**

This contingency diverges without any RAS actions. However with RAS actions as noted for the B35g, (600 MW of Aeolus area generation dropping, 500 kV switchable capacitors applied, additional 230kV capacitors at Mustang, Riverton, and additional capacitors on Path 18) becomes the limiting contingency for both nomogram corners. For the upper left nomogram corner point, this outage results in overloads of the Bridger 345 / 230 kV transformer #2, and thereby sets the PT limit. For the lower right nomogram point, this outage results in overloads of three critical elements, the worst of which is the Miners – Platte 230 kV line.

- **Aeolus – Mona Annex (Clover) 500 kV Line (Contingency B36 and RAS variations)**

This contingency also diverges without any RAS actions. However, with 600 MW of generation dropping and 500 kV and 230 kV switchable capacitor applications, the contingency problems are fully resolved.

- **Bridger – Populus 345 kV Lines 1 & 2 (C02 and RAS variations)**

This outage results in overloads on the Bridger – 3 Mile Knoll 345 kV line. However, as noted above, the loading numbers are to be used as a design input for rebuilding the limiting conductor sections. Some voltage deviation problems are noted, but these issues are fully mitigated with RAS switching.

- **Bridger – Populus & Bridger – 3 Mile Knoll 345 kV Lines (C03 and RAS variations)**

This outage resulted on overloads of the Bridger – Rock Springs 230kV line. Follow-up cases with Bridger generation dropping and additional RAS action on Path 18 resolve both the loading problem and the voltage deviation issues on Path 18.

- **Palo Verde 2-unit loss with FACRI (N-2)**

This contingency, with FACRI action and Desert SW load dropping planned for this event resulted in overloads of Springer – Gladstone 115 kV line. Springer – Gladstone is a known problem for which remediation is already planned.

6.4.3. Reactive Margin Analysis

Both corner points of the nomogram were tested with +5% flow cases as noted near the bottom of Appendix 3-4. Both corner +5% cases solved for all contingencies (with appropriate RAS actions), indicating sufficient reactive margins for both Level B and Level C contingencies. Idaho's reactive margin requirements were also met for all contingencies (with appropriate RAS actions).

6.4.4. Transient Stability Analysis

As shown on Appendix 4-4, dynamic simulations were run on cases near the nomogram corner points. Contingency B08 and B09 with RAS variations, resulted in back swing under-frequency deviations. However, these deviations are within the “exceptions” for Bridger that are filed with the WECC. See Appendix 21 for details of the TSS Approved exceptions for Bridger.

Contingency B15 (Aeolus – Anticline 500 kV line) also produced voltage and frequency deviations. However, these were mitigated with some of the RAS actions simulated in the PT contingencies.

Contingency B16 (Aeolus – Mona Annex (Clover) 500 kV line) also produced voltage deviations. However, these were mitigated with some of the RAS actions simulated in the PT contingencies.

6.5. Bridger / Anticline West vs. Path C Southbound

6.5.1. Base Case Development

The Gateway West Project base case was modified to stress Bridger / Anticline West to 4100 MW with several cases spanning a range of Path C Southbound flows from 1450 to 1550 MW. The primary resource for stressing Bridger / Anticline West was the Wyoming Wind developments. Path C Southbound flows were controlled by varying; 1) Northwest (40) generation, and 2) PACE area generation including Current Creek, Lakeside, and Huntington.

A second case with Path C southbound flows at 2250 MW, and Bridger / Anticline West reduced to 3900 MW was very difficult to schedule without overloading the Aeolus South path. Additional cases with higher Bridger / Anticline West were not attainable. The resulting nomogram is shown on Appendix 2-5.

Two margin test cases were developed with 5% additional flows across 1) Bridger / Anticline West and 2) Path C Southbound. These cases are shown near the bottom of Appendix 3-5.

6.5.2. Post-Transient Analysis

Appendix 3-5 contains the tables associated with the post-transient study results for the import cases. A discussion of several of the prominent outages follows.

- **Anticline – Populus 500 kV Line (Contingency B01 and RAS variations)**

This outage results in overloads on the Bridger – 3 Mile Knoll 345 kV line. In the cases, the line is rated at 1840 Amps and this loading information has been requested for design input to PacifiCorp to determine the magnitude of rating increase needed to rebuild the single conductor portions of the line capable of withstanding the most severe contingencies imposed by the Gateway West Project. Several RAS options are shown to allow selection of line upgrade costs vs. the risks inherent with RAS.

- **Aeolus – Anticline 500 kV Line (Contingency B35 and RAS variations)**

This contingency diverges without any RAS actions. However with RAS actions as noted for the B35g, (600 MW of Aeolus area generation dropping, 500 kV switchable capacitors applied, additional 230kV capacitors at Mustang, Riverton, and additional capacitors on Path 18) resolves the voltage deviation problems. The Jefferson phase shifter overload shown is based on an emergency rating of 100 MVA. When corrected to the true rating of 112 MVA, the overload is resolved.

- **Aeolus – MonanX (Clover) 500 kV Line (Contingency B36 and RAS variations)**

This contingency also diverges without any RAS actions. With 600 MW of generation dropping and 500 kV and 230 kV switchable capacitor applications, the Grace – Soda 138 kV line remains overloaded, indicating the need for bypassing ½ of the 3 Mile Knoll series capacitor or reconductoring of the Grace – Soda 138 kV line.

- **Bridger – Populus 345 kV Lines 1 & 2 (C02 and RAS variations)**

This outage results in overloads on the Bridger – 3 Mile Knoll 345 kV line. However, as noted above, the loading numbers are to be used as a design input for rebuilding the limiting conductor sections. Some voltage deviation problems are noted, but these issues are fully mitigated with RAS switching.

- **Bridger – Populus & Bridger – 3 Mile Knoll 345 kV Lines (C03 and RAS variations)**

This outage resulted in an overload of the Bridger – Rock Springs 230kV line. Follow-up cases with Bridger generation dropping and additional RAS action on Path 18 resolve both the loading problem and the voltage deviation issues on Path 18.

- **Path C Double Line Outages (Contingencies C09, C10, C11, & C12)**

This outage resulted in an overload of the Grace – Soda 138 kV line, indicating the need for bypassing ½ of the 3 Mile Knoll series capacitor or reconductoring of the Grace – Soda 138 kV line.

- **Palo Verde 2-unit loss with FACRI (N-2)**

This contingency, with FACRI action and Desert SW load dropping planned for this event resulted in overloads of Springer – Gladstone 115 kV line. Springer – Gladstone is a known problem for which remediation is already planned.

6.5.3. Reactive Margin Analysis

Both corner points of the nomogram were tested with +5% flow cases as noted near the bottom of Appendix 3-5. Both corner +5% cases solved for all contingencies (with appropriate RAS actions), indicating sufficient reactive margins for both Level B and Level C contingencies. Idaho's reactive margin requirements were also met for all contingencies (with appropriate RAS actions). While it would appear that the Level C (N-2) contingencies do not meet Idaho's reactive margin requirements, a review of the margin tables shows the lowest margins for contingencies C03 & C04. Follow-up RAS scenarios fully resolve margin deficiencies noted by red shaded cells.

6.5.4. Transient Stability Analysis

As shown on Appendix 4-5, dynamic simulations were run on both nomogram corner points. Contingency B08 and B09 with RAS variations, resulted in back swing under-frequency deviations. However, these deviations are within the “exceptions” for Bridger that are filed with the WECC. See Appendix 21 for details of the TSS Approved exceptions for Bridger.

Contingency B15 (Aeolus – Anticline 500 kV line) also produced voltage and frequency deviations. However, these were mitigated with some of the RAS actions simulated in the PT contingencies.

Contingency B16 (Aeolus – Mona Annex 500 kV line) also produced voltage deviations. However, these were mitigated with some of the RAS actions simulated in the PT contingencies.

6.6. Bridger / Anticline West vs. Bonanza West

6.6.1. Base Case Development

The Gateway West Project base case was modified to stress Bridger / Anticline West to 4100 MW with several cases spanning a range of Bonanza West flows. The primary resource for stressing Bridger / Anticline West was the Wyoming Wind developments. Bonanza West flows were controlled by varying; 1) Bonanza generation, 2) Craig / Hayden generation, 3) Currant Creek generation, and 4) IPP DC flows and the wind generation connected to IPP 345.

For cases with Aeolus South flows at 1700 MW, Bridger / Anticline West flows were fine tuned by varying schedules from WAPA (73) to the Northwest (40). Shunt capacitors were added to Mona Annex 500 kV to support the high flows into central Utah. Path flows for each of the above cases are shown on Appendix 3-6. The resulting nomogram is shown on Appendix 2-6.

Finally, two margin test cases were developed with 5% additional flows across 1) Aeolus West path and 2) Bonanza West path. These cases are shown near the bottom of Appendix 3-6.

6.6.2. Post-Transient Analysis

Appendix 3-6 contains the tables associated with the post-transient study results for the import cases. A discussion of several of the prominent outages follows.

- **Anticline – Populus 500 kV Line (Contingency B01 and RAS variations)**

This outage results in overloads on the Bridger – 3 Mile Knoll 345 kV line. In the cases, the line is rated at 1840 Amps and this loading information has been requested for design input to PacifiCorp to determine the magnitude of rating increase needed to rebuild the single conductor portions of the line capable of withstanding the most severe contingencies imposed by the Gateway West Project. Several RAS options are shown to allow selection of line upgrade costs vs. the risks inherent with RAS.

- **Aeolus – Anticline 500 kV Line (Contingency B35 and RAS variations)**

This contingency diverges without any RAS actions. However with RAS actions as noted for the B35g, (600 MW of Aeolus area generation dropping, 500 kV switchable capacitors applied, additional 230kV capacitors at Mustang, Riverton, and additional capacitors on Path 18) becomes the limiting contingency for both nomogram corners. For both nomogram corner points, this outage results in overloads of the Miners – Platte 230 kV line, and this loading sets the PT limit.

- **Bridger – Populus 345 kV Lines 1 & 2 (C02 and RAS variations)**

This outage results in overloads on the Bridger – 3 Mile Knoll 345 kV line. However, as noted above, the loading numbers are to be used as a design input for rebuilding the limiting conductor sections. Some voltage deviation problems are noted, but these issues are fully mitigated with RAS switching.

- **Bridger – Populus & Bridger – 3 Mile Knoll 345 kV Lines (C03 and RAS variations)**

This outage resulted on overloads of the Bridger – Rock Springs 230kV line. Follow-up cases with Bridger generation dropping and additional RAS action on Path 18 resolve both the loading problem and the voltage deviation issues on Path 18.

- **Palo Verde 2-unit loss with FACRI (N-2)**

This contingency, with FACRI action and Desert SW load dropping planned for this event resulted in overloads of Springer – Gladstone 115 kV line. Springer – Gladstone is a known problem for which remediation is already planned.

6.6.3. Reactive Margin Analysis

Both corner points of the nomogram were tested with +5% flow cases as noted near the bottom of Appendix 3-6. Both corner +5% cases solved for all contingencies (with appropriate RAS actions), indicating sufficient reactive margins for both Level B and Level C contingencies. Idaho's reactive margin requirements were also met for all contingencies (with appropriate RAS actions).

6.6.4. Transient Stability Analysis

As shown on Appendix 4-6, dynamic simulations were run on both nomogram corner points. Contingency B08 and B09 with RAS variations, resulted in back swing under-frequency deviations. However, these deviations are within the “exceptions” for Bridger that are filed with the WECC. See Appendix 21 for details of the TSS Approved exceptions for Bridger.

Contingency B15 (Aeolus – Anticline 500 kV line) also produced voltage and frequency deviations. However, these were mitigated with some of the RAS actions simulated in the PT contingencies.

Contingency B16 (Aeolus – Mona Annex (Clover) 500 kV line) resulted in no voltage or frequency deviations for the upper left nomogram point (695, 4100). The lower right nomogram corner point (785, 4062) had extensive difficulties with an over-excitation limiter (OEL1) model that tripped the unit supposedly to protect the rotor from overheating damage. Flows on Bonanza

West were decremented down to 3532 MW before the OEL1 generation trip problem was resolved. After a discussion of these results, Deseret provided corrected OEL1 model data that slightly changed the timing of the trips, but not the end result. Additional sensitivity cases with the OEL1 trip timers set to 999 seconds but with the OEL1 runback function still active, the PT corner point (785, 4062) had no voltage or frequency deviations and of course the unit does not trip.

6.7. Bridger / Anticline West vs. Idaho – Montana (Path 18)

6.7.1. Base Case Development

The Gateway West Project base case was modified to stress Bridger / Anticline West to 4100 MW and Path 18 was controlled to 337 MW. The primary resource for stressing Bridger / Anticline West was the Wyoming Wind developments with fine tuning using schedules from WAPA (73) to Northwest (40). Path 18 flows were controlled by schedules from Montana (62) to Idaho (60) and adjustments of the Jefferson and Mill Creek phase shifters.

Two margin test cases were developed with 5% additional flows across 1) Bridger / Anticline West and 2) Path 18. These cases are shown near the bottom of Appendix 3-7.

6.7.2. Post-Transient Analysis

Appendix 3-7 contains the tables associated with the post-transient study results for the import cases. A discussion of several of the prominent outages follows.

- **Anticline – Populus 500 kV Line (Contingency B01 and RAS variations)**

This outage results in overloads on the Bridger – 3 Mile Knoll 345 kV line. In the cases, the line is rated at 1840 Amps and this loading information has been requested for design input to PacifiCorp to determine the magnitude of rating increase needed to rebuild the single conductor portions of the line capable of withstanding the most severe contingencies imposed by the Gateway West Project. Several RAS options are shown to allow selection of line upgrade costs vs. the risks inherent with RAS.

- **Bridger – 3 Mile Knoll 345 kV Line (Contingency B04 and RAS variations)**

This outage results in voltage deviations and violations of the .87 pu voltage standard for the Path 18 buses. Follow-up cases were run with switching of the Kinport 345 kV shunt capacitor, Dillon 69 kV shunt capacitors c3 & c4, and a new 42 MVar shunt capacitor at Big Grassy 161 kV. These cases show the voltage problem resolved with the lowest voltage

shown to be .881 pu at Peterson Flat 230. The overload shown for E.Helena 69/100 kV #2 is the result of circulating reactive power (vars) between the two transformers at E.Helena. If the transformers were correctly modeled, the overload would be resolved.

- **3 Mile Knoll –Goshen 345 kV Line (Contingency B06 and RAS variations)**

Contingency B06 results in overloads on the Grace – Soda 138 kV line. The follow-up case B06a, with the 3 Mile Knoll series capacitor bank bypassed, results in a violation of Montana's .90 pu voltage standard. A second follow-up case (B06b), with switching of the Big Grassy 161 kV shunt capacitor fully resolves the voltage problem.

- **Aeolus – Anticline 500 kV Line (Contingency B35 and RAS variations)**

This contingency diverges without any RAS actions. However with RAS actions as noted for the B35g, (600 MW of Aeolus area generation dropping, 500 kV switchable capacitors applied, additional 230kV capacitors at Mustang, Riverton, and additional capacitors on Path 18) fully resolves all voltage and loading problems.

- **Bridger – Populus 345 kV Lines 1 & 2 (C02 and RAS variations)**

This outage results in overloads on the Bridger – 3 Mile Knoll 345 kV line. However, as noted above, the loading numbers are to be used as a design input for rebuilding the limiting conductor sections. In follow-up cases, some voltage deviation problems are noted, but these issues are fully mitigated with RAS switching.

- **Bridger – Populus & Bridger – 3 Mile Knoll 345 kV Lines (C03 and RAS variations)**

This outage resulted in voltage deviations on Path 18 buses. Follow-up cases with RAS switching of Path 18 shunt capacitors and load tripping via under-voltage relays results in acceptable performance.

- **Palo Verde 2-unit loss with FACRI (N-2)**

This contingency, with FACRI action and Desert SW load dropping planned for this event resulted in overloads of several overloads including the Sigurd PS – Glen Canyon 230kV line. This line is loaded southbound in the base case, and this loading result may indicate a simultaneous flow relationship between Bridger / Anticline West and Tot 2B.

6.7.3. Reactive Margin Analysis

Both corner points of the nomogram were tested with +5% flow cases as noted near the bottom of Appendix 3-7. Both corner +5% cases solved for all contingencies (with appropriate RAS actions), indicating sufficient reactive margins for both Level B and Level C contingencies.

Idaho's reactive margin requirements were also met for all contingencies (with appropriate RAS actions). While it would appear that the Level C (N-2) contingencies do not meet Idaho's reactive margin requirements, a review of the margin tables shows the lowest margins for contingencies C03 & C04. Follow-up RAS scenarios fully resolve any margin deficiencies.

6.7.4. Transient Stability Analysis

As shown on Appendix 4-7, dynamic simulations were run on the simultaneous flow corner point. Contingency B08 and B09 with RAS variations, resulted in back swing under-frequency deviations. However, these deviations are within the exceptions for Bridger that are filed with the WECC. See Appendix 21 for details of the TSS Approved exceptions for Bridger.

Contingency B15 (Aeolus – Anticline 500 kV line) also produced voltage and frequency deviations. However, these were mitigated with some of the RAS actions simulated in the post-transient contingencies.

6.8. Bridger / Anticline West vs. Monument – Naughton

6.8.1. Base Case Development

The Gateway West Project base case was modified to stress Bridger / Anticline West to 4100 MW with several cases spanning a range of Monument – Naughton flows from 332 MW to 475 MW. The primary resource for stressing Bridger / Anticline West was the Wyoming Wind developments. Monument – Naughton flows were controlled by the Monument phase shifting transformers. Loads in the Trona area of SW Wyoming (Zone 668) were reduced by roughly 141 MW to prevent the Rock Springs / Firehole cut-plane from exceeding its 640 MW capacity. The resulting nomogram is shown on Appendix 2-8.

Two margin test cases were developed with 5% additional flows across 1) Bridger / Anticline West and 2) Monument - Naughton. These cases are shown near the bottom of Appendix 3-8.

6.8.2. Post-Transient Analysis

Appendix 3-8 contains the tables associated with the post-transient study results for the import cases. A discussion of several of the prominent outages follows.

- **Anticline – Populus 500 kV Line (Contingency B01 and RAS variations)**

This outage results in overloads on the Bridger – 3 Mile Knoll 345 kV line. In the cases, the line is rated at 1840 Amps and this loading information has been requested for design input to PacifiCorp to determine the magnitude of rating increase needed to rebuild the single conductor portions of the line capable of withstanding the most severe contingencies imposed by the Gateway West Project. Several RAS options are shown to allow selection of line upgrade costs vs. the risks inherent with RAS.

- **3 Mile Knoll – Goshen 345 kV Line (Contingencies B06 and B06a)**

Contingency B06 results in overloads on the Grace – Soda 138 kV line. The follow-up case B06a, with the 3 Mile Knoll series capacitor bank bypassed, fully resolves the overload.

- **Aeolus – Anticline 500 kV Line (Contingency B35 and RAS variations)**

This contingency diverges without any RAS actions. However with RAS actions as noted for the B35g, (600 MW of Aeolus area generation dropping, 500 kV switchable capacitors applied, additional 230kV capacitors at Mustang, Riverton, and additional capacitors on Path 18) resolves the voltage deviation problems. This outage results in a slight overload (100.04%) on the Miners – Platte 230 kV line even with the 521 MVA 30 minute emergency rating, and thereby sets the PT limit for this contingency.

- **Aeolus – Mona Annex (Clover) 500 kV Line (Contingency B36 and RAS variations)**

This contingency also diverges without any RAS actions. With 600 MW of generation dropping and 500 kV and 230 kV switchable capacitor applications, the contingency converges to a solution with no overloads.

- **Bridger – Populus 345 kV Lines 1 & 2 (C02 and RAS variations)**

This outage results in overloads on the Bridger – 3 Mile Knoll 345 kV line. However, as noted above, the loading numbers are to be used as a design input for rebuilding the limiting conductor sections. Some voltage deviation problems are noted, but these issues are fully mitigated with RAS switching.

- **Bridger – Populus & Bridger – 3 Mile Knoll 345 kV Lines (C03 and RAS variations)**

This outage resulted in a voltage deviation at Populus 500 for the case with Bridger / Anticline West at 4100 MW. Follow-up RAS cases with Bridger gen tripping resolve the Populus deviation problem, but then created problems for Path 18 buses. The case with 475 MW on Monument - Naughton, this outage overloaded both Monument phase shifters. While RAS actions did help the loading situation, a better solution would be to adjust the phase shifter taps to reduce flows.

- **Palo Verde 2-unit loss with FACRI (N-2)**

This contingency, with FACRI action and Desert SW load dropping planned for this event resulted in an overload of the Glen Canyon 345 / 230 kV transformer. This overload arises when the generation at Glen Canyon is not correctly divided between the 230 kV and 345 kV

step-up buses. This is a known modeling problem and is unrelated to the Gateway West Project.

6.8.3. Reactive Margin Analysis

Both corner points of the nomogram were tested with +5% flow cases as noted near the bottom of Appendix 3-8. Both corner +5% cases solved for all contingencies (with appropriate RAS actions), indicating sufficient reactive margins for both Level B and Level C contingencies. Idaho's reactive margin requirements were also met for all contingencies (with appropriate RAS actions).

6.8.4. Transient Stability Analysis

As shown on Appendix 4-5, dynamic simulations were run on both nomogram corner points. Contingency B08 and B09 with RAS variations, resulted in back swing under-frequency deviations. However, these deviations are within the exceptions for Bridger that are filed with the WECC. See Appendix 21 for details of the TSS Approved exceptions for Bridger.

Contingency B15 (Aeolus – Anticline 500 kV line) also produced voltage and frequency deviations. However, these were mitigated with some of the RAS actions simulated in the PT contingencies.

6.9. Bridger / Anticline West vs. Rock Springs / Firehole

The Gateway West Project base case was modified to stress Bridger / Anticline West to 4100 MW with several cases spanning a range of Rock Springs / Firehole (RS/FH) West flows from 489 MW to 640 MW. The primary resource for stressing Bridger / Anticline West was the Wyoming Wind developments. RS/FH flows were controlled by adjustments to the Monument phase shifting transformers. The resulting nomogram is shown on Appendix 2-9.

Two margin test cases were developed with 5% additional flows across 1) Bridger / Anticline West and 2) RS/FH West. These cases are shown near the bottom of Appendix 3-9.

6.9.1. Post-Transient Analysis

Appendix 3-9 contains the tables associated with the post-transient study results for the import cases. A discussion of several of the prominent outages follows.

- **Anticline – Populus 500 kV Line (Contingency B01 and RAS variations)**

This outage results in overloads on the Bridger – 3 Mile Knoll 345 kV line. In the cases, the line is rated at 1840 Amps and this loading information has been requested for design input to PacifiCorp to determine the magnitude of rating increase needed to rebuild the single conductor portions of the line capable of withstanding the most severe contingencies

imposed by the Gateway West Project. Several RAS options are shown to allow selection of line upgrade costs vs. the risks inherent with RAS.

- **3 Mile Knoll – Goshen 345 kV Line (Contingencies B06 and B06a)**

Contingency B06 results in overloads on the Grace – Soda 138 kV line. The follow-up case B06a, with the 3 Mile Knoll series capacitor bank bypassed, fully resolves the overload.

- **Aeolus – Anticline 500 kV Line (Contingency B35 and RAS variations)**

This contingency diverges without any RAS actions. However with RAS actions as noted for the B35g, (600 MW of Aeolus area generation dropping, 500 kV switchable capacitors applied, additional 230kV capacitors at Mustang, Riverton, and additional capacitors on Path 18) resolves the voltage deviation problems. This outage results in a slight overload (100.05%) on the Miners – Platte 230 kV line even with the 521 MVA 30 minute emergency rating, and thereby sets the PT limit for this contingency.

- **Aeolus – Mona Annex (Clover) 500 kV Line (Contingency B36 and RAS variations)**

This contingency also diverges without any RAS actions. With 600 MW of generation dropping and 500 kV and 230 kV switchable capacitor applications, the contingency converges to a solution with no overloads.

- **Bridger – Populus 345 kV Lines 1 & 2 (C02 and RAS variations)**

This outage results in overloads on the Bridger – 3 Mile Knoll 345 kV line. However, as noted above, the loading numbers are to be used as a design input for rebuilding the limiting conductor sections. Some voltage deviation problems are noted, but these issues are fully mitigated with RAS switching.

- **Palo Verde 2-unit loss with FACRI (N-2)**

This contingency, with FACRI action and Desert SW load dropping planned for this event resulted in an overload of the Glen Canyon 345 / 230 kV transformer. This overload arises when the generation at Glen Canyon is not correctly divided between the 230 kV and 345 kV step-up buses. This is a known modeling problem and is unrelated to the Gateway West Project.

6.9.2. Reactive Margin Analysis

Both corner points of the nomogram were tested with +5% flow cases as noted near the bottom of Appendix 3-9. Both corner +5% cases solved for all contingencies (with appropriate RAS actions), indicating sufficient reactive margins for both Level B and Level C contingencies. Idaho's reactive margin requirements were also met for all contingencies (with appropriate RAS actions).

6.9.3. Transient Stability Analysis

As shown on Appendix 4-5, dynamic simulations were run on both nomogram corner points. Contingency B08 and B09 with RAS variations, resulted in back swing under-frequency deviations. However, these deviations are within the exceptions for Bridger that are filed with the WECC. See Appendix 21 for details of the TSS Approved exceptions for Bridger.

Contingency B15 (Aeolus – Anticline 500 kV line) also produced voltage and frequency deviations. However, these were mitigated with some of the RAS actions simulated in the PT contingencies.

6.10. Bridger / Anticline West with the MSTI Project

6.10.1. Base Case Development

The Gateway West Project base case was modified to stress Bridger / Anticline West to 4100 MW simultaneous with the MSTI project at 1496 MW. Resources for the majority of the schedules were from three 450 MW equivalent wind models represented near Townsend, Montana. To fully load the MSTI project, other Montana generation was increased and scheduled to Idaho and the Northwest.

Two margin test cases were developed with 5% additional flows across 1) Bridger / Anticline West and 2) The MSTI project. These cases are shown near the bottom of Appendix 3-10. The resulting nomogram is shown on Appendix 2-10.

6.10.2. Post-Transient Analysis

Appendix 3-10 contains the tables associated with the post-transient study results for the import cases. A discussion of several of the prominent outages follows.

- **Anticline – Populus 500 kV Line (Contingency B01 and RAS variations)**

This outage results in overloads on the Bridger – 3 Mile Knoll 345 kV line. In the cases, the line is rated at 1840 Amps and this loading information has been requested for design input to PacifiCorp to determine the magnitude of rating increase needed to rebuild the single conductor portions of the line capable of withstanding the most severe contingencies imposed by the Gateway West Project. Several RAS options are shown to allow selection of line upgrade costs vs. the risks inherent with RAS.

- **Anticline – Populus 500 kV Line (Contingency B01 and RAS variations)**

This outage results in overloads on the Bridger – 3 Mile Knoll 345 kV line. In the cases, the line is rated at 1840 Amps and this loading information has been requested for design input to PacifiCorp to determine the magnitude of rating increase needed to rebuild the single conductor portions of the line capable of withstanding the most severe contingencies imposed by the Gateway West Project. Several RAS options are shown to allow selection of line upgrade costs vs. the risks inherent with RAS.

- **Aeolus – Anticline 500 kV Line (Contingency B35 and RAS variations)**

This contingency diverges without any RAS actions. However with RAS actions as noted for the B35g, (600 MW of Aeolus area generation dropping, 500 kV switchable capacitors applied, additional 230kV capacitors at Mustang, Riverton, and additional capacitors on Path 18) does not quite resolve the voltage deviation problems until Path 18 is reduced to 287 MW.

- **Bridger – Populus 345 kV Lines 1 & 2 (C02 and RAS variations)**

This outage results in overloads on the Bridger – 3 Mile Knoll 345 kV line. However, as noted above, the loading numbers are to be used as a design input for rebuilding the limiting conductor sections. The Bridger – Rock Spring 230 kV line is also overloaded. But this loading and the voltage deviation problems are mitigated with RAS switching.

- **Bridger – Populus & Bridger – 3 Mile Knoll 345 kV Lines (C03 and RAS variations)**

This outage resulted in an overload of the Bridger – Rock Springs 230kV line. Follow-up cases with Bridger generation dropping and additional RAS action on Path 18 resolved both the loading problem and the voltage deviation issues on Path 18.

- **Palo Verde 2-unit loss with FACRI (N-2)**

This contingency, with FACRI action and Desert SW load dropping planned for this event resulted in overloads of Springer – Gladstone 115 kV line. Springer – Gladstone is a known problem for which remediation is already planned. This contingency also had 7 voltage deviations in the New Mexico system.

6.10.3. Reactive Margin Analysis

Margin cases from the point with simultaneous flows on Bridger / Anticline West and the MSTI Project were tested with +5% flow cases as noted near the bottom of Appendix 3-10. Both +5% cases solved for all contingencies (with appropriate RAS actions), indicating sufficient

reactive margins for both Level B and Level C contingencies. Idaho's reactive margin requirements were also met for all contingencies (with appropriate RAS actions).

6.10.4. Transient Stability Analysis

As shown on Appendix 4-9, dynamic simulations were run on the one simultaneous case. Contingency B08 and B09 with RAS variations, resulted in back swing under-frequency deviations. However, these deviations are within the exceptions for Bridger that are filed with the WECC. See Appendix 21 for details of the TSS Approved exceptions for Bridger.

Contingency B15 (Aeolus – Anticline 500 kV line) also produced voltage and frequency deviations. However, these were mitigated with some of the RAS actions simulated in the PT contingencies.

6.11. Path C Southbound vs. Idaho – Montana (Path 18)

6.11.1. Base Case Development

The Gateway West Project base case was modified to stress Path C North to South flows to 2250 MW simultaneous with stressed Path 18 North to South flows. Two base cases were developed. The first case included Path 18 Shunt Additions while the second case did not. Without the Path 18 Shunt Additions, Path 18 North to South flows were limited to 285 MW. With the Path 18 Shunt Additions, Path 18 North to South flows were limited to the current Path 18 transfer limit of 337 MW. The Path 18 Shunt Additions include switchable capacitor banks at the Amps, Peterson Flat, Big Grassy, and Dillon stations.

Multiple margin test cases were developed with 5% additional flows across Path C and Path 18. These cases are shown near the bottom of Appendix 3-11.

The resulting nomogram is shown on Appendix 2-10.

6.11.2. Post-Transient Analysis

Appendix 3-10 contains the tables associated with the post-transient study results for the import cases with and without Path 18 Shunt Additions. A discussion of several of the prominent outages follows.

- **Anticline – Populus 500 kV Line (Contingency B01 and RAS variations)**

When applied to the case without the Path 18 Shunt Additions, this outage results in overloads on the Bridger – 3 Mile Knoll 345 kV line. In the cases, the line is rated at 1840 Amps and this loading information has been requested for design input to PacifiCorp to determine the magnitude of rating increase needed to rebuild the single conductor portions of the line capable of withstanding the most severe contingencies imposed by the Gateway West

Project. Several RAS options are shown to allow selection of line upgrade costs vs. the risks inherent with RAS.

When Contingency B01 was applied to the case with the Path 18 Shunt Additions, this outage didn't result in any overloads or voltage issues.

- **3 Mile Knoll - Goshen 345kV Line (Contingency B06 and RAS variations)**

In both cases (with and without the Path 18 Shunt Additions), this outage without RAS resulted in overloads of the Grace – Soda and 3 Mile Knoll – Soda 138 kV lines. Bypassing the 1/2 the series capacitor in the Bridger - 3 Mile Knoll 345kV line mitigates both of these overloads.

- **Aeolus – Anticline 500 kV Line (Contingency B35 and RAS variations)**

In the case without the Path 18 Shunt Additions, this outage resulted in overloads on the Dave Johnston - Dave Johnston South Tap 115 kV line and the Bridger 345/230kV Bank #2. In the case with the Path 18 Shunt Additions, this outage resulted in overloads on the Dave Johnston - Dave Johnston South Tap 115 kV line only. In both cases, the RAS actions as noted for disturbance B35a (600 MW of Aeolus area generation dropping, 500 kV switchable capacitors applied at Aeolus, and additional 230kV capacitors applied at Aeolus, Atlantic, Miners and Platt) resolved these overloads.

- **Aeolus – Mona Annex (Clover) 500 kV Line (Contingency B36 and RAS variations)**

In both cases (with and without the Path 18 Shunt Additions), this disturbance without any RAS actions caused the cases to diverge. With 600 MW of generation dropping and 500 kV and 230 kV switchable capacitor applications, the contingency problems are fully resolved.

- **Bridger – Populus 345 kV Lines 1 & 2 (C02 and RAS variations)**

In both cases (with and without the Path 18 Shunt Additions), this disturbance without any RAS actions caused overloads on the Bridger – 3 Mile Knoll 345 kV and Grace - Soda 138kV lines. RAS action, as noted for disturbance C02a (Tripping of a Bridger Unit), resolved these overloads.

- **Bridger – Populus & Bridger – 3 Mile Knoll 345 kV Lines (C03 and RAS variations)**

In the case without the Path 18 Shunt Additions, this disturbance was limiting for Path 18 flows. Outage C03 caused the voltage at the PTRSNFUR 69kV bus to drop to 0.90 pu. Increasing Path 18 flows to levels greater than 285MW North to South caused post-contingency voltages at the PTRSNFUR 69kV bus to drop below 0.90 pu. In addition, the RAS variations of disturbance C03, including C03a and C03b (dropping one or two Bridger units), caused the post-contingency voltages at the PTRSNFUR 69kV bus to be worse. Since

disturbances C03d and C03e both include Path 18 shunts addition switching, they were not applied to the case.

Without the Path 18 Shunt Additions, this outage limited Path 18 flows to 285 MW North to South. With the Path 18 Shunt Additions and their employment in outage C03d and C03e, Path 18's transfer limit is maintained at 337 MW North to South.

- **Populus - Ben Lomond 345 kV #2 and #3 Double Line Outage (C06 and RAS variations)**

In both cases (with and without the Path 18 Shunt Additions), this outage resulted in an overload of the Grace – Soda 138 kV line. In the case with Path 18 shunts, this outage also resulted in an overload of the 3 Mile Knoll – Soda 138 kV line. Bypassing the 1/2 the series capacitor in the Bridger - 3 Mile Knoll 345kV line mitigates these overloads.

- **Populus – Terminal 345 kV + Treasureton – Brady 230 kV Lines Outage (C12)**

In the case without the Path 18 Shunt Additions, this outage resulted in an overload of the Grace – Soda 138 kV line. Bypassing the 1/2 the series capacitor in the Bridger - 3 Mile Knoll 345kV line mitigates both of these overloads. In the case with the Path 18 Shunt Additions, no emergency overloads were encountered.

6.11.3. Reactive Margin Analysis

From the base cases, margin cases (with and without Path 18 Shunt Additions) were created. The margin cases stressed Path 18 North to South and Path C North to South flows by an additional +5% as noted near the bottom of Appendix 3-11. All +5% cases solved for all contingencies (with appropriate RAS actions), indicating sufficient reactive margins for both Level B and Level C contingencies. Idaho's reactive margin requirements were also met for all contingencies (with appropriate RAS actions).

6.11.4. Transient Stability Analysis

As shown on Appendix 4-11, dynamic simulations were run on the simultaneous cases (with and without Path 18 Shunt Additions). Contingency B09 resulted in back swing under-frequency deviations that exceed the standard WECC frequency deviation criteria for load buses, but did not exceed PacifiCorp's frequency deviation exception for Bridger unit buses on file with WECC. All the other disturbances modeled did not result in transient stability problems or criteria violations.

6.12. Path C Southbound vs. Bonanza West

6.12.1. Base Case Development

The Gateway West Project base case was modified to stress Path C North to South flows simultaneous with stressed Bonanza West (Path 33) flows. Two base cases were developed. The first case included Path C set at 2250 MW North to South with Bonanza West simultaneously set at 749 MW. The second case included Path C set at 1849 MW North to South with Bonanza West simultaneously set at 785 MW, Path 33's current transfer limit.

Multiple margin test cases were developed with 5% additional flows across Path C and Bonanza West. These cases are shown near the bottom of Appendix 3-12.

The resulting nomogram is shown on Appendix 2-11.

6.12.2. Post-Transient Analysis

Appendix 3-12 contains the tables associated with the post-transient study results for the import cases. A discussion of several of the prominent outages follows.

- **Anticline – Populus 500 kV Line (Contingency B01 and RAS variations)**

This outage results in overloads on the Bridger – 3 Mile Knoll 345 kV line. In the cases, the line is rated at 1840 Amps and this loading information has been requested for design input to PacifiCorp to determine the magnitude of rating increase needed to rebuild the single conductor portions of the line capable of withstanding the most severe contingencies imposed by the Gateway West Project. Several RAS options are shown to allow selection of line upgrade costs vs. the risks inherent with RAS.

- **3 Mile Knoll - Goshen 345kV Line (Contingency B06 and RAS variations)**

In both cases, this outage without RAS resulted in overloads of the Grace – Soda and 3 Mile Knoll – Soda 138 kV lines. Bypassing the 1/2 the series capacitor in the Bridger - 3 Mile Knoll 345kV line mitigates the loading on the 3 Mile Knoll – Soda 138 kV line entirely. However, bypassing the 1/2 the series capacitor in the Bridger - 3 Mile Knoll 345kV line mitigates the loading on the Grace – Soda 138 kV line to approximately 101% of its emergency rating.

- **Aeolus – Anticline 500 kV Line (Contingency B35 and RAS variations)**

In the case with Path C stressed at 2250 MW North to South and Bonanza West at 749 MW, this outage resulted in overloads on the Platt - Latham and Miners - Platt 230kV lines as well as voltage deviations greater than 5% on many buses. The RAS actions as noted for disturbance B35a, (600 MW of Aeolus area generation dropping, 500 kV switchable capacitors applied at Aeolus, and additional 230kV capacitors applied at Aeolus, Atlantic, Miners and Platt) resolved these overloads and voltage deviations.

In the case with Bonanza West stressed at 785 MW and Path C at 1849 MW North to South, this outage resulted in the following: overloads on all three Bridger 345/230 kV banks, the Platt - Latham 230kV line, Miners - Platt 230kV line and Bar X-Echo Springs 230kV line; voltage deviations greater than 5% on many buses; and post-contingency voltages in Wyoming lower than 0.9 pu. The RAS actions, as noted for disturbance B35a, were enough

to mitigate the emergency overloads; however, they were not enough to mitigate the bus voltage deviations. The RAS actions as noted for disturbance B35d (600 MW of Aeolus area generation dropping, 500 kV switchable capacitors applied at Aeolus, and additional 230kV capacitors applied at Aeolus, Atlantic, Miners, Platt, Mustang and Riverton) resolved the remaining voltage deviations.

- **Aeolus – Mona Annex (Clover) 500 kV Line (Contingency B36 and RAS variations)**

This disturbance without any RAS measures caused both cases to diverge. With 600 MW of generation dropping and 500 kV and 230 kV switchable capacitor applications (outage B36a), the cases exhibited enough reactive margin to solve.

In the case with Path C stressed at 2250 MW North to South and Bonanza West at 749 MW, an overload on the Grace – Soda 138 kV line still remained even with the RAS actions employed for disturbance B36a. The additional RAS measure of bypassing the 1/2 the series capacitor in the Bridger - 3 Mile Knoll 345kV line mitigated the Grace – Soda 138 kV line overload.

In the case with Bonanza West stressed at 785 MW and Path C at 1849 MW North to South, the RAS actions as noted for B36a were sufficient to mitigate all emergency overloads and voltage deviations.

- **Bonanza –Mona 345kV Line (Contingency B40 and RAS variations)**

In the case with Path C stressed at 2250 MW North to South and Bonanza West at 749 MW, this outage resulted in overloads on the Emma Park - Upalco, Emma Park - Panther and Panther - Carbon 138kV lines as well as voltage deviations greater than 5% on a few buses near Upalco. In the case with Bonanza West stressed at 785 MW and Path C at 1849 MW North to South, this outage resulted in overloads on the Emma Park - Upalco, Emma Park - Panther and Panther - Carbon, Bonanza-Vernal 138kV lines as well as the Flaming Gorge 230/138 kV bank #2. This outage also resulted in voltage deviations greater than 5% on a few buses near Upalco. The RAS actions as noted for disturbance B40a, (Tripping a Bonanza Unit) resolved these overloads and voltage deviations. In both cases, Path C and Bonanza West flows were limited by disturbance C04a with RAS tripping of a Bonanza unit and the subsequent overload of the Emma Park - Upalco 138kV line.

- **Bridger – Populus 345 kV Lines 1 & 2 (C02 and RAS variations)**

In both cases, this disturbance without any RAS actions caused overloads on the Bridger – 3 Mile Knoll 345 kV and Grace - Soda 138kV lines. RAS action, as noted for disturbance C02a (Tripping of a Bridger Unit), resolved the Grace - Soda 138kV line overloads. The Bridger - 3 Mile Knoll 345kV line remained overloaded in both cases. Tripping two Bridger units will mitigate the loading on the Bridger - 3 Mile Knoll 345kV line; however, the voltage drop around Path 18 starts to become an issue in the case with Path C stressed at 2250 MW North to South and Bonanza West at 749 MW. After the tripping two units, the

post-contingency bus voltage at the PTRSNFUR 69.0 bus was 0.899 pu, which is right at the limit of 0.9 pu.

- **Bridger – Populus & Bridger – 3 Mile Knoll 345 kV Lines (C03 and RAS variations)**

Disturbance C03 without any RAS actions caused the case with Path C at 2250 MW North to South and Bonanza West at 749 MW to diverge. Conversely, the case with Bonanza West at 785 MW and Path C at 1849 MW North to South solved following disturbance C03. Both cases solved following C03a (C03 plus RAS Tripping of one Bridger Unit) and C03b (C03 plus RAS Tripping of two Bridger Unit); however, the RAS tripping of the Bridger units following disturbance C03 caused the voltage at the PTRSNFUR 69kV bus to get worse (less than 0.9 pu). Both cases solved following disturbance C03d (C03 plus RAS Tripping of one Bridger unit plus RAS switching of capacitors at Amps and Big Grassy stations) exhibited acceptable voltages in Wyoming and near Path 18. The Amps and Big Grassy capacitors switched as part of the remedial action for disturbance C03 are part of the Path 18 Shunt Additions.

- **Populus - Ben Lomond 345 kV #2 and #3 Double Line Outage (C06 and RAS variations)**

In the case with Path C at 2250 MW North to South and Bonanza West at 749 MW, this outage resulted in an overload of the Grace – Soda 138 kV line. Bypassing the 1/2 the series capacitor in the Bridger - 3 Mile Knoll 345kV line mitigates this overload.

- **Palo Verde 2-unit loss with FACRI (N-2)**

This contingency, with FACRI action and Desert SW load dropping planned for this event, resulted in overloads of Springer – Gladstone 115 kV line. Springer – Gladstone is a known problem for which remediation is already planned.

6.12.3. Reactive Margin Analysis

From the base cases, margin cases were created. The margin cases stressed Bonanza West and Path C North to South flows by an additional +5% as noted near the bottom of Appendix 3-12. All +5% cases solved for all contingencies (with appropriate RAS actions), indicating sufficient reactive margins for both Level B and Level C contingencies. Idaho's reactive margin requirements were also met for all contingencies (with appropriate RAS actions).

6.12.4. Transient Stability Analysis

As shown on Appendix 4-12, dynamic simulations were run on the simultaneous cases. Contingency B08 and B09 resulted in back swing under-frequency deviations that exceed the standard WECC frequency deviation criteria for load buses, but did not exceed PacifiCorp's frequency deviation exception for Bridger unit buses on file with WECC.

In the case with Path C at 2250 MW North to South and Bonanza West at 749 MW, all the other disturbances modeled did not result in transient stability problems or criteria violations.

In the case with Bonanza West at 785 MW and Path C at 1849 MW North to South, disturbances B15 (Aeolus – Anticline 500 kV Line) and B16 (Aeolus – Mona Annex (Clover) 500 kV Line) caused voltage dips exceeding 20% for 20 cycles or more at multiple load buses. Disturbances B15a and B16a with RAS (tripping 600 MW of Aeolus units and insertion of capacitors at the Aeolus 500kV bus and at the Aeolus, Miners, Platt and Atlantic 230kV buses) mitigated the voltage dips noted.

6.13. Path C Southbound with the MSTI Project

6.13.1. Base Case Development

The Gateway West Project base case was modified by the addition of the MSTI project. The case was further modified by stressing Path C North to South flows simultaneous with MSTI Project flows. One base case was developed with Path C set at 2250 MW North to South and MSTI Phase Shifter flow simultaneously set at 1500 MW. To achieve a Phase Shifter flow of 1500 MW, it was necessary to dispatch 800 MW of total MSTI generation

Multiple margin test cases were developed with 5% additional flows across Path C and the MSTI Phase Shifter. These cases are shown near the bottom of Appendix 3-13.

The resulting nomogram is shown on Appendix 2-12.

6.13.2. Post-Transient Analysis

Appendix 3-13 contains the tables associated with the post-transient study results for the import cases. A discussion of several of the prominent outages follows.

- **Anticline – Populus 500 kV Line (Contingency B01 and RAS variations)**

This outage results in an overload on the Bridger – 3 Mile Knoll 345 kV line. In the cases, the line is rated at 1840 Amps and this loading information has been requested for design input to PacifiCorp to determine the magnitude of rating increase needed to rebuild the single conductor portions of the line capable of withstanding the most severe contingencies imposed by the Gateway West Project. Several RAS options are shown to allow selection of line upgrade costs vs. the risks inherent with RAS.

- **3 Mile Knoll - Goshen 345kV Line (Contingency B06 and RAS variations)**

This outage without RAS resulted in overloads of the Grace – Soda and 3 Mile Knoll – Soda 138 kV lines. Bypassing the 1/2 the series capacitor in the Bridger - 3 Mile Knoll 345kV line mitigates both of these overloads.

- **Aeolus – Anticline 500 kV Line (Contingency B35 and RAS variations)**

This outage resulted in voltage deviations greater than 5% on many buses. The RAS actions, as noted for disturbance B35a (600 MW of Aeolus area generation dropping, 500 kV switchable capacitors applied at Aeolus, and additional 230kV capacitors applied at Aeolus, Atlantic, Miners and Platt), resolved the voltage deviations.

- **Bonanza –Mona 345kV Line (Contingency B40 and RAS variations)**

This outage resulted in overloads on the Emma Park - Upalco, Emma Park - Panther and Panther - Carbon 138kV lines. The RAS actions, as noted for disturbance B40a (Tripping a Bonanza Unit), resolved these overloads.

- **Bridger – Populus 345 kV Lines 1 & 2 (C02 and RAS variations)**

This disturbance without any RAS actions caused overloads on the Bridger – 3 Mile Knoll 345 kV and Grace - Soda 138kV lines. RAS action, as noted for disturbance C02a (Tripping of one Bridger Unit), resolved the Grace - Soda 138kV line overload. The Bridger - 3 Mile Knoll 345kV line remained slightly overloaded. Tripping of two Bridger units, as modeled in disturbance C02b, resolved both overloads.

- **Populus - Ben Lomond 345 kV #2 and #3 Double Line Outage (C06 and RAS variations)**

This outage resulted in an overload of the Grace – Soda 138 kV line. Bypassing the 1/2 the series capacitor in the Bridger - 3 Mile Knoll 345kV line mitigates this overload.

- **Palo Verde 2-unit loss with FACRI (N-2)**

This contingency, with FACRI action and Desert SW load dropping planned for this event, resulted in overloads of Springer – Gladstone 115 kV line. Springer – Gladstone is a known problem for which remediation is already planned.

6.13.3. Reactive Margin Analysis

From the base cases, margin cases were created. The margin cases stressed MSTI and Path C North to South flows by an additional +5% as noted near the bottom of Appendix 3-13. All +5% cases solved for all contingencies (with appropriate RAS actions), indicating sufficient reactive margins for both Level B and Level C contingencies. Idaho's reactive margin requirements were also met for all contingencies (with appropriate RAS actions).

6.13.4. Transient Stability Analysis

As shown on Appendix 4-12, dynamic simulations were run on the simultaneous cases. Contingency B09 resulted in back swing under-frequency deviations that exceed the standard

WECC frequency deviation criteria for load buses, but did not exceed PacifiCorp's frequency deviation exception for Bridger unit buses on file with WECC.

6.14. Path C Southbound vs. Monument – Naughton

6.14.1. Base Case Development

The Gateway West Project base case was modified to stress Path C Southbound to 2250 MW with Monument – Naughton flows at 475 MW. Path C was stressed by reducing generation in Utah and increasing generation in the Pacific Northwest. Monument – Naughton flows were controlled by the Monument phase shifting transformers. Loads in the Trona area of SW Wyoming (Zone 668) were reduced by roughly 356 MW to prevent normal overloads of the Rock Springs - Palisades 230kV Line. The resulting nomogram is shown on Appendix 2-13.

Two margin test cases were developed with 5% additional flows across 1) Path C Southbound and 2) Monument - Naughton. These cases are shown near the bottom of Appendix 3-14.

6.14.2. Post-Transient Analysis

Appendix 3-14 contains the tables associated with the post-transient study results for the import cases. A discussion of several of the prominent outages follows.

- **3 Mile Knoll – Goshen 345 kV Line (Contingencies B06 and B06a)**

Contingency B06 results in an overload on the Grace – Soda 138 kV line. The RAS modeled in outage B06a, which included bypassing 1/2 of the 3 Mile Knoll series capacitor bank, resolved the overload.

- **Aeolus – Anticline 500 kV Line (Contingency B35 and RAS variations)**

Contingency B35 diverged without any RAS actions. The RAS actions, as noted for the B35d (600 MW of Aeolus area generation dropping, 500 kV switchable capacitors applied at Aeolus and additional 230kV capacitors at Aeolus, Atlantic, Miners, Platt, Mustang, and Riverton), resolved the voltage deviation problems.

- **Aeolus – Mona Annex (Clover) 500 kV Line (Contingency B36 and RAS variations)**

Contingency B36 diverged without any RAS actions. The RAS actions, as noted for the B36v (600 MW of Aeolus area generation dropping, 500 kV switchable capacitors applied at Aeolus, Anticlin, Populus, additional 230kV capacitors at Aeolus, Atlantic, Miners, Platt, Mustang, Riverton and Chappel, as well as one 345kV capacitor at Kinport), resolved the divergence and didn't produce any WECC criteria violations.

- **Bonanza –Mona 345kV Line (Contingency B40 and RAS variations)**

Outage B40 resulted in overloads on the Bonanza - Vernal, Emma Park - Upalco, Emma Park - Panther and Panther - Carbon 138kV lines, Flaming Gorge 230/138kV Transformer #2 as well as voltage deviations greater than 5% on a few buses near Upalco. The RAS actions, as noted for contingency B40a (Tripping a Bonanza Unit), resolved these overloads and voltage deviations.

- **Bridger – Populus 345 kV Lines 1 & 2 (C02 and RAS variations)**

Outage C02 resulted in an overload on the Bridger – 3 Mile Knoll 345 kV line. As noted above, the loading numbers will be used as a design input for rebuilding the limiting conductor sections. The overload was fully mitigated with RAS switching of one Bridger unit as modeled in outage C02a.

- **Bridger – Populus & Bridger – 3 Mile Knoll 345 kV Lines (C03 and RAS variations)**

Outage C03 resulted in an overload on the Bridger-Rock Springs 230kV line and a low voltage on a single bus (PTRSNFUR 69.0) near Path 18. RAS actions, as noted for the C03d (Tripping of Bridger unit and additional switchable capacitors applied at Big Grassy 161 kV and Amps 230kV buses), resolved the overload and low voltage problems.

6.14.3. Reactive Margin Analysis

Both corner points of the nomogram were tested with +5% flow cases as noted near the bottom of Appendix 3-14. Both corner +5% cases solved for all contingencies (with appropriate RAS actions), indicating sufficient reactive margins for both Level B and Level C contingencies. Idaho's reactive margin requirements were also met for all contingencies (with appropriate RAS actions).

6.14.4. Transient Stability Analysis

As shown on Appendix 4-14, dynamic simulations were run for various contingencies. Contingency B08 and B09 with RAS variations resulted in back swing under-frequency deviations; however, these deviations are within the exceptions for Bridger that are filed with the WECC. See Appendix 21 for details of the TSS Approved exceptions for Bridger.

Contingency B15 (Aeolus – Anticline 500 kV line) also produced voltage deviations, which were mitigated with some of the RAS actions simulated in the PT contingencies.

6.15. Path C Southbound vs. Rock Springs - Firehole

6.15.1. Base Case Development

The Gateway West Project base case was modified to stress Path C Southbound to 2250 MW with Rock Springs / Firehole West flows at 640 MW. Path C was stressed by reducing generation in Utah and increasing generation in the Pacific Northwest. Rock Springs / Firehole

West flows were controlled by the Monument phase shifting transformers. The resulting nomogram is shown on Appendix 2-14.

Two margin test cases were developed with 5% additional flows across 1) Path C Southbound and 2) Rock Springs / Firehole West. These cases are shown near the bottom of Appendix 3-15.

6.15.2. Post-Transient Analysis

Appendix 3-15 contains the tables associated with the post-transient study results for the import cases. A discussion of several of the prominent outages follows.

- **3 Mile Knoll – Goshen 345 kV Line (Contingencies B06 and B06a)**

Contingency B06 results in an overload on the Grace – Soda 138 kV line. The RAS modeled in outage B06a, which included bypassing 1/2 of the 3 Mile Knoll series capacitor bank, resolved the overload.

- **Aeolus – Anticline 500 kV Line (Contingency B35 and RAS variations)**

Contingency B35 without any RAS actions produced several voltage deviations greater than 5%, low voltages in Wyoming and various emergency overloads. The worst emergency overload occurred on the Platt - Latham 230kV line at 111%., and the worst voltage deviation (17.4%) occurred at the Latham 34.5kV bus. Correspondingly, the lowest voltage (0.838 pu) was experienced occurred at the Bairoil 115kV bus. The RAS actions, as noted for the B35d, (600 MW of Aeolus area generation dropping, 500 kV switchable capacitors applied at Aeolus and additional 230kV capacitors at Aeolus, Atlantic, Miners, Platt, Mustang, and Riverton) resolved all the voltage deviations, low voltages and emergency overloads.

- **Aeolus – Mona Annex (Clover) 500 kV Line (Contingency B36 and RAS variations)**

Contingency B36 diverged without any RAS actions. The RAS actions, as noted for the B36v (600 MW of Aeolus area generation dropping, 500 kV switchable capacitors applied at Aeolus, Anticlin, Populus, additional 230kV capacitors at Aeolus, Atlantic, Miners, Platt, Mustang, Riverton and Chappel, as well as one 345kV capacitor at Kinport), resolved the divergence and didn't produce any WECC criteria violations.

- **Bonanza –Mona 345kV Line (Contingency B40 and RAS variations)**

Outage B40 resulted in overloads on the Bonanza - Vernal, Emma Park - Upalco, Emma Park - Panther and Panther - Carbon 138kV lines, Flaming Gorge 230/138kV Transformer #2 as well as voltage deviations greater than 5% on a few buses near Upalco. The RAS actions as noted for disturbance B40a, (Tripping a Bonanza Unit) resolved these overloads and voltage deviations.

- **Bridger – Populus 345 kV Lines 1 & 2 (C02 and RAS variations)**

Outage C02 resulted in an overload on the Bridger – 3 Mile Knoll 345 kV line. As noted above, the loading numbers will be used as a design input for rebuilding the limiting conductor sections. The overload was fully mitigated with RAS switching of one Bridger unit as modeled in outage C02a.

- **Bridger – Populus & Bridger – 3 Mile Knoll 345 kV Lines (C03 and RAS variations)**

This outage resulted a low voltage on a bus (PTRSNFUR 69.0) near Path 18. RAS actions, as noted for the C03d (Tripping of Bridger unit and additional switchable capacitors applied at Big Grassy 161 kV and Amps 230kV buses), resolved the low voltage problems.

- **Populus – Ben Lomond 345 kV Double Line Outage (Contingencies C06 and C06k)**

Contingency C06 resulted in an overload on the Grace – Soda 138 kV line. Bypassing 1/2 of the 3 Mile Knoll series capacitor as modeled in outage C06k fully resolved the overload.

6.15.3. Reactive Margin Analysis

Both corner points of the nomogram were tested with +5% flow cases as noted near the bottom of Appendix 3-15. Both corner +5% cases solved for all contingencies (with appropriate RAS actions), indicating sufficient reactive margins for both Level B and Level C contingencies. Idaho's reactive margin requirements were also met for all contingencies (with appropriate RAS actions).

6.15.4. Transient Stability Analysis

As shown on Appendix 4-15, dynamic simulations were run for various contingencies. Contingency B08 and B09 with RAS variations resulted in back swing under-frequency deviations; however, these deviations are within the exceptions for Bridger that are filed with the WECC. See Appendix 21 for details of the TSS Approved exceptions for Bridger.

Contingency B15 (Aeolus – Anticline 500 kV line) also produced voltage deviations, which were mitigated with some of the RAS actions simulated in the PT contingencies.

7. Contingencies Studied

A list of the studied contingencies are located in Appendix A

8. Study Conclusions / Recommendations

Results of the simultaneous path interaction studies are summarized in Table 2.

Table 2

Primary Path	Secondary Path	Simultaneous Limitations	Max Path Flows		Comments
			Primary	Secondary	
Aeolus West;	Aeolus South Flow	Nomogram	2672	1700	
	Bonanza West	Nomogram	2672	785	
	Tot 1a		2672	650	
Bridger / Anticline West	Aeolus South Flow	Nomogram	4095	1700	Primary Path to be increased to 4100 MW
	Path C Southbound	Nomogram	4100	2250	
	Bonanza West	Nomogram	4100	785	
	Path 18	No Restrictions	4100	337	Path 18 @ 337 Achieved w/ Caps Added
	MSTI Project	No Restrictions	4100	1500	
	Monument-Naughton	Nomogram	4100	475	
	Rock Spgs / Firehole West	Nomogram	4100	640	
Path C Southbound;	Path 18	Nomogram	2250	337	Path 18 @ 337 Achieved w/ Caps Added
	Bonanza West	Nomogram	2250	785	
	MSTI Project	No Restrictions	2250	1500	
	Monument-Naughton	Nomogram			Internal Path - To be added after PRG Review
	Rock Spgs / Firehole West	Nomogram			Internal Path - To be added after PRG Review

Throughout the studies, the Bridger West 345 Path was modeled at 2400 MW with reductions in Bridger / Anticline West flows taken entirely on the Anticline – Populus 500 kV line. Although this path uprate was not specifically requested in the study plan goals, in conjunction with the Gateway West system, a Bridger West 2400 MW rating is proven by this study.

As can be seen from the post-transient results tables, for contingencies involving the Aeolus – Anticline 500 kV and Aeolus – Mona Annex (Clover) 500 kV lines have varying needs for RAS switching to achieve post-transient solutions and acceptable voltage deviations. Details of transfer levels commensurate with RAS generation tripping and capacitor switching will need to be determined in additional studies prior to operation. It is expected that additional studies will need to be developed to determine operating limits as the various components of the Gateway West facilities are energized.

During the course of this study, post-transient voltage deviations and violations of the .90 pu local voltage criteria were noted to be limiting for the most critical contingencies. As a relatively economical expansion of transfer capabilities, some additional shunt capacitors were added as follows;

1. Mona Annex 500; A total of three 200 MVar switchable shunt capacitor banks
2. Anticline 500 kV; A total of three 200 MVar switchable shunt capacitor banks
3. Populus 500 kV; Three 200 MVar switchable shunt capacitor banks
4. Mustang 230 kV; Two 30 MVar Switchable capacitor banks
5. Riverton 230 kV; One 41 MVar Switchable capacitor bank
6. Chapel Creek 230 kV; One 30 MVar Switchable capacitor banks
7. Bonanza 138 kV; One 60 MVar Switchable capacitor bank

Earlier studies of the Bridger / Anticline West vs. Path 18 studies showed a nomogram relationship limited by voltage problems at the Path 18 buses. After changes to the base case modeling from Northwestern, Idaho Power, and PacifiCorp, revised studies show the modeling changes along with lowering the allowable Path 18 minimum voltage to .87 pu for Level B and Level C contingencies, will allow simultaneous operation at full capacity on each path. While not demonstrated in these studies, it is expected that these same modeling and voltage standard changes will also impact the Path C southbound vs. Path 18 nomogram such that both paths can be operated at their respective ratings.

Base case overloads noted to be most significant in Appendices 3-5, 3-7, and 3-10. These overloads appear in SE Wyoming and along the Colorado front range and are more prevalent in cases with high loadings on Tot 1a and Bonanza West. In these cases, Tot 3, between SE Wyoming and the “front range” area is some 400 – 600 MW under its current operating limit of 1604 MW. The Cottonwood – Monument – Kettle Creek 115 kV and Kelker W – Rock Island 115 kV overloads appear to be in the Colorado Springs area and are probably more indicative of a local area problem than anything associated with Gateway West. The Sidney DC tie and the Sidney 230 / 115 transformer overloads appear to be due to scheduling of the Sidney back-to-back DC terminals.

In many of the path flow scenarios studied, overloads of the Grace – Soda 138 kV line, and to a lesser extent, the 3 Mile Knoll – Soda 138 kV line were encountered. These overloads were as a result of Bridger 345 kV system N-1 & N-2 outages and Path C N-2 outages. Tests of several RAS options indicated that bypassing both segments of the 3 Mile Knoll capacitor bank resulted in impacts to system voltages for several 345 kV outages. Bypassing ½ of the 3 Mile Knoll 345 kV series capacitor bank was the most effective method of mitigating the 138 kV overloads for most conditions while not causing other voltage problems. This assumes that Path 18 recommended voltage mitigations are installed. With these assumptions, the 3 Mile Knoll – Soda 138 kV line was still slightly overloaded at 101% of its emergency rating and will need to be either uprated, equipped for dynamic ratings, or be rebuilt with higher temperature conductors.

Several scenarios show that for high levels of wind generation and an outage of one of the Aeolus 500 / 230 kV transformers, the remaining two transformers load to about 105% of their emergency ratings. As these transformers have not yet been specified, it is recommended that the top FOA ratings shown in the base case data be increased to 1764 MVA.

The Bridger – 3 Mile Knoll 345 kV line maximum flows were encountered on the Bridger / Anticline West vs. Path C southbound cases with Contingency C02 and C02a (Bridger - Populus

345kV line DLO). With no gen drop RAS, the maximum line flow was found to be 2354 Amps. If one Bridger Unit is tripped via RAS, then the maximum line flow is 2064 Amps. These flow numbers can be found on Appendix 3-5. With this information, the cost of upgrading the Bridger - 3 Mile Knoll 345 kV line can be compared to continued exposure of the Bridger Units to RAS tripping.

Dynamic stability analysis of Aeolus West vs. Bonanza West and Aeolus West vs. Tot 1a both showed under frequency deviations down to 59.418 Hz. which is outside the TSS Approved exceptions to the NERC/WECC reliability performance standards. Appendix 21 includes the approved exceptions on pages C24 through C26. On page C26, the Bridger 22 kV generator buses are allowed a under frequency deviation down to 59.42 Hz. This exception to the standards may need to be amended to allow for the lower frequency excursion down to 59.40 Hz.

Appendix 1 – Post-Transient and Dynamic Contingency Lists

Table 1-1 – List of N-1 Post Transient Contingencies

1	Anticline – Populus 500 kV Line
2	Anticline 500 / 345 kV Transformer
3	Bridger – Populus 345 kV Line
4	Bridger – 3Mileknoll 345 kV Line
5	Bridger 345 / 230 kV Transformer
6	3Mileknoll – Goshen 345 kV Line
7	Kinport – Goshen 345 kV Line
8	Kinport – Borah 345 kV Line
9	Populus – Borah 500 kV Line
10	Borah 500 / 345 kV Transformer
11	Borah 345 / 230 kV Transformer
12	Populus – Cedar Hill 500 kV Line
13	Cedar Hill – Midpoint 500 kV Line (Out of Service)
14	Cedar Hill – Hemingway 500 kV Line
15	Midpoint – Hemingway 500 kV Line
15a	Hemingway – Summer Lake 500kV line
16	Borah – Midpoint 500 kV Line
17	Midpoint 500 / 345 kV Transformer
18	Midpoint 345 / 230 kV Transformer
19	Borah – Adelaide #2 345 kV Line
20	Adelaide – Midpoint #2 345 kV Line
21	Borah – Adelaide – Midpoint #1 345 kV Line
22	Borah – Hunt 230 kV Line
23	Midpoint – Boise Bench #3 230 kV Line
24	Midpoint – Rattle Snake 230 kV Line
25	Midpoint – Dram 230 kV Line
26	Rattle Snake – Boise Bench 230 kV Line
27	Dram – Boise Bench 230 kV Line
28	Hemingway 500/230 kV Transformer
29	Kinport – Goshen 345 kV Line (Duplicate of #7)
30	Populus – Borah #1 345 kV Line
31	Populus – Borah #2 345 kV Line
32	Populus – Kinport 345 kV Line
33	Populus – Ben Lomond #3 345 kV Line
34	Populus – Terminal 345 kV Line
35	Aeolus – Anticline 500 kV Line
36	Aeolus – Mona 500 kV Line
37	Aeolus 500 / 230 kV Transformer
38	Aeolus – Windstar 230 kV Line
39	Aeolus – Miners 230 kV Line (Changed to Aeolus – Freezeout)
40	Bonanza –Mona 345kV Line

Table 1-2 – List of N-2 Post Transient Contingencies

1	Anticline – Populus 500 kV Lines (two circuits) – with & w/o generator tripping (NA)
2	Bridger – Populus #1 & # 2 345 kV Lines – with & w/o generator tripping (NA)
3	Bridger – 3MileKnoll + Bridger – Populus #1 345 kV lines – with & w/o generator tripping
4	Bridger – 3MileKnoll + Bridger – Populus #2 345 kV lines – with & w/o generator tripping
5	Borah – Populus 345 kV DLO with / w/o generator tripping
6	Populus – Ben Lomond 345 kV DLO
7	Ben Lomond – Terminal 345 kV DLO
8	Populus – Kinport + Populus – Borah #2 345 kV Lines with/ w/o generator tripping
9	Populus – Borah #2 345 kV + Treasureton – Brady 230 kV Lines
10	Populus – Borah #1 345 kV + Treasureton – Brady 230 kV Lines
11	Populus – Ben Lomond #2 + Populus Terminal 345 kV Lines.
12	Populus – Terminal 345 kV + Treasureton – Brady 230 kV Lines
13	Borah – Adelaide #2 & Borah – Adelaide – Midpoint #1 345 kV lines (RA)
14	Borah – Adelaide #2 & Midpoint - Adelaide #2 345 kV lines (RA)
15	Borah – Adelaide #2 & Borah – Hunt 230 kV lines
16	Borah – Kinport & Borah – Adelaide – Midpoint #1 345 kV lines (RA?)
18	Borah – Kinport & Midpoint – Adelaide #2 345 kV lines (RA?)
19	Borah – Kinport 345 kV & Borah – Hunt 230 kV lines (RA?)
20	Borah – Adelaide – Midpoint #1 & Midpoint – Adelaide #2 345 kV lines
21	Borah – Adelaide – Midpoint #1 345 kV & Borah -Hunt 230 kV lines (RA)
23	Borah – Adel #2 345 kV + Borah – Midpoint 500 kV Lines
24	Bridger – Populus #1 & Goshen – Kinport 345 kV Lines -- with & w/o generator tripping.
25	Bridger – Populus #2 & Goshen – Kinport 345 kV lines with & w/o generator tripping.
26	Aeolus – Anticline 500 kV Lines (two circuits) – with & w/o generator tripping (NA)
27	Aeolus – Mona 500 kV Lines (two circuits) – with & w/o generator tripping (NA)
28	Palo Verde Generation – Trip Two Units

Table 1-3 – List of N-1 Dynamics Contingencies

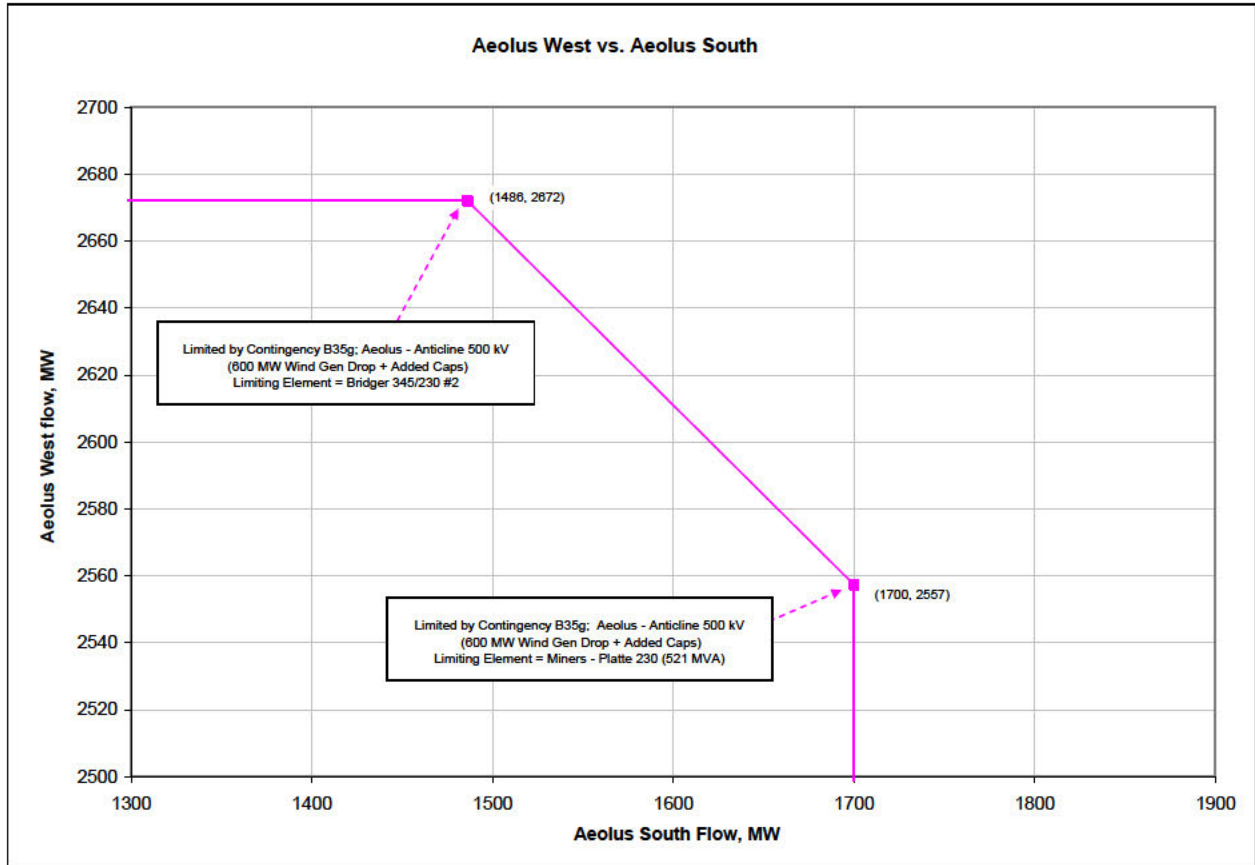
1	Anticline – Populus 500 kV Line
2	Populus – Borah 500 kV Line
3	Populus – Cedar Hill 500 kV Line
4	Borah – Midpoint 500 kV Line
5	Cedar Hill – Midpoint 500 kV Line
6	Cedar Hill – Hemingway 500 kV Line
7	Midpoint – Hemingway 500 kV Line
8	Bridger – Populus 345 kV Line
9	Bridger – 3MileKnoll 345 kV Line
10	Populus – Borah #1 345 kV Line
11	Populus – Borah #2 345 kV Line
12	Populus – Kinport 345 kV Line
13	Borah – Kinport 345 kV Line
14	Borah – Adelaide – Midpoint #1 345 kV Line
15	Aeolus – Anticline 500 kV Line
16	Aeolus – Mona 500 kV Line
17	Hemingway – Summer Lake 500 kV Line (NA)

Table 1-4 – List of N-2 Dynamics Contingencies

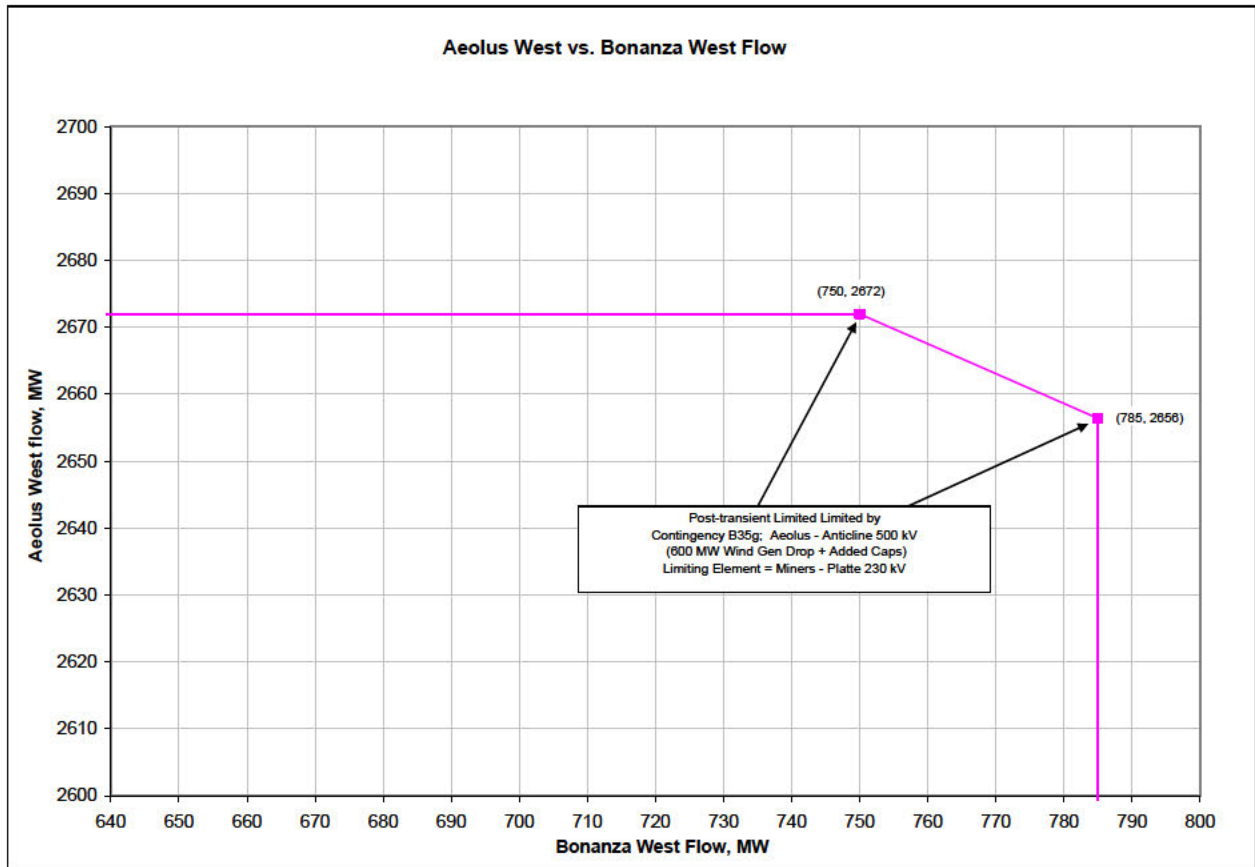
1	Anticline – Populus 500 kV Lines (two circuits) – with & w/o generator tripping
2	Bridger – Populus #1 & # 2 345 kV Lines – with & w/o generator tripping
3	Bridger – 3MileKnoll + Bridger – Populus #1 345 kV lines – with & w/o generator tripping
4	Bridger – 3MileKnoll + Bridger – Populus #2 345 kV lines – with & w/o generator tripping
5	Borah – Populus 345 kV DLO with / w/o generator tripping)
6	Populus – Ben Lomond 345 kV DLO
7	Populus – Kinport + Populus – Borah #2 345 kV Lines with/ w/o generator tripping
8	Populus – Borah #2 345 kV + Treasureton – Brady 230 kV Lines
9	Borah – Adelaide #2 & Borah – Hunt 230 kV lines
10	Midpoint – Kinport & Borah – Adelaide – Midpoint #1 345 kV lines
11	Midpoint – Kinport 345 kV & Borah – Hunt 230 kV lines
12	Borah – Adelaide – Midpoint #1 & Midpoint – Adelaide #2 345 kV lines
13	Midpoint – Adelaide #2 345 kV & Borah – Hunt 230 kV lines
14	Palo Verde Generation – Trip Two Units

Appendix 2 - Nomograms

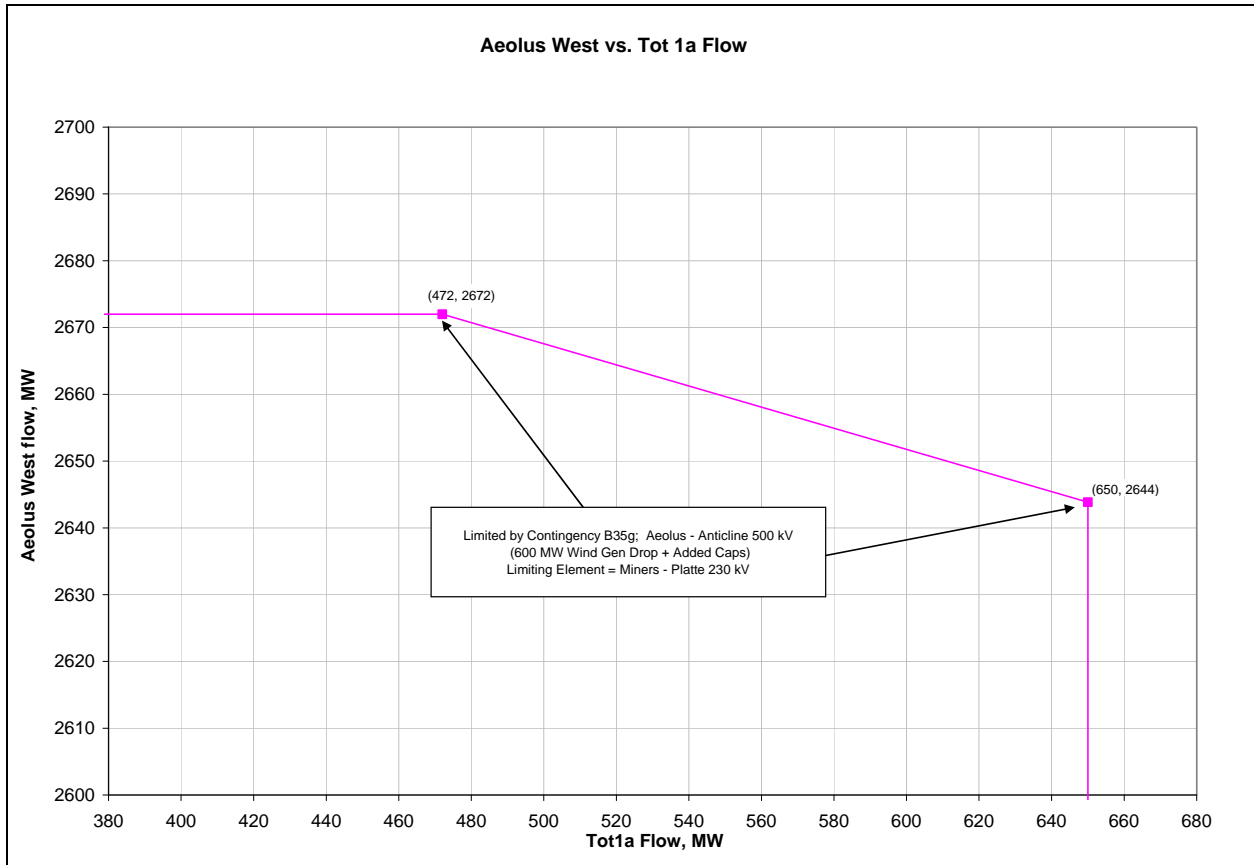
Appendix 2-1; Aeolus West vs. Aeolus South



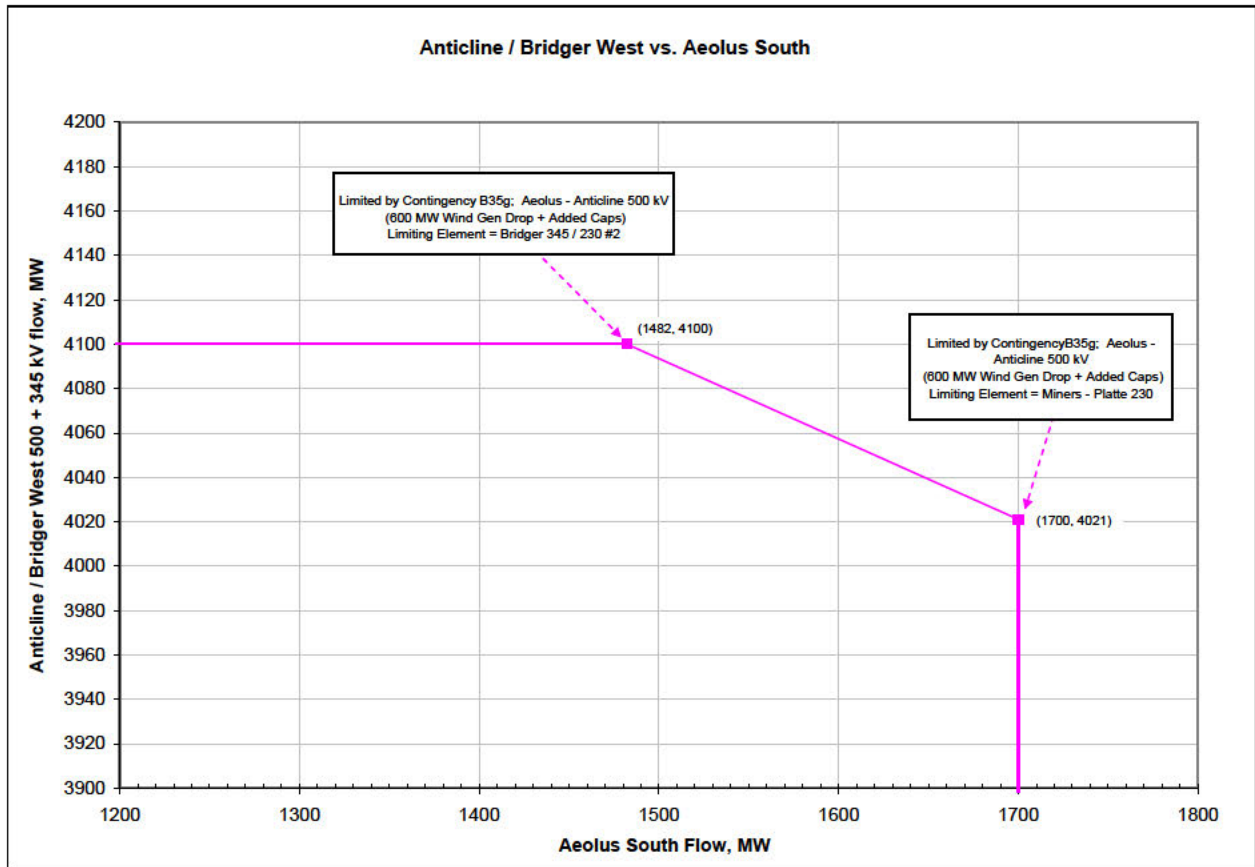
Appendix 2-2; Aeolus West vs. Bonanza West



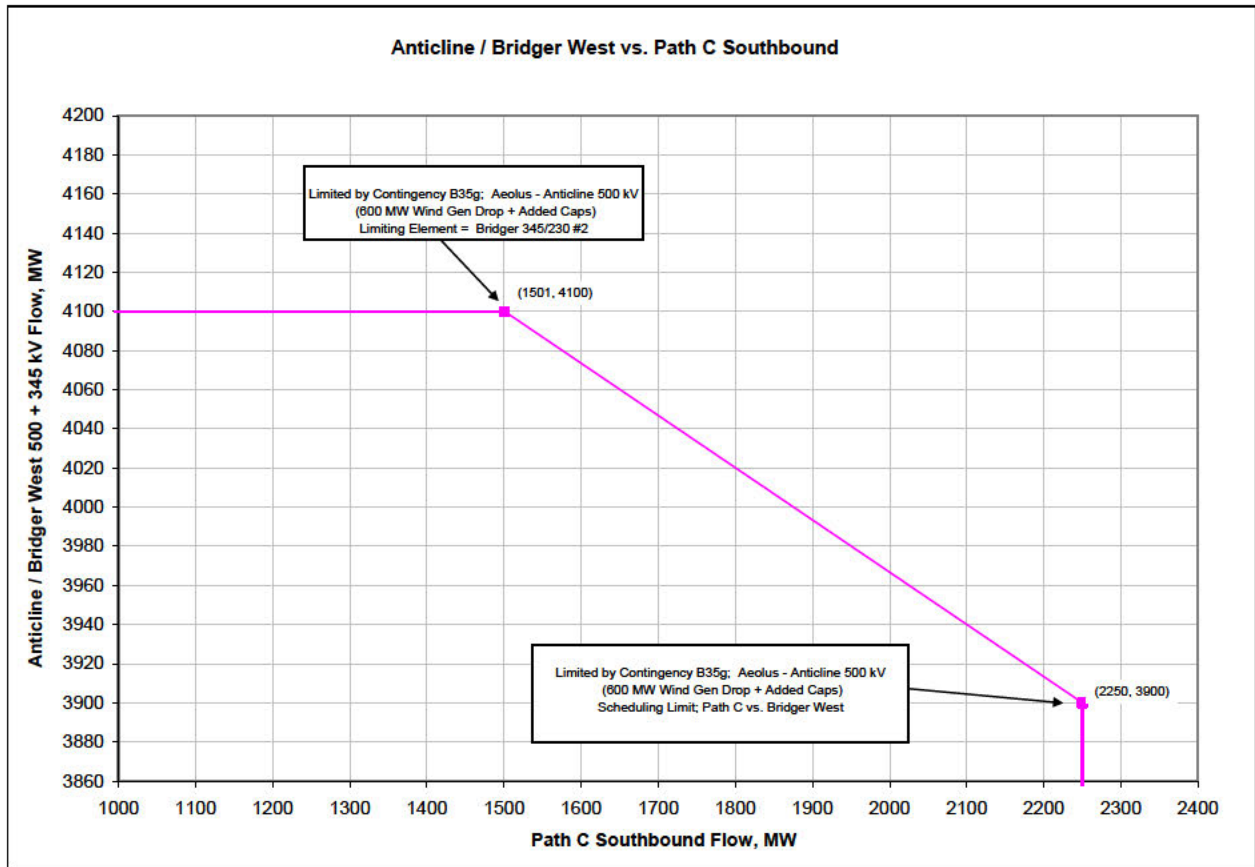
Appendix 2-3; Aeolus West vs. Tot 1a



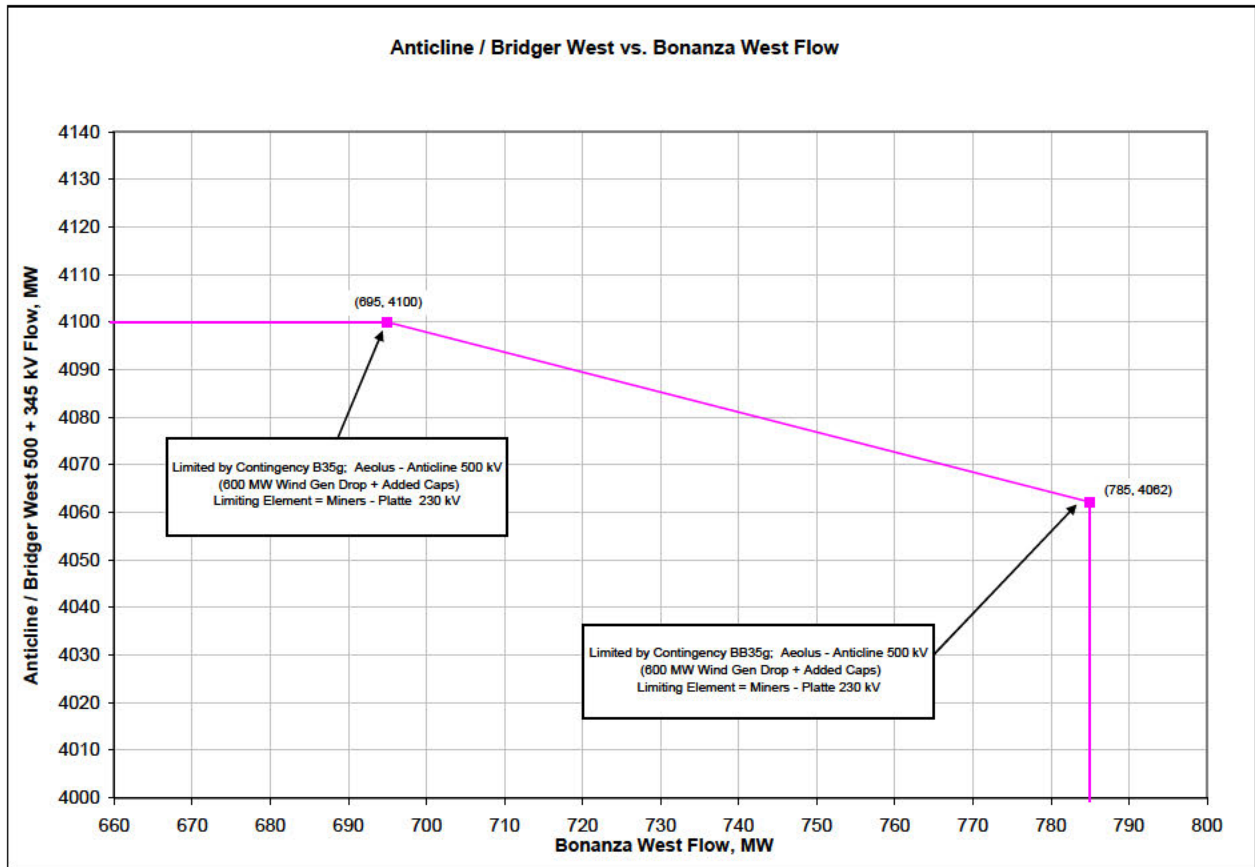
Appendix 2-4; Bridger / Anticline West vs. Aeolus South



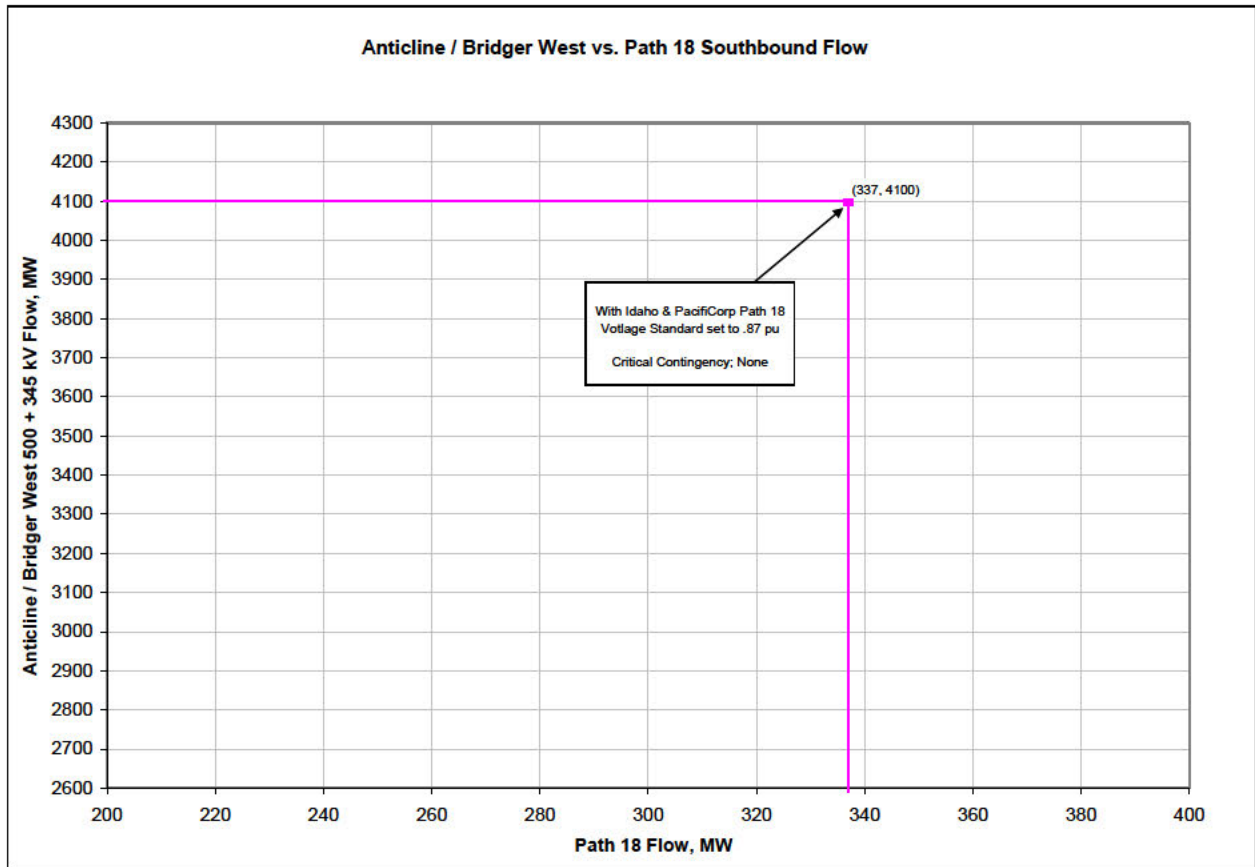
Appendix 2-5; Bridger / Anticline West vs. Path C Southbound



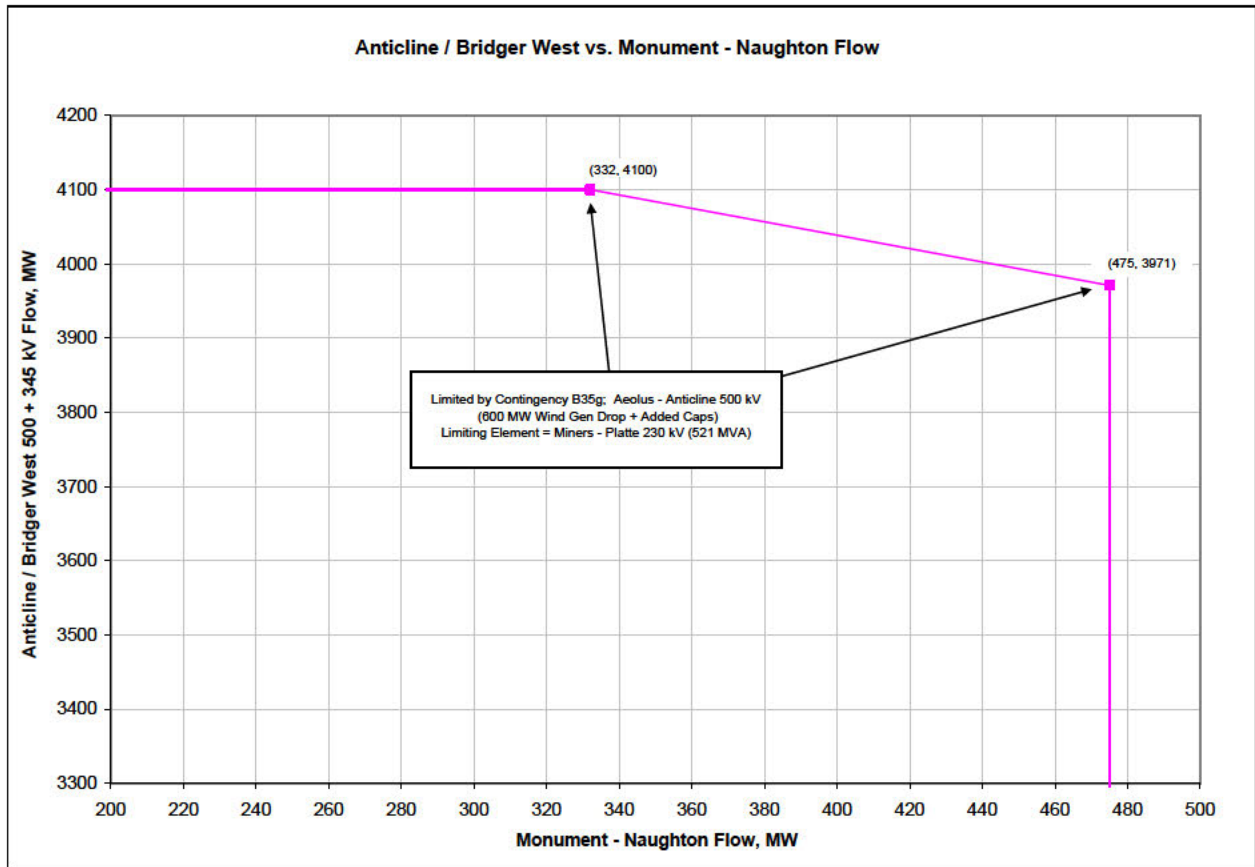
Appendix 2-6; Bridger / Anticline West vs. Bonanza West



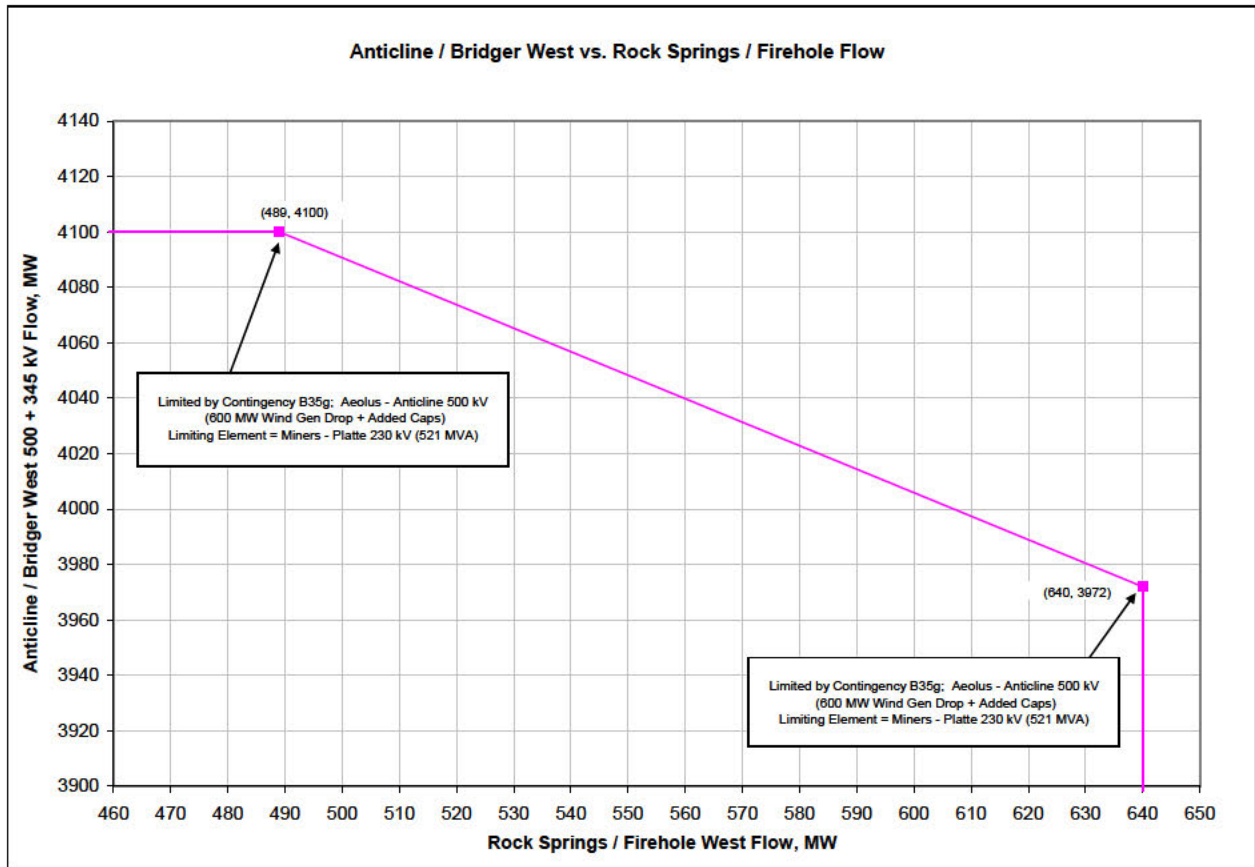
Appendix 2-7; Bridger / Anticline West vs. Idaho – Montana (Path 18)



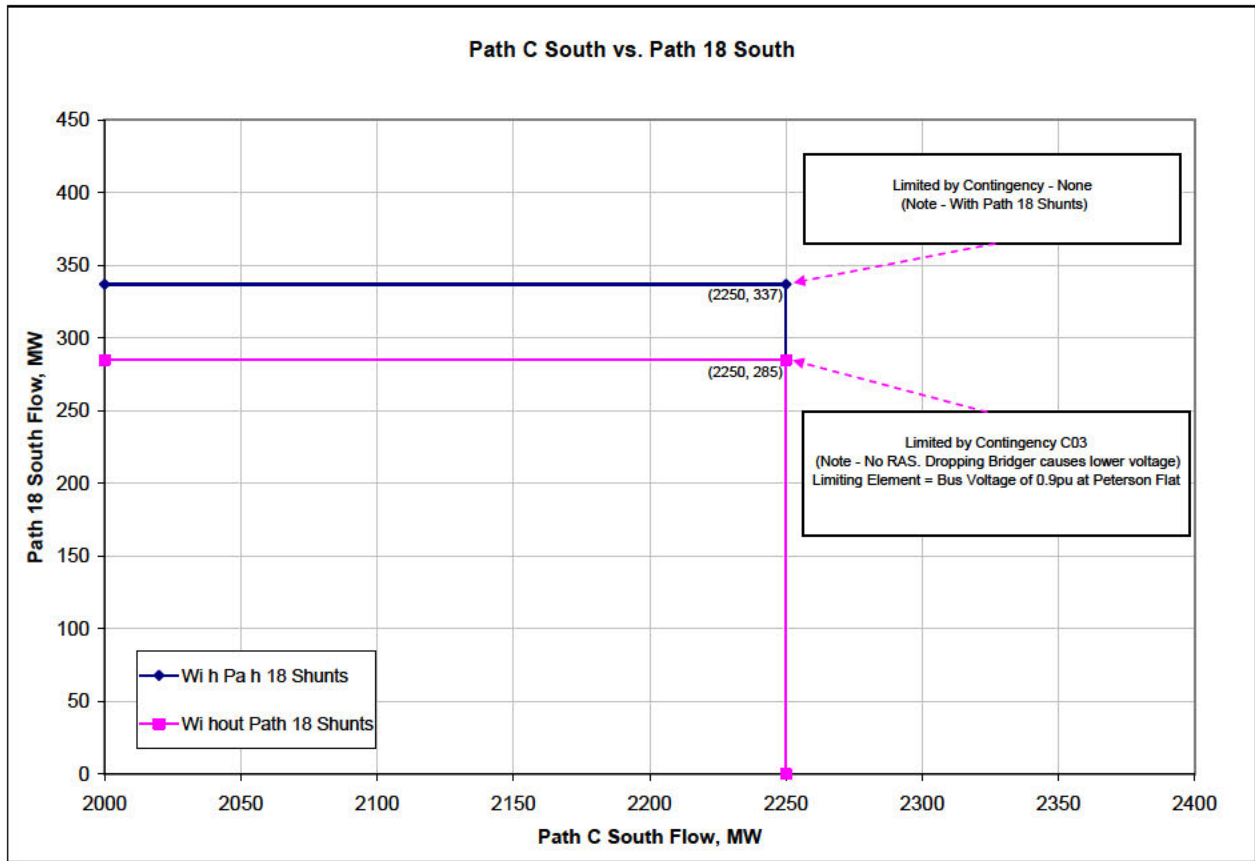
Appendix 2-8; Bridger / Anticline West vs. Monument – Naughton



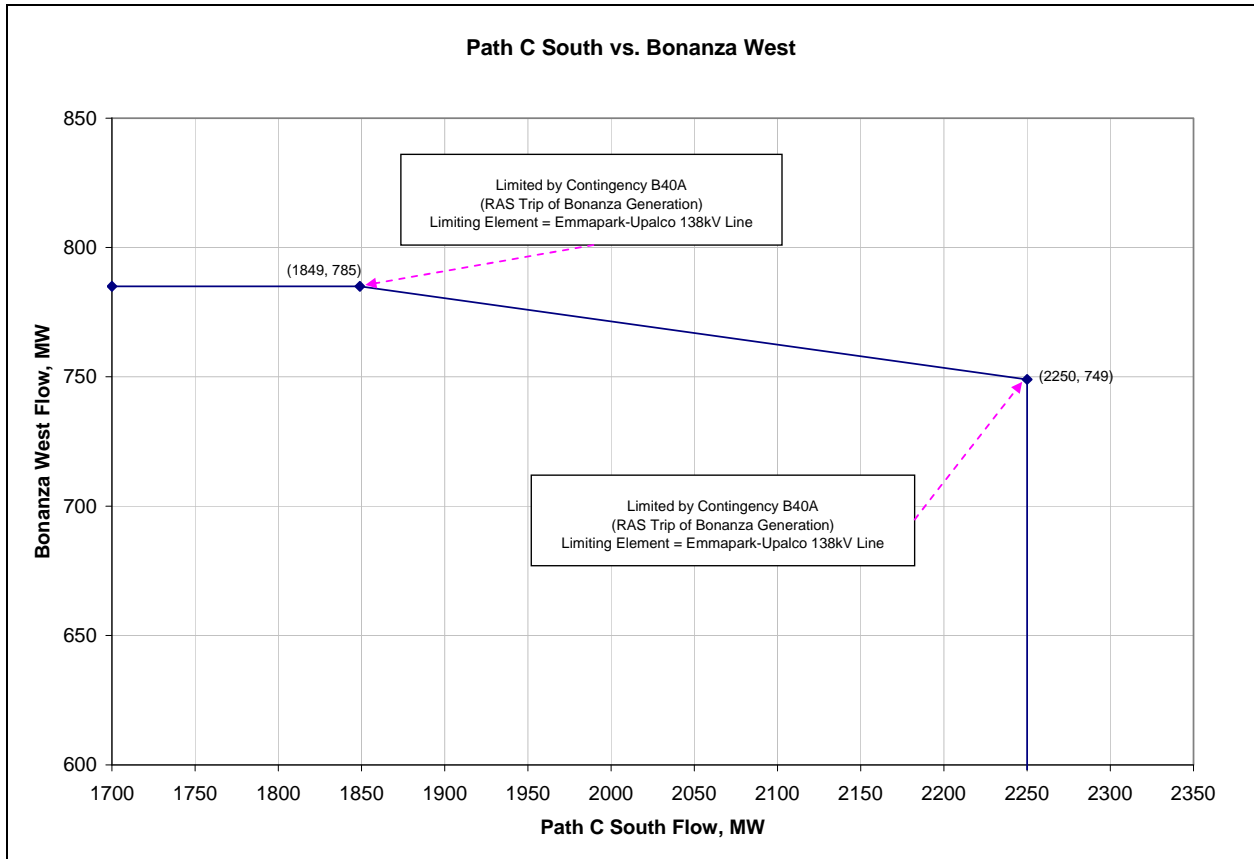
Appendix 2-9; Bridger / Anticline West vs. Rock Springs / Firehole



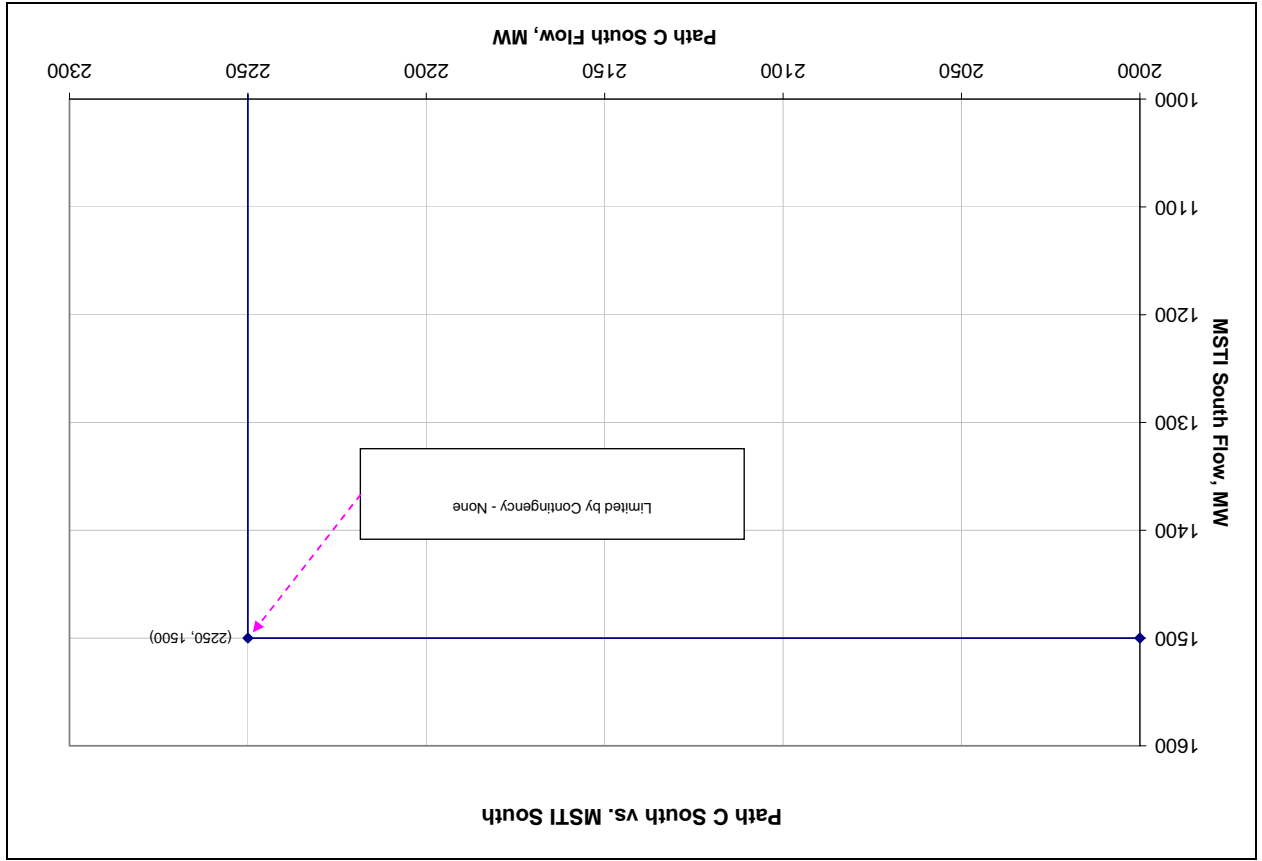
Appendix 2-10; Path C Southbound vs. Idaho – Montana (Path 18)



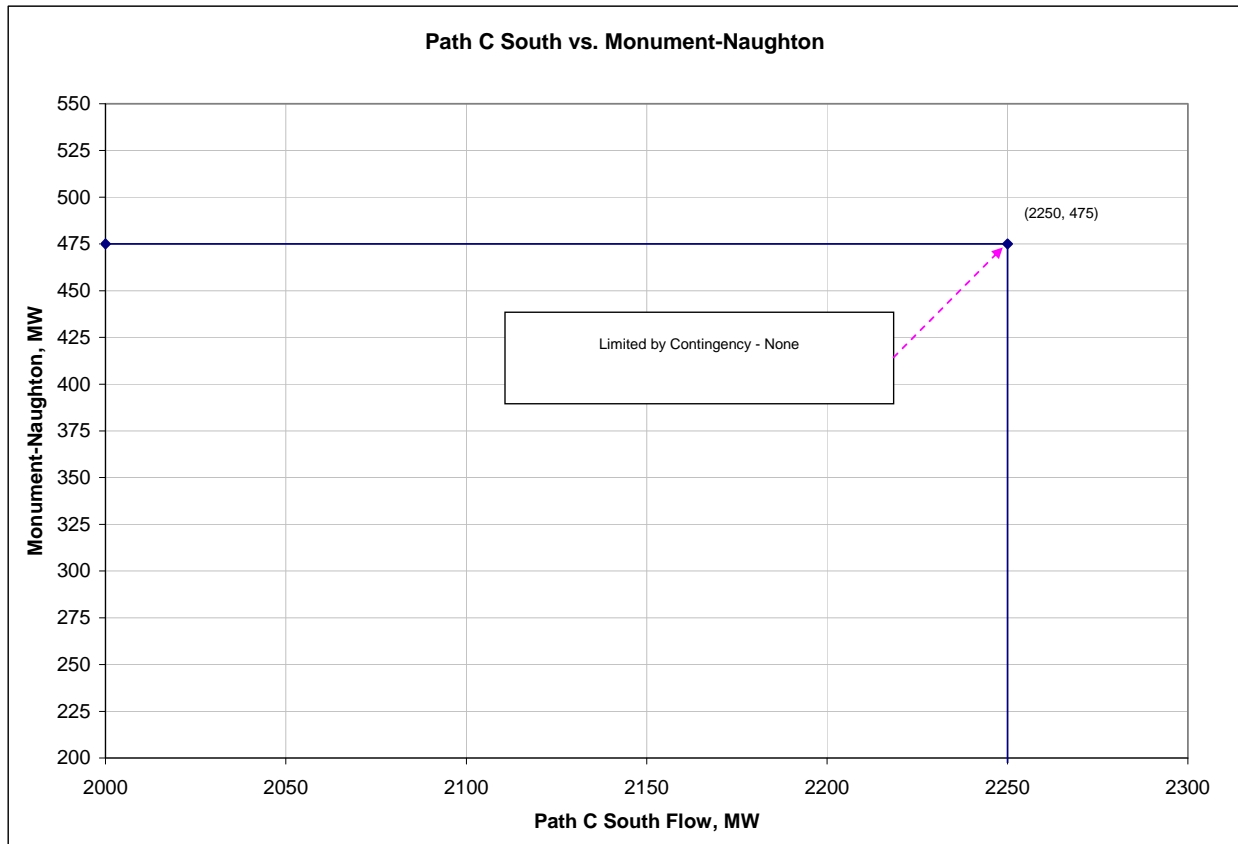
Appendix 2-11; Path C Southbound vs. Bonanza West



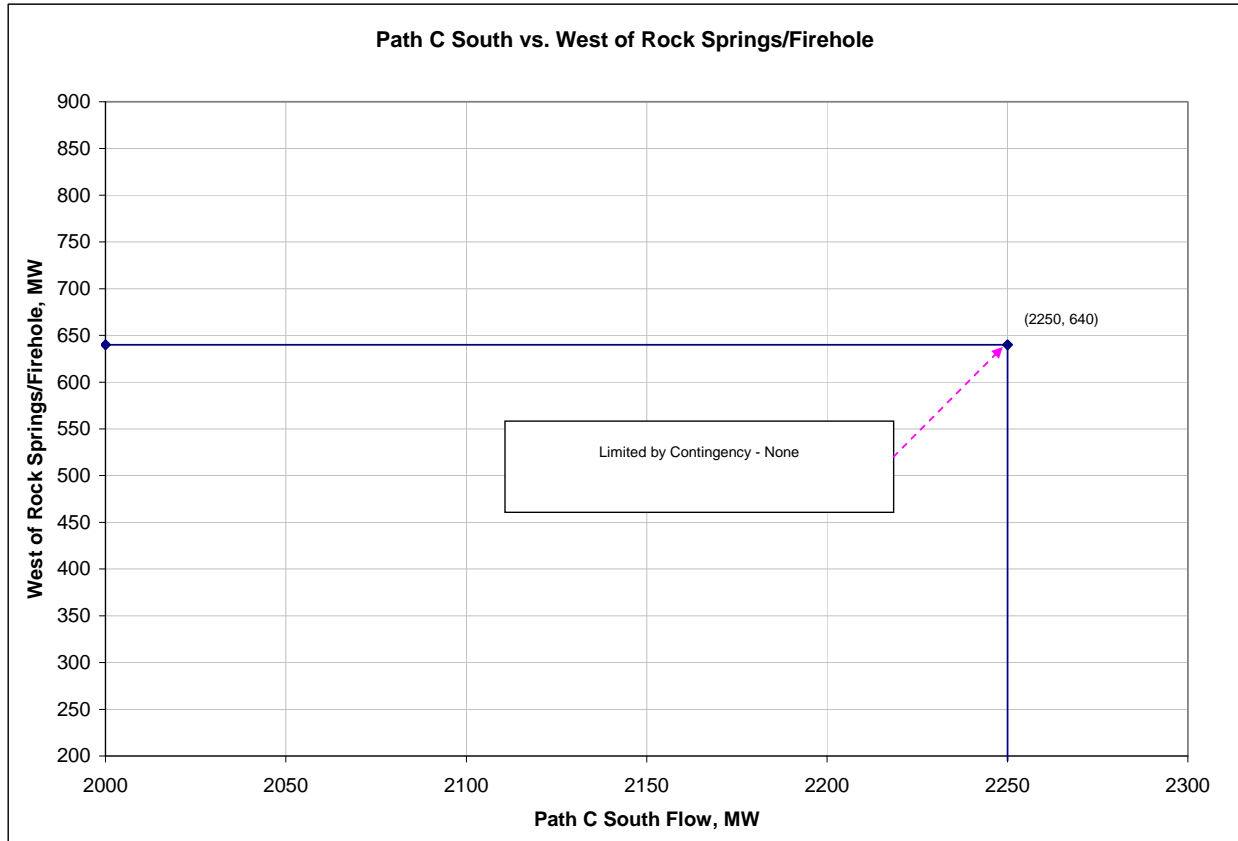
Appendix 2-12; Path C Southbound vs. the MSTI Project



Appendix 2-13; Path C Southbound vs. Monument – Naughton



Appendix 2-14; Path C Southbound vs. Rock Springs / Firehole



Appendix 3 – Post-transient Results Tables

Appendix 3-4 Page 2 - - - Post-transient Results For Bridger / Anticline West vs. Aeolus South

Table with columns: LINE#, CON INDEXTY, CON INGENCV, BASE CASE NAME, BASE CASE / P / A / N FLOWS, Gen Drop, REACT IV MARGN, NVAR, WORS VOL AGRS, WORS LOAD NG, % of MVAZ, Wymong Path 18 Buses, COMMENT. Rows include various bus configurations like 'Level 1 Contingencies', 'Level 2 Contingencies', and 'F CASE DIVERGED'.

1) Voltage / Vtolans > 5% for Level B & 10% for Level C
2) Excluding Series Cap Buses (Line Side) and Transformer Tertiary Wires

Appendix 3-11 Pg. 1 - - - Post-transient Results For Path C Southbound vs. Idaho - Montana (Path 18)

LINE #	CON INGENY/RY	CON INGENY / BASE CASE NAME	BASE CASE / P / P PA H FLOWS										RASC ID #										REAC IVE MARGIN MVAR (Gray shaded cells are the minimum margin)										WORS VOL AGE ¹	W ²	W ³	W ⁴	W ⁵	W ⁶	W ⁷	W ⁸	W ⁹	W ¹⁰	W ¹¹	W ¹²	W ¹³	W ¹⁴	W ¹⁵	W ¹⁶	W ¹⁷	W ¹⁸	W ¹⁹	W ²⁰	W ²¹	W ²²	W ²³	W ²⁴	W ²⁵	W ²⁶	W ²⁷	W ²⁸	W ²⁹	W ³⁰	W ³¹	W ³²	W ³³	W ³⁴	W ³⁵	W ³⁶	W ³⁷	W ³⁸	W ³⁹	W ⁴⁰	W ⁴¹	W ⁴²	W ⁴³	W ⁴⁴	W ⁴⁵	W ⁴⁶	W ⁴⁷	W ⁴⁸	W ⁴⁹	W ⁵⁰	W ⁵¹	W ⁵²	W ⁵³	W ⁵⁴	W ⁵⁵	W ⁵⁶	W ⁵⁷	W ⁵⁸	W ⁵⁹	W ⁶⁰	W ⁶¹	W ⁶²	W ⁶³	W ⁶⁴	W ⁶⁵	W ⁶⁶	W ⁶⁷	W ⁶⁸	W ⁶⁹	W ⁷⁰	W ⁷¹	W ⁷²	W ⁷³	W ⁷⁴	W ⁷⁵	W ⁷⁶	W ⁷⁷	W ⁷⁸	W ⁷⁹	W ⁸⁰	W ⁸¹	W ⁸²	W ⁸³	W ⁸⁴	W ⁸⁵	W ⁸⁶	W ⁸⁷	W ⁸⁸	W ⁸⁹	W ⁹⁰	W ⁹¹	W ⁹²	W ⁹³	W ⁹⁴	W ⁹⁵	W ⁹⁶	W ⁹⁷	W ⁹⁸	W ⁹⁹	W ¹⁰⁰	W ¹⁰¹	W ¹⁰²	W ¹⁰³	W ¹⁰⁴	W ¹⁰⁵	W ¹⁰⁶	W ¹⁰⁷	W ¹⁰⁸	W ¹⁰⁹	W ¹¹⁰	W ¹¹¹	W ¹¹²	W ¹¹³	W ¹¹⁴	W ¹¹⁵	W ¹¹⁶	W ¹¹⁷	W ¹¹⁸	W ¹¹⁹	W ¹²⁰	W ¹²¹	W ¹²²	W ¹²³	W ¹²⁴	W ¹²⁵	W ¹²⁶	W ¹²⁷	W ¹²⁸	W ¹²⁹	W ¹³⁰	W ¹³¹	W ¹³²	W ¹³³	W ¹³⁴	W ¹³⁵	W ¹³⁶	W ¹³⁷	W ¹³⁸	W ¹³⁹	W ¹⁴⁰	W ¹⁴¹	W ¹⁴²	W ¹⁴³	W ¹⁴⁴	W ¹⁴⁵	W ¹⁴⁶	W ¹⁴⁷	W ¹⁴⁸	W ¹⁴⁹	W ¹⁵⁰	W ¹⁵¹	W ¹⁵²	W ¹⁵³	W ¹⁵⁴	W ¹⁵⁵	W ¹⁵⁶	W ¹⁵⁷	W ¹⁵⁸	W ¹⁵⁹	W ¹⁶⁰	W ¹⁶¹	W ¹⁶²	W ¹⁶³	W ¹⁶⁴	W ¹⁶⁵	W ¹⁶⁶	W ¹⁶⁷	W ¹⁶⁸	W ¹⁶⁹	W ¹⁷⁰	W ¹⁷¹	W ¹⁷²	W ¹⁷³	W ¹⁷⁴	W ¹⁷⁵	W ¹⁷⁶	W ¹⁷⁷	W ¹⁷⁸	W ¹⁷⁹	W ¹⁸⁰	W ¹⁸¹	W ¹⁸²	W ¹⁸³	W ¹⁸⁴	W ¹⁸⁵	W ¹⁸⁶	W ¹⁸⁷	W ¹⁸⁸	W ¹⁸⁹	W ¹⁹⁰	W ¹⁹¹	W ¹⁹²	W ¹⁹³	W ¹⁹⁴	W ¹⁹⁵	W ¹⁹⁶	W ¹⁹⁷	W ¹⁹⁸	W ¹⁹⁹	W ²⁰⁰	W ²⁰¹	W ²⁰²	W ²⁰³	W ²⁰⁴	W ²⁰⁵	W ²⁰⁶	W ²⁰⁷	W ²⁰⁸	W ²⁰⁹	W ²¹⁰	W ²¹¹	W ²¹²	W ²¹³	W ²¹⁴	W ²¹⁵	W ²¹⁶	W ²¹⁷	W ²¹⁸	W ²¹⁹	W ²²⁰	W ²²¹	W ²²²	W ²²³	W ²²⁴	W ²²⁵	W ²²⁶	W ²²⁷	W ²²⁸	W ²²⁹	W ²³⁰	W ²³¹	W ²³²	W ²³³	W ²³⁴	W ²³⁵	W ²³⁶	W ²³⁷	W ²³⁸	W ²³⁹	W ²⁴⁰	W ²⁴¹	W ²⁴²	W ²⁴³	W ²⁴⁴	W ²⁴⁵	W ²⁴⁶	W ²⁴⁷	W ²⁴⁸	W ²⁴⁹	W ²⁵⁰	W ²⁵¹	W ²⁵²	W ²⁵³	W ²⁵⁴	W ²⁵⁵	W ²⁵⁶	W ²⁵⁷	W ²⁵⁸	W ²⁵⁹	W ²⁶⁰	W ²⁶¹	W ²⁶²	W ²⁶³	W ²⁶⁴	W ²⁶⁵	W ²⁶⁶	W ²⁶⁷	W ²⁶⁸	W ²⁶⁹	W ²⁷⁰	W ²⁷¹	W ²⁷²	W ²⁷³	W ²⁷⁴	W ²⁷⁵	W ²⁷⁶	W ²⁷⁷	W ²⁷⁸	W ²⁷⁹	W ²⁸⁰	W ²⁸¹	W ²⁸²	W ²⁸³	W ²⁸⁴	W ²⁸⁵	W ²⁸⁶	W ²⁸⁷	W ²⁸⁸	W ²⁸⁹	W ²⁹⁰	W ²⁹¹	W ²⁹²	W ²⁹³	W ²⁹⁴	W ²⁹⁵	W ²⁹⁶	W ²⁹⁷	W ²⁹⁸	W ²⁹⁹	W ³⁰⁰	W ³⁰¹	W ³⁰²	W ³⁰³	W ³⁰⁴	W ³⁰⁵	W ³⁰⁶	W ³⁰⁷	W ³⁰⁸	W ³⁰⁹	W ³¹⁰	W ³¹¹	W ³¹²	W ³¹³	W ³¹⁴	W ³¹⁵	W ³¹⁶	W ³¹⁷	W ³¹⁸	W ³¹⁹	W ³²⁰	W ³²¹	W ³²²	W ³²³	W ³²⁴	W ³²⁵	W ³²⁶	W ³²⁷	W ³²⁸	W ³²⁹	W ³³⁰	W ³³¹	W ³³²	W ³³³	W ³³⁴	W ³³⁵	W ³³⁶	W ³³⁷	W ³³⁸	W ³³⁹	W ³⁴⁰	W ³⁴¹	W ³⁴²	W ³⁴³	W ³⁴⁴	W ³⁴⁵	W ³⁴⁶	W ³⁴⁷	W ³⁴⁸	W ³⁴⁹	W ³⁵⁰	W ³⁵¹	W ³⁵²	W ³⁵³	W ³⁵⁴	W ³⁵⁵	W ³⁵⁶	W ³⁵⁷	W ³⁵⁸	W ³⁵⁹	W ³⁶⁰	W ³⁶¹	W ³⁶²	W ³⁶³	W ³⁶⁴	W ³⁶⁵	W ³⁶⁶	W ³⁶⁷	W ³⁶⁸	W ³⁶⁹	W ³⁷⁰	W ³⁷¹	W ³⁷²	W ³⁷³	W ³⁷⁴	W ³⁷⁵	W ³⁷⁶	W ³⁷⁷	W ³⁷⁸	W ³⁷⁹	W ³⁸⁰	W ³⁸¹	W ³⁸²	W ³⁸³	W ³⁸⁴	W ³⁸⁵	W ³⁸⁶	W ³⁸⁷	W ³⁸⁸	W ³⁸⁹	W ³⁹⁰	W ³⁹¹	W ³⁹²	W ³⁹³	W ³⁹⁴	W ³⁹⁵	W ³⁹⁶	W ³⁹⁷	W ³⁹⁸	W ³⁹⁹	W ⁴⁰⁰	W ⁴⁰¹	W ⁴⁰²	W ⁴⁰³	W ⁴⁰⁴	W ⁴⁰⁵	W ⁴⁰⁶	W ⁴⁰⁷	W ⁴⁰⁸	W ⁴⁰⁹	W ⁴¹⁰	W ⁴¹¹	W ⁴¹²	W ⁴¹³	W ⁴¹⁴	W ⁴¹⁵	W ⁴¹⁶	W ⁴¹⁷	W ⁴¹⁸	W ⁴¹⁹	W ⁴²⁰	W ⁴²¹	W ⁴²²	W ⁴²³	W ⁴²⁴	W ⁴²⁵	W ⁴²⁶	W ⁴²⁷	W ⁴²⁸	W ⁴²⁹	W ⁴³⁰	W ⁴³¹	W ⁴³²	W ⁴³³	W ⁴³⁴	W ⁴³⁵	W ⁴³⁶	W ⁴³⁷	W ⁴³⁸	W ⁴³⁹	W ⁴⁴⁰	W ⁴⁴¹	W ⁴⁴²	W ⁴⁴³	W ⁴⁴⁴	W ⁴⁴⁵	W ⁴⁴⁶	W ⁴⁴⁷	W ⁴⁴⁸	W ⁴⁴⁹	W ⁴⁵⁰	W ⁴⁵¹	W ⁴⁵²	W ⁴⁵³	W ⁴⁵⁴	W ⁴⁵⁵	W ⁴⁵⁶	W ⁴⁵⁷	W ⁴⁵⁸	W ⁴⁵⁹	W ⁴⁶⁰	W ⁴⁶¹	W ⁴⁶²	W ⁴⁶³	W ⁴⁶⁴	W ⁴⁶⁵	W ⁴⁶⁶	W ⁴⁶⁷	W ⁴⁶⁸	W ⁴⁶⁹	W ⁴⁷⁰	W ⁴⁷¹	W ⁴⁷²	W ⁴⁷³	W ⁴⁷⁴	W ⁴⁷⁵	W ⁴⁷⁶	W ⁴⁷⁷	W ⁴⁷⁸	W ⁴⁷⁹	W ⁴⁸⁰	W ⁴⁸¹	W ⁴⁸²	W ⁴⁸³	W ⁴⁸⁴	W ⁴⁸⁵	W ⁴⁸⁶	W ⁴⁸⁷	W ⁴⁸⁸	W ⁴⁸⁹	W ⁴⁹⁰	W ⁴⁹¹	W ⁴⁹²	W ⁴⁹³	W ⁴⁹⁴	W ⁴⁹⁵	W ⁴⁹⁶	W ⁴⁹⁷	W ⁴⁹⁸	W ⁴⁹⁹	W ⁵⁰⁰	W ⁵⁰¹	W ⁵⁰²	W ⁵⁰³	W ⁵⁰⁴	W ⁵⁰⁵	W ⁵⁰⁶	W ⁵⁰⁷	W ⁵⁰⁸	W ⁵⁰⁹	W ⁵¹⁰	W ⁵¹¹	W ⁵¹²	W ⁵¹³	W ⁵¹⁴	W ⁵¹⁵	W ⁵¹⁶	W ⁵¹⁷	W ⁵¹⁸	W ⁵¹⁹	W ⁵²⁰	W ⁵²¹	W ⁵²²	W ⁵²³	W ⁵²⁴	W ⁵²⁵	W ⁵²⁶	W ⁵²⁷	W ⁵²⁸	W ⁵²⁹	W ⁵³⁰	W ⁵³¹	W ⁵³²	W ⁵³³	W ⁵³⁴	W ⁵³⁵	W ⁵³⁶	W ⁵³⁷	W ⁵³⁸	W ⁵³⁹	W ⁵⁴⁰	W ⁵⁴¹	W ⁵⁴²	W ⁵⁴³	W ⁵⁴⁴	W ⁵⁴⁵	W ⁵⁴⁶	W ⁵⁴⁷	W ⁵⁴⁸	W ⁵⁴⁹	W ⁵⁵⁰	W ⁵⁵¹	W ⁵⁵²	W ⁵⁵³	W ⁵⁵⁴	W ⁵⁵⁵	W ⁵⁵⁶	W ⁵⁵⁷	W ⁵⁵⁸	W ⁵⁵⁹	W ⁵⁶⁰	W ⁵⁶¹	W ⁵⁶²	W ⁵⁶³	W ⁵⁶⁴	W ⁵⁶⁵	W ⁵⁶⁶	W ⁵⁶⁷	W ⁵⁶⁸	W ⁵⁶⁹	W ⁵⁷⁰	W ⁵⁷¹	W ⁵⁷²	W ⁵⁷³	W ⁵⁷⁴	W ⁵⁷⁵	W ⁵⁷⁶	W ⁵⁷⁷	W ⁵⁷⁸	W ⁵⁷⁹	W ⁵⁸⁰	W ⁵⁸¹	W ⁵⁸²	W ⁵⁸³	W ⁵⁸⁴	W ⁵⁸⁵	W ⁵⁸⁶	W ⁵⁸⁷	W ⁵⁸⁸	W ⁵⁸⁹	W ⁵⁹⁰	W ⁵⁹¹	W ⁵⁹²	W ⁵⁹³	W ⁵⁹⁴	W ⁵⁹⁵	W ⁵⁹⁶	W ⁵⁹⁷	W ⁵⁹⁸	W ⁵⁹⁹	W ⁶⁰⁰	W ⁶⁰¹	W ⁶⁰²	W ⁶⁰³	W ⁶⁰⁴	W ⁶⁰⁵	W ⁶⁰⁶	W ⁶⁰⁷	W ⁶⁰⁸	W ⁶⁰⁹	W ⁶¹⁰	W ⁶¹¹	W ⁶¹²	W ⁶¹³	W ⁶¹⁴	W ⁶¹⁵	W ⁶¹⁶	W ⁶¹⁷	W ⁶¹⁸	W ⁶¹⁹	W ⁶²⁰	W ⁶²¹	W ⁶²²	W ⁶²³	W ⁶²⁴	W ⁶²⁵	W ⁶²⁶	W ⁶²⁷	W ⁶²⁸	W ⁶²⁹	W ⁶³⁰	W ⁶³¹	W ⁶³²	W ⁶³³	W ⁶³⁴	W ⁶³⁵	W ⁶³⁶	W ⁶³⁷	W ⁶³⁸	W ⁶³⁹	W ⁶⁴⁰	W ⁶⁴¹	W ⁶⁴²	W ⁶⁴³	W ⁶⁴⁴	W ⁶⁴⁵	W ⁶⁴⁶	W ⁶⁴⁷	W ⁶⁴⁸	W ⁶⁴⁹	W ⁶⁵⁰	W ⁶⁵¹	W ⁶⁵²	W ⁶⁵³	W ⁶⁵⁴	W ⁶⁵⁵	W ⁶⁵⁶	W ⁶⁵⁷	W ⁶⁵⁸	W ⁶⁵⁹	W ⁶⁶⁰	W ⁶⁶¹	W ⁶⁶²	W ⁶⁶³	W ⁶⁶⁴	W ⁶⁶⁵	W ⁶⁶⁶	W ⁶⁶⁷	W ⁶⁶⁸	W ⁶⁶⁹	W ⁶⁷⁰	W ⁶⁷¹	W ⁶⁷²	W ⁶⁷³	W ⁶⁷⁴
--------	---------------	-----------------------------	------------------------------	--	--	--	--	--	--	--	--	--	-----------	--	--	--	--	--	--	--	--	--	---	--	--	--	--	--	--	--	--	--	---------------------------	----------------	----------------	----------------	----------------	----------------	----------------	----------------	----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------

Table with columns: IN/CON INGENYTY, CON INGENYTY, BASE CASE NAME, BASE CASE / P PA A FLOWS, RAS/C I/O, REAC IVE MARGIN, MWAR, WORS VOL AGES, WORS LOADING, % of MWAT, WYOMING PATH 18 BUSES < 90 P P VOLTAGE, COMMENT. Rows include various transmission lines like Level 1 Contingency, B01, B02, B03, etc.

1) Volting is at or on -1% to Level B & +1% for Level C
2) Excluding Ser Cap Buses (Line 6) and Transformer status buses.

Table with columns: NE #, CON INGENCY / BASE CASE NAME, AECUS ROUTE, BASE CASE / P / PA H FLOWS, RAS AC, REAC IVC MARGN MVAR, WORS VOL AGE!, WORS LOADING, % of WYAZ, WYoming Path 18 Buses < 90% of Voltage, and COMMENT. The table contains detailed data for various power lines and substations, including voltage levels, flow directions, and compliance percentages.

All Con Agency w/ Final RAS/Conveyed Indicate no Post Issue Voltage Margin
All Con Agency w/ Final RAS/Conveyed Indicate no Post Issue Voltage Margin

1) Voage Vc at 0.5 to > 5% for Level B > 10% for Level C
2) Excluding Ser as Cap Lines (Line S de) and Transformer test buses.

Appendix 4 – Dynamic Stability Results Tables

Appendix 5 – Gateway West Study Plan

(2010 01 19 V9 - Phase I II GW Study Plan.doc 2/11/2010)

Gateway West Transmission Project

Study Plan

For completion of

WECC Project Rating Process

Phase 2 – Facility Rating

Date: January 19, 2010

Rev 9

Study Plan – Preamble

The purpose of this document is to provide a consistent, comprehensive study methodology for the project sponsor(s) and/or study group to follow in establishing the planned rating (Phase 1) and accepted rating (Phase 2) for the Energy Gateway Projects. Section III (Page 7) outlines the methodology that was followed for the Phase 1 studies, while Section IV (Page 18) outlines the study process that will be followed for the Phase 2 studies.

A separate study plan which addresses the study methodology for the Gateway South Projects will be issued separately. While study schedule for both Gateway South and Gateway West are noted independently in each study plan, the study schedules have been coordinated between the projects.

I. INTRODUCTION

Idaho Power previously announced³ its transmission expansion plan to build more than 1,400 miles of new 500 kV transmission lines originating in Wyoming and connecting into Idaho and the Pacific Northwest, with completion targeted in 2017. A First stage completion of this project is expected to be completed by 2016. This project has been identified as the Gateway West (GW) Project.

Regional Planning

The GW project was first presented to stakeholders on July 9, 2007 at a Northern Tier Transmission Group (NTTG) Regional Planning Process (RPP) kickoff meeting in Portland, Oregon. The Northern Tier Transmission Group is made up of a group of transmission providers and customers in the Northwest and Rocky Mountain states. The NTTG region covers Wyoming, Idaho, Utah, and parts of Oregon.

As the GW project facilities fall primarily within the NTTG footprint, the project was entered into the NTTG Regional Planning Process (RPP) in May 2007. The RPP for the Fast Track projects included engaging stakeholders to formulate and refine the transmission plan to meet the ten year requirements of the NTTG region. This process was completed during the first half of 2007 and incorporated: 1) the member utilities' Integrated Resource Plans (IRP), 2) past studies highlighting regional through-put and export needs and known congestion areas, and 3) existing regional projects.

The NTTG Planning Committee coordinates transmission planning within the NTTG footprint, with other sub-regional planning groups, and with WECC planning

³ PacifiCorp has indicated that they have entered into a memorandum of understanding with Idaho Power Company to cooperate on a northernmost line, a double-circuit 500 kV transmission line from PacifiCorp's and Idaho Power's jointly owned Jim Bridger Power Plant in Wyoming to southeastern Idaho, with a connection south into Utah along an existing transmission path from southern Idaho into northern Utah. Another segment of this line will be built west across Idaho and into Oregon. This project has been identified as the Gateway West (GW) Project. Idaho Power Company is performing all the studies related to GW project (west of Populus).

committees. The planning group will biennially prepare a long-term (10 year) bulk transmission expansion plan, while taking into consideration up to a twenty year planning horizon. The plan will provide strategic transmission options for economic and reliability projects, and specific alternative plans for reinforcing the transmission system. The plan is intended to help coordinate the integration of new generation into the system and to reduce transmission congestion. This work is intended to be completed primarily by the transmission owners in the footprint utilities, with input from all interested stakeholders.

Path Rating

With the issuance of the Regional Planning Project Review report for the GW Project, regional planning has been completed and efforts to obtain a path rating⁴ for the GW Project are now under way. This study plan outlines the GW technical studies that will be performed in support of the following:

- WECC Project Rating Review – Phase 1
- WECC Project Rating Review – Phase 2

The Phase 1 studies that are outlined as part of this Study Plan will focus on the non-simultaneous rating of the GW project. This includes all of the internal paths defined under the Gateway West project: TOT 4A, Aeolus West, Bridger West, Borah West and Midpoint West.

The Gateway West Comprehensive Progress Report, which summarized the results of the Phase 1 technical study findings, was issued on November 21, 2008. The Gateway West Project was granted Phase 2 status on February 6, 2009.

Phase 2 studies will address the Simultaneous Transfer Capability of the GW Project in conjunction with other major transmission paths in the Western Interconnection.

Due to the scope and nature of the GW project, the Phase 1 portion of this study plan is intended to establish non-simultaneous ratings for the expanded/modified transmission paths listed in Table 1.

Table 1. Proposed Gateway West Internal Paths

	Line Description	Transmission Path	Path Rating Direction
1	Anticline* – Populus 500 kV #1 & #2 (new) Bridger* – Three Mile Knoll 345 kV (modified)	Modified Bridger West	E → W

⁴ A path rating can be related to an individual transmission line or a combination of parallel transmission lines. The transfer path may be composed of transmission lines between control areas or internal to a control area, or a combination of both.

	Bridger* – Populus 345 kV #1 & #2 (modified)		
2	Populus* – Cedar Hill 500 kV (new) Borah* – Midpoint #1 500 kV (conversion of Kinport – Midpoint 345 kV line) Borah* – Adelaide #2 345 kV Borah* – Adelaide – Midpoint #1 345 kV Borah* – Hunt 230 kV American Falls* – Minidoka 138 kV	Modified Borah West	E → W
3	Midpoint* - Hemingway 500 kV #1 (modified) Midpoint* – Hemingway 500 kV #2 (new) Cedar Hill* – Hemingway 500 kV (new) Midpoint* – Rattle Snake 230 kV Midpoint* – DRAM 230 kV Midpoint* – Boise Bench 230 kV #3 Upper Salmon* – Upper Salmon SR 138 kV Lower Malad *– Lower Malad SR 138 kV	Modified Midpoint West	Bidirectional
5	Aeolus* – Anticline #1 & #2 500 kV (new) Platte* - Latham 230 kV #1 Mustang* – Bridger 230 kV	Aeolus West	E → W
6	Windstar* – Aeolus 230 kV #1 & #2 (new) Riverton* – Wyopo 230 kV Dave Johnston* – Difficulty 230 kV Spence* – Mustang 230 kV	TOT 4A	NE → SW

Note: (*) indicates metering point

II. SCOPE OVERVIEW

The objective of the study plan is to outline steps necessary to determine the proposed path ratings for the GW Project. The GW Project includes the following transmission facilities:

- Windstar – Aeolus 230 kV #1 & #2 (73 & 88 miles, Bittern 2-1272 ACSR)
- Aeolus - Anticline 500 kV #1 & #2 (145 miles, 3- Athabaska/TW 1949.6)
- Aeolus 500/230 kV #1, #2 & #3 autotransformers (1500 MVA)
- Aeolus 230 kV SVC (-125/+450 MVA)
- Anticline 500/345 kV #1 & #2 autotransformer (1500 MVA)
- Anticline 345 kV #1 & #2 PST (750MVA, ±20 Degrees)
- Anticline - Populus 500 kV #1 & #2 (204 miles, 3- Athabaska/TW 1949.6)
- Populus – Cedar Hill 500 kV #1 (118 miles, 3- Athabaska/TW 1949.6)
- Cedar Hill - Midpoint 500 kV #1 (33 miles, 3- Athabaska/TW 1949.6)

- Cedar Hill - Hemingway 500 kV #1 (158 miles, 3- Athabaska/TW 1949.6)
- Populus - Borah 500 kV #1 (53 miles, 3- Athabaska/TW 1949.6)
- Borah - Midpoint 500 kV #1 (88 miles, 3- 1272 MCM (36/1), conversion of Kinport-Midpoint 345 kV line)
- Midpoint - Hemingway 500 kV #2 (131 miles, 3- Athabaska/TW 1949.6)

Note that the Windstar – Aeolus 500 kV line and the Aeolus-Creston-Bridger 230 kV line have been eliminated from the Gateway West project since the original phase 1 report. An addendum report has been prepared for phase 1, stage 1 without these lines.

The preliminary configuration of the Gateway West Energy Project line and transformer impedances, line distances, shunt and series compensation and voltage support are provided in Appendix 3,

The non-simultaneous studies that will be performed as part of the Phase 1 studies include power flow and limited transient stability and post-transient stability analysis. The Phase 2 study efforts will perform simultaneous analysis to determine the Accepted Rating for the project.

Adding new transmission facilities to an existing path should increase the path rating. In following WECC policies, this increase should be attributable to the new project. This study plan only addresses the studies corresponding to maximum project loadings. Studies covering simultaneous interactions between paths, would ultimately be necessary to provide an Accepted Rating and/or nomogram(s) for the proposed project, and will be completed in Phase 2.

A. Baseline Analysis – Non-simultaneous (WECC Phase 1)

All aspects of this analysis, including assumptions, methodology, and contingencies are covered in Section III of this Study Plan.

B. Simultaneous Analyses (WECC Phase 2)

The Study Plan includes an assessment of the potential impact of GW on the following simultaneous paths to refine the GW Project definition. Further details of the simultaneous analysis are covered in Section IV of this Study Plan.

1. Gateway South paths
 - Aeolus South [New Path]
 - Mona South [New Path]
2. PacifiCorp Internal Paths

- Monument – Naughton 230 kV
 - Rock Springs/Firehole West
3. Idaho – Northwest [Path 14] (including MP-SL [Path 75])
 4. Path C [Path 20]
 5. Idaho – Sierra [Path 16]
 6. SWIP (Great Basin – North, EnTP)
 7. MISTI
 8. Montana - Idaho [Path 18]
 9. Montana – Northwest [Path 8]
 10. Montana Southeast [Path 80]
 11. Yellowtail South
 12. TOT 4B [Path 38]
 13. TOT 3 [Path 36]
 14. Bridger West [Path 19]
 15. TOT 1A [Path 30]
 16. Bonanza West [Path 33]
 17. Others.

Further details of the simultaneous analysis are covered in Section IV of this Study Plan.

C. Sensitivity Analyses

The sensitivity analysis defined in this study plan was developed based on preliminary assessment that there could be an interaction between GW and projects that are planned to be developed in the same time frame as GW. The Study Plan includes the following projects and uncertainties as sensitivity cases.

1. Gateway South (GS) project will be modeled to determine its impact on Gateway West. The GS project will be constructed at least one year after GW is completed.
2. A generic version of a northern Nevada project will be modeled to include either the Ely Energy Center & 500 kV Line, or the Great Basin North & South 500 kV lines.
3. Southern portion GS: Mona – Red Butte, bi-directional rating
4. Mountain States Transmission (MSTI) Project

5. TOT 2C: Add a second Red Butte – Harry Allen/Crystal line, bi-directional rating
6. Different resource mix in Wyoming to evaluate higher concentrations of wind generation.

III. BASELINE ANALYSIS – NON-SIMULTANEOUS

To the fullest extent possible, the rating and sizing of new facilities shall be refined as part of this analysis.

A. Study Conditions

The process for performing the proposed Phase 1 studies that will establish the Preliminary Ratings are described below. Preliminary Ratings are identified for transmission lines that have not been through the WECC Phase 2 rating process, and are a general rating determined by simply evaluating the conductor ampacity required to handle the path flows between source and sink facilities. However, due to the scope of the GW Project, specific transfer levels have been proposed and facilities have been sized to accommodate these power transfers.

1. Base Case Description

Project Base Case 1a will be developed by starting with the WECC 2015HS1 power flow base case. This case was approved by WECC on April 6, 2007 and since has undergone a number of revisions. The added resources represented in this case are reflected under the “moderate wind generation” portion of Table 2. Stress in this case will reflect heavy Wyoming to Utah and west of Bridger transfers as well as heavy north to south flows South of Mona and on Path 2C (Red Butte – Harry Allen). Table 4a reflects the proposed transfer levels in Case 1a.

Project Base Case 1b will have a configuration (nearly) identical to Case 1a; however, its generation resource mix will be as noted under the “higher wind generation” portion of Table 2. As necessary, line series compensation will be adjusted to achieve (as close as possible) the flow conditions listed in Table 4a

Project Base Case 1c will have a configuration identical to Case 1a; however, schedules will be adjusted to reflect heavy south to north flows on the TOT 2C and the Mona South transmission paths. Table 4c reflects the proposed transfer levels.

The Project Base Case 1d will be developed by using the WECC 2010LA1 base case with facility adjustments to reconcile it as closely as possible to the configuration of a 2015 light load case. Table 4d reflects the proposed transfers for this case. Case 1c will not be utilized during the Phase 1 project definition studies, but will be developed for use in the Phase 2 studies.

2. Generation Assumptions

Planned future Generation projects will be modeled in the Case 1a, 1b and 1d base cases as identified in Table 2. Case 1c generation will reflect reduced

generation in Wyoming to allow transfers from southern Nevada thru central Utah (Crystal/Harry Allen – Red Butte – Mona) to the Utah – Wasatch Front⁵.

Table 2. Future Planned Generation Projects*

Location	Case 1 a/d - Generation Projects (Moderate Wind Generation)			Case 1 b - Generation Projects (High Wind Generation)**		
	Generation Type		Zone Total	Generation Type		Zone Total
	Thermal	Wind		Thermal	Wind	
Dave Johnston Area	275		2825	275		2825
Windstar	1500	1050		600	1950	
Creston			1050		500	1550
Aeolus		1050			1050	
Jim Bridger Area	1500		2000	500		1500
Upper Green River	500			500	500	
Subtotal	<u>3775</u>	<u>2100</u>		<u>1875</u>	<u>4000</u>	
Total	5875			5875		

* The generation assumptions will be responsive to energy policies currently under review by utilities, regulators and other stakeholders. Specific economic and technology evaluations and siting/permitting processes also need to run their course.

** Case 1b will be developed for the purpose of evaluating a wider range of Wyoming wind resources.

To stress the transmission paths, generation will be added in Wyoming and adjusted in Idaho, Utah, Arizona, Los Angeles, Las Vegas and the Northwest.

3. New Transmission Project Assumptions

All four of the base cases will be updated to reflect Energy Gateway Projects or projects that are currently within the WECC Phase 2 rating process. These projects are noted in Table 3.

⁵ About 75 to 80% of all of the electricity use in the State of Utah is in the area known as the Wasatch Front (WF). This area includes the entire electrical load served out of the Spanish Fork substation in the south up to the electrical load served out of the Ben Lomond substation in the north. This includes parts of Juab and Sanpete Counties, and all of Utah, Salt Lake, Summit, Tooele, Wasatch, Davis, Morgan and Weber Counties.

Table 3. Planned Energy Gateway Projects or Projects in WECC Phase 2

1	Gateway West: Double circuit 500 kV lines
2	Gateway South: Double circuit 500 kV lines
3	Mona – Limber: Double circuit 500 kV line, Limber – Oquirrh and Limber – Terminal, Double circuit 345 kV lines
4	Populus – Terminal: Double circuit 345 kV line (Path C)
5	TOT 3 (230 kV upgrade)
6	Ely Energy Center and associated transmission* (Harry Allen – Robinson Summit Transmission Line)
7	Great Basin Transmission Project*
8	Mountain States Transmission (MISTI) Project
9	IPP DC line upgrade
10	Wyoming – Colorado Intertie Project
11	Navajo Transmission Project /Desert Rock Energy Project (this project is not likely to have any impact on the Idaho and PACE areas and may be omitted , depending upon group review)
12	Palo Verde – Devers 500 kV #2
13	Others

* A generic version of a northern Nevada project will be modeled that includes one of these projects, which cross through the SWIP corridor.

4. WECC Major Path Rating Assumptions

The updates to the WECC 2015HS base case for Case 1a and 1b includes revised load/generation adjustment to stress the major path flows to the proposed rating, shown in Table 4a/b.

Table 4a/b. Major Path Proposed Transfer Levels (Case 1a & 1b – GS N→S Flows)

	Path	Path Name	WECC Rating (MW)	Proposed Rating (MW)
1	37	TOT 4A: Northeast to Southwest	810	3500
2	19	Bridger West: (GW Path) East to West	2200	5200
3	New	Aeolus South		3000
4	New	Mona South: North to South		2335
5	35	Harry Allen – Red Butte (TOT 2C) North to South	300	2100
6	79	Sigurd – Glen Canyon (TOT 2B2) North to South	265	265

7	78	Pinto – Four Corners (TOT 2B1) North to South	530	560
8		Others		

Similarly, the updates to the WECC 2015HS base case for Case 1c includes revised load/generation adjustment to stress the major path flows to the proposed rating, shown in Table 4c

Table 4c. Major Path Proposed Transfer Levels (Case 1c – GS S→N Flows)

	Path	Path Name	WECC Rating (MW)	Proposed Rating (MW)
1	35	Harry Allen – Red Butte (TOT 2C) South to North	300	1700
2	79	Sigurd – Glen Canyon (TOT 2B2) South to North	300	300
3	78	Pinto – Four Corners (TOT 2B1) South to North	600	600
5		Others		

The base case for Case 1d will be developed from the WECC 2010LA1 and will reconcile as closely as possible to a 2015 light load base case configuration. Case 1d will be utilized during the Phase 1 project definition studies only if necessary to establish the proposed non-simultaneous ratings. This case will be analyzed in Phase 2 of the Rating Review.

Table 4d. Major Path Proposed Transfer Levels (Case 1d – GW E→W Flows)

	Path	Path Name	WECC Rating (MW)	Proposed Rating (MW)
1	37	TOT 4A: Northeast to Southwest	810	3400
2	19	Bridger West: East to West	2200	5200
3	17	Borah (Populus) West (GW Path)	2557	5557
4	New	Aeolus – Mona (GS Path): North to South		3000
5		Others		

B. Study Methodology (Applicable for both WECC Phase 1 and 2 analysis).

- The power flow base case(s) and dynamic stability data used for this study will be compatible with GE PSLF V16.3.

- For all areas outside Wyoming, Utah, Idaho and Southern Nevada, the network topology and loads will reflect information provided to WECC by each respective area.
- The study results will comply with NERC TPL-001-0 thru TPL-004-0 Standards as well as WECC TPL – (001 thru 004) – WECC – 1 – CR – System Performance Criteria. Additionally, PacifiCorp and Idaho Power planning criteria will also be applied.

1. Power Flow Analysis (study criteria and contingency list)

Power flow studies will be evaluated under steady-state and single/double contingency conditions to ensure the Project meets the system performance requirements defined in the planning standards.

Study Criteria:

a. Steady-State Conditions

- i. Under steady-state conditions, bus voltages must be maintained between 0.95 p.u. and 1.06 p.u., unless specific minimum operating voltage requirements exist.
- ii. All line and transformer loadings must be below normal continuous ratings.

b. Contingency Conditions

1. Changes in bus voltages from pre- to post-contingency conditions must be less than 5% for single (N-1) contingencies, and 10% for double (N-2) contingencies, with exceptions noted in Appendix 1 in regards to the utilities involved.
2. All line, series capacitors, and transformer loadings must be below their emergency rating (or normal rating if no emergency rating is given), for both N-1 and N-2 contingencies.
3. In addition to the NERC TPL Standards and WECC system performance criteria, PacifiCorp has the following requirements: For steady-state conditions, Pinto load area 345 and 138 kV bus voltages as low as 0.93 pu are acceptable as long as load tap changing (LTC) transformers adjust the associated 69 kV bus voltages to 1.01 pu or higher. For post transient N-1 outages, Pinto load area voltages are acceptable if the 69 kV bus voltages are in the range of 0.90 to 1.10 p.u. The minimum 0.90 p.u. post-transient voltage criteria for this area are based on the original system design criteria.

Contingencies:

Tables 5a & 5b provides a list of contingencies to be simulated during the power flow analysis.

Table 5a - List of Single Contingencies for Power Flow Analysis

1	Anticline – Populus 500 kV Line
2	Anticline 500 / 345 kV Transformer
3	Bridger – Populus 345 kV Line
4	Bridger – 3Mileknoll 345 kV Line
5	Bridger 345 / 230 kV Transformer
6	3Mileknoll – Goshen 345 kV Line
7	Kinport – Goshen 345 kV Line
8	Kinport – Borah 345 kV Line
9	Populus – Borah 500 kV Line
10	Borah 500 / 345 kV Transformer
11	Borah 345 / 230 kV Transformer
12	Populus – Cedar Hill 500 kV Line
13	Cedar Hill – Midpoint 500 kV Line
14	Cedar Hill – Hemingway 500 kV Line
15	Midpoint – Hemingway 500 kV Line
15a	Hemingway – Summer Lake 500kV line
16	Borah – Midpoint 500 kV Line
17	Midpoint 500 / 345 kV Transformer
18	Midpoint 345 / 230 kV Transformer
19	Borah – Adelaide #2 345 kV Line
20	Adelaide – Midpoint #2 345 kV Line
21	Borah – Adelaide – Midpoint #1 345 kV Line
22	Borah – Hunt 230 kV Line
23	Midpoint – Boise Bench #3 230 kV Line
24	Midpoint – Rattle Snake 230 kV Line
25	Midpoint – Dram 230 kV Line
26	Rattle Snake – Boise Bench 230 kV Line
27	Dram – Boise Bench 230 kV Line
28	Hemingway 500/230 kV Transformer
29	Kinport – Goshen 345 kV Line
30	Populus – Borah #1 345 kV Line
31	Populus – Borah #2 345 kV Line
32	Populus – Kinport 345 kV Line
33	Populus – Ben Lomond #3 345 kV Line
34	Populus – Terminal 345 kV Line

35	Aeolus – Anticline 500 kV Line
36	Aeolus – Mona 500 kV Line
37	Aeolus 500 / 230 kV Transformer
38	Aeolus – Windstar 230 kV Line
39	Aeolus – Miners 230 kV Line
40	Bonanza –Mona 345kV Line

Table 5b - List of Double Contingencies for Power Flow Analysis

1	Anticline – Populus 500 kV Lines (two circuits) – with & w/o generator tripping
2	Bridger – Populus #1 & # 2 345 kV Lines – with & w/o generator tripping
3	Bridger – 3MileKnoll + Bridger – Populus #1 345 kV lines – with & w/o generator tripping
4	Bridger – 3MileKnoll + Bridger – Populus #2 345 kV lines – with & w/o generator tripping
5	Borah – Populus 345 kV DLO with / w/o generator tripping
6	Populus – Ben Lomond 345 kV DLO
7	Ben Lomond – Terminal 345 kV DLO
8	Populus – Kinport + Populus – Borah #2 345 kV Lines with/ w/o generator tripping
9	Populus – Borah #2 345 kV + Treasureton – Brady 230 kV Lines
10	Populus – Borah #1 345 kV + Treasureton – Brady 230 kV Lines
11	Populus – Ben Lomond #2 + Populus Terminal 345 kV Lines.
12	Populus – Terminal 345 kV + Treasureton – Brady 230 kV Lines
13	Borah – Adelaide #2 & Borah – Adelaide – Midpoint #1 345 kV lines (RA)
14	Borah – Adelaide #2 & Midpoint - Adelaide #2 345 kV lines (RA)
15	Borah – Adelaide #2 & Borah – Hunt 230 kV lines
16	Borah – Kinport & Borah – Adelaide – Midpoint #1 345 kV lines (RA?)
18	Borah – Kinport & Midpoint – Adelaide #2 345 kV lines (RA?)
19	Borah – Kinport 345 kV & Borah – Hunt 230 kV lines (RA?)
20	Borah – Adelaide – Midpoint #1 & Midpoint – Adelaide #2 345 kV lines
21	Borah – Adelaide – Midpoint #1 345 kV & Borah -Hunt 230 kV lines (RA)
23	Borah – Adel #2 345 kV + Borah – Midpoint 500 kV Lines

24	Bridger – Populus #1 & Goshen – Kinport 345 kV Lines -- with & w/o generator tripping.
25	Bridger – Populus #2 & Goshen – Kinport 345 kV lines with & w/o generator tripping.
26	Aeolus – Anticline 500 kV Lines (two circuits) – with & w/o generator tripping
27	Aeolus – Mona 500 kV Lines (two circuits) – with & w/o generator tripping
26	Palo Verde Generation – Trip Two Units

RA = Risk Assessment Outage - These are double line outages for lines that do not share a common element (structures, right of way, breaker) but are in the same general geographic location.

c. Voltage Stability Analysis:

The WECC Voltage Stability Guidelines and Reactive Power Reserve Monitoring Methodology will be utilized in evaluating study results.

- i. For N-1 disturbances, the associated critical bus is required to have positive reactive margin for a 5% increase beyond the maximum allowable MW flow on the path. Idaho’s 250 MVAR margin at the critical buses will also be observed.
- ii. For N-2 disturbances, the associated critical bus is required to have positive margin for a 2.5% increase beyond the maximum allowable MW flow on the path. Idaho’s 200 MVAR margin at the critical bus will also be observed.
- iii. For simplicity, the N-1 and N-2 disturbances will all be evaluated with a 5% increase in flow. When necessary 2.5% increase in flow will be applied for N-2 disturbances.

2. Transient Stability Analysis (study criteria and contingency list)

Transient stability studies will be performed to assess the dynamic performance impact of heavily stressed lines under the projected system conditions for various contingencies. Limited transient stability analysis will be performed in Phase 1, with more extensive analysis in Phase 2.

The study will determine the most critical fault condition that would limit the non-simultaneous transfer capability.

Study Criteria for Phase 1:

- a. All machines in the system shall remain in synchronism as demonstrated by their relative rotor angles.
- b. System stability is evaluated based on the damping of the relative rotor angles and the damping of the voltage magnitude swings.
- c. For central, northern and eastern Wyoming, the following dynamic stability guidelines have been established: Following a single contingency

disturbance with normal fault clearing, the bus voltage transient swing on all buses should not be lower than 0.70 p.u., and the system should exhibit positive damping. Additionally, the WECC off normal frequency criteria guidelines for N-1 (59.6 Hz) and N-1-1 or N-2 (59.0 Hz) will be followed.

- d. Other transient voltage dips and duration requirements must meet the criteria of the TPL Standards and WECC System Performance Criteria. See Appendix 2.
- e. The contingencies provided in Tables 6a & 6b will be simulated in the transient stability analysis.

Table 6a - List of Single Contingencies for Transient Stability

1	Anticline – Populus 500 kV Line
2	Populus – Borah 500 kV Line
3	Populus – Cedar Hill 500 kV Line
4	Borah – Midpoint 500 kV Line
5	Cedar Hill – Midpoint 500 kV Line
6	Cedar Hill – Hemingway 500 kV Line
7	Midpoint – Hemingway 500 kV Line
7a	Hemingway – Summer Lake 500 kV Line
8	Bridger – Populus 345 kV Line
9	Bridger – 3MileKnoll 345 kV Line
10	Populus – Borah #1 345 kV Line
11	Populus – Borah #2 345 kV Line
12	Populus – Kinport 345 kV Line
13	Borah – Kinport 345 kV Line
14	Borah – Adelaide – Midpoint #1 345 kV Line
15	Aeolus – Anticline 500 kV Line
16	Aeolus – Mona 500 kV Line

For all of the indicated outages, 3-phase faults with and w/o unit tripping as needed will be studied. If a 3-phase fault requires unit tripping to meet performance then SLG fault will be studied w/o unit tripping.

Table 6b - List of Double Contingencies for Transient Stability

1	Anticline – Populus 500 kV Lines (two circuits) – with & w/o generator tripping
2	Bridger – Populus #1 & # 2 345 kV Lines – with & w/o generator tripping
3	Bridger – 3MileKnoll + Bridger – Populus #1 345 kV lines – with & w/o generator tripping
4	Bridger – 3MileKnoll + Bridger – Populus #2 345 kV lines – with & w/o generator tripping

5	Borah – Populus 345 kV DLO with / w/o generator tripping)
6	Populus – Ben Lomond 345 kV DLO
7	Populus – Kinport + Populus – Borah #2 345 kV Lines with/ w/o generator tripping
8	Populus – Borah #2 345 kV + Treasureton – Brady 230 kV Lines
9	Borah – Adelaide #2 & Borah – Hunt 230 kV lines
10	Midpoint – Kinport & Borah – Adelaide – Midpoint #1 345 kV lines
11	Midpoint – Kinport 345 kV & Borah – Hunt 230 kV lines
12	Borah – Adelaide – Midpoint #1 & Midpoint – Adelaide #2 345 kV lines
13	Midpoint – Adelaide #2 345 kV & Borah – Hunt 230 kV lines
14	Palo Verde Generation – Trip Two Units

3. Post-Transient Stability Analysis (study assumptions)

A review of Power Flow and Transient Stability studies will be conducted to identify the post transient conditions to be evaluated. Specific post transient studies will be performed as part of the Phase 1 studies are noted below:

Study Assumptions:

- a. All loads will be modeled as constant MVA during the first few minutes following an outage or disturbance.
- b. All voltages at distribution substations will be restored to normal values by the transformer tap changers and other voltage control devices.
- c. Generator MVAR limits will be modeled as a single value for each generator since the reactive power capability curve will not be modeled in the program output.
- d. No manual operator intervention is allowed to increase the generator MVAR flow.
- e. Under post-disturbance conditions in central, northern and eastern Wyoming, all bus voltages should be within 0.90-1.10 per unit.
- f. The reactive margin will be measured at key locations identified during the studies.
- g. Other Assumptions
 - Area Interchange: Disabled

- Governor Blocking: Base load Flag will be used per WECC practices
- DC Line Transformer Tap Automatic Adjustment: Enabled
- Generator Voltage Control: Set to Local except for Palo Verde, and selected Northwest generation.
- Phase Shifter Control: Disabled
- Switched Shunt Devices: Disabled – except in Sierra Pacific Power system, and selected buses (Platte, Miners, Atlantic City, etc) in Wyoming.

IV. SIMULTANEOUS ANALYSES (WECC Phase 2)

To the fullest extent possible, the rating and sizing of new facilities shall be refined as part of this analysis.

Following the completion of the Project Definition studies for Phase 1, Facility Rating studies will be initiated for Phase 2. A two stage process will be adopted in establishing the Phase 2 ratings. Stage 1 will seek to establish a Phase 2 rating of 1500 MW in addition to the existing ratings of the underlying system while Stage 2 or the full-build stage will seek to achieve a Phase 2 rating of 3000 MW over the existing ratings of the associated paths. Due to the scope and nature of the Energy Gateway Project, not all facilities will be constructed during the same period. As such, facilities will be installed following a segmented approach – focusing on one leg of the project, than another leg, etc. (For example, Anticline-Populus #1 500 kV project will be in-service on 12/2014 and Anticline-Populus #2 500kV project will be in service in 12/2017.) Rather than initiate technical studies for each new transmission segment, it has been decided to group transmission segments into two logical project stages that would be evaluated by the WECC Phase 2 Study Group (or subgroup). Incremental system limitations for transmission segments that are added between stages, will be addressed via Operation Transfer Capability (OTC) studies. (This same process was followed by BPA and AVISTA for the West of Hatwai Expansion project.)

As technical studies progress and Accepted Ratings for a given transmission stage are determined, standalone WECC Phase 2 Study Group technical reports will be completed and submitted to TSS, OC and PCC for approval, following established WECC procedures.

A. Case Description

New base cases⁶ will be developed for the Gateway West simultaneous evaluation with other paths. These base cases are summarized below:

- A new base case, 2a will be developed by starting with the WECC 2019HSa1 power flow case. This case was only recently approved by WECC on June 10, 2009. The added resources represented in this case are reflected under the “high wind generation” portion of Table 2. Stress in this case will reflect heavy Wyoming to Utah and west of Bridger transfers. . In this base case, the TOT 2C flows are projected to be 2100 MW for the Gateway South – Stage 2 configuration.
- The proposed transfer levels on the various Gateway West paths are noted in Table 4a.

⁶ Depending on path to be evaluated and system conditions, other base cases or sensitivity cases may be required by the Phase 2 technical study review group.

- A new base case, 2c will be developed utilizing the 2019HSa1 base case to evaluate increasing south-north TOT 2C transfers from 600 MW to 1700 MW transfers for the Stage 2 Gateway South configuration.
- A new base case, 2d will be developed by using the WECC 13LW1a1 base case with facility adjustments to reconcile it as closely as possible to the configuration of a 2019 light load case. Table 4d reflects the proposed transfers for this case.

Resources that will be utilized for both the Gateway West and Gateway South projects will be based on the latest PacifiCorp IRP (Integrated Resource Plan). A summary of the new resources that are available identified on the following table. (Updates to the table will be made as additional resource information is made available.)

Per discussions at the April 2009 TSS meeting, entities can utilize the best available resource information at the time a transmission path is rated. OTC studies will be used to evaluate operating transfer conditions if resources come on-line either staggered or different than what was initially projected. [Specific wording from TSS minutes will be inserted when available.]

B. Nomogram(s)

As part of the simultaneous GS simultaneous rating analysis, changes to existing nomograms will be determined or new nomograms will be defined. These changes may include:

- A Bridger West vs. Aeolus South Nomogram.
- Other nomogram changes as determined during technical studies.

C. Study Areas

To help manage the magnitude of the study effort associated with this project, it has been deemed necessary to divide it into multiple study areas with their associated review groups (see Figure 1):

1. Southern Idaho Study Area

This area will include all the planned and existing facilities between the Populus and the Hemingway substations. Both Midpoint West and Borah West paths will be studied and their corresponding ratings with the new proposed facilities determined under simultaneous interactions with other affected paths

In the first and second stage of the work these facilities are comprised of:

Facilities	Stage I	Stage II
Populus-Borah 500 kV #1	x	
Populus 500/345 kV Transformer	x	
Borah 500/345 kV Transformer	x	
Loop the Kinport-Midpoint 345 kV line into Borah to create the Kinport-Borah 345 kV and the Borah-Midpoint 500 kV lines.	x	
Upgrade series compensation on the Midpoint-Hemingway 500 kV #1	x	
Populus- Cedar Hill 500 kV #1	x	

(w/ series compensation)		
Cedar Hill – Hemingway 500 kV #1 (w/ series compensation)	x	
Populus 500/345 kV Transformer #2		x
Add series compensation on Populus-Borah #1 500 kV		x
Add series compensation on Borah – Midpoint 500 kV #1		x
Midpoint – Hemingway 500 kV #2 (w/ series compensation)		x
Cedar Hill – Midpoint 500 kV #1		x

2. Bridger Study Area

This area will include all the planned and existing facilities between the Aeolus substation and the area just West of Populus.

Bridger West, Aeolus West and Path C paths will be studied and their corresponding ratings with the new proposed facilities determined under simultaneous interactions with other affected paths.

In the first and second stage of this project these facilities are comprised of:

Facilities	Stage I	Stage II
Anticline-Populus 500 kV #1 (w/ series compensation)	x	
Aeolus – Anticline 500 kV #1	x	

(w/series compensation)		
Aeolus 500/230 kV #1, #2 & #3 TX	x	
Aeolus 230 kV SVC (-125/+450 MVar), MSC's at 230 kV (3-100 MVar, 1-50 MVar) & 500 kV (4-200 MVar)	x	
Anticline 500/345 kV #1 TX	x	
Anticline 345 kV PST #1 & #2	x	
Aeolus-Anticline #2 500 kV		x
Anticline-Populus 500 kV #2 (w/ series compensation)		x
Aeolus – Bridger #2 500 kV		x
Bridger 345/230 kV #4 & #5 TX (500/230 kV Optional)		x

3. Windstar Study Area

This area will include all the planned and existing facilities between the Windstar substation and the Aeolus substation.

As new facilities proposed parallel the TOT 4A [Path 37] transmission path, the TOT 4A path will be studied and the corresponding increased rating with the proposed facilities determined under simultaneous interactions with other affected paths.

In the first and second stage of this project these facilities are comprised of:

Facilities	Stage I	Stage II
Windstar – Aeolus 230 kV #1 & #2	x	

Dave Johnston – Difficulty – Aeolus 230 kV #1, rebuild to 2-1272 ACSR/phase		X
---	--	---

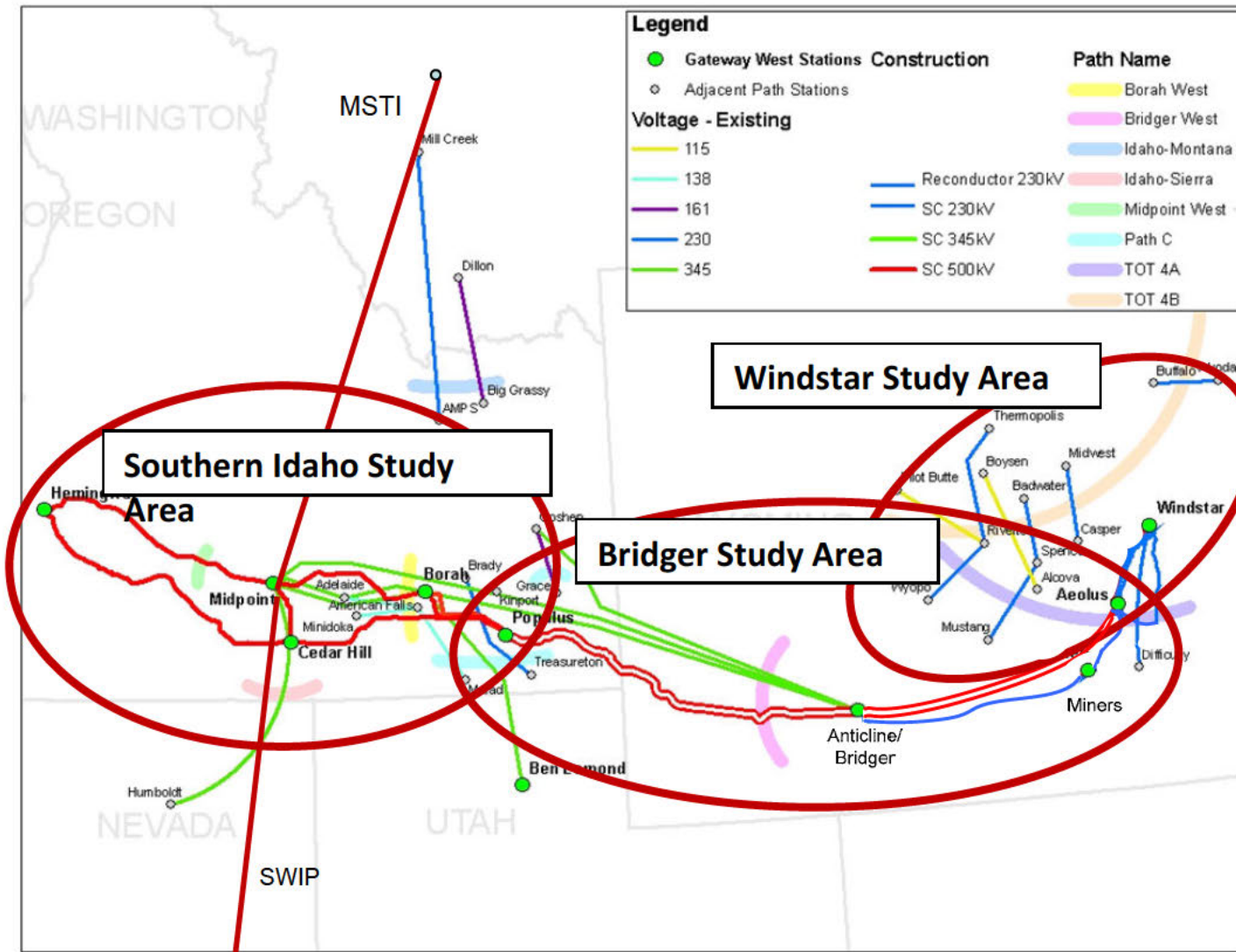


Figure 1

D. Path Ratings

Major path ratings for GW will require simultaneous studies that may include updating existing paths and identifying new paths related to the project. An initial listing of interacting paths has been included in the table below. In following WECC guidelines, a ten percent test (simulates the critical outage on the path that established the path’s non-simultaneous transfer capability) will be performed to validate the legitimacy of each simultaneous interaction.

If no criteria violations (see Section III.B) exist for simultaneous operation with the main path and the proposed interactive path at their individual non-simultaneous transfer capability, under the critical outage, then simultaneous interaction will be deemed to be lacking.

If simultaneous interactions are verified, a simultaneous nomogram describing safe operation (meets NERC TPL Standards and WECC System Performance Criteria) of the affected paths will be developed.

New and existing paths with proposed new ratings that have been identified are:

Study Area	Path	Proposed Rating		Simultaneous Interaction
		Stage I	Stage II	
Windstar	TOT 4A (Path 37)	1935 MW	3435 MW	Montana SE
				Tot 3
				Tot 4B
				Yellowtail South
				Tot 1A
Bridger	Bridger West (Path 19)	3900 MW	5400 MW	Aeolus South
				Path C

				(Path 20)
				Montana - Idaho (Path 18)
				Bonanza West (Path 33)
				MISTI
				Monument- Naughton
				Rock Springs / Firehole West
Bridger	Path C (Path 20)	2250 MW	2250 MW	Montana - Idaho (Path 18)
				Bridger West (Path 19)
				Bonanza West (Path 33)
				MISTI
				Monument- Naughton
				Rock Springs / Firehole West

Bridger	Aeolus West	1500 MW	3000 MW	Aeolus South
				Tot 1A
				Bonanza West (Path 33)
Southern Idaho	Borah West (Path 17)	4057 MW	5557 MW	Path C
				Montana-Idaho (Path 18)
				MISTI
				SWIP (Great Basin – North, EnTP)
				Idaho – Sierra (Path 16)
Southern Idaho	Midpoint West	3987 MW	5487 MW	Idaho – Northwest (Path 14)
				Hemingway – Summer Lake (Path 75)
				Boardman -

				Hemingway
				Montana – Northwest (Path 8)

Along with the impact of GW on existing and proposed path ratings, simultaneous studies will be run assuming that the Gateway South project has previously been completed.

Other paths may be identified during the course of the study and would be added as appropriate.

IV. Operational Considerations

As part of this analysis, transmission options that will enhance operational flexibility will be evaluated. These options may include:

1. phase shifter utilization
2. varying levels of series compensation
3. others as identified

V. Mitigation Options

To the extent a need to mitigate criteria violations or interaction with Existing/Accepted path ratings is identified from the simultaneous path analyses, viable mitigation options will be identified in this Study Plan, including the following:

1. Added Facilities
2. Generation dropping
3. Shunt/Series capacitor switching.
4. Operating Procedures, RAS and/or Operating Nomograms

A detailed mitigation plan, if required, will be determined and/or negotiated during Phase 3 of the project, prior to facilities becoming commercial or as part of the OTC technical studies.

V. SENSITIVITY ANALYSES

The sensitivity analysis identified in this section is based on preliminary analysis to look at projects that are planned to be developed in the same time frame as GW. The Study Plan includes the projects and uncertainties noted in Table 7 as sensitivity cases.

Table 7. List of Study Sensitivities

1	Generic Nevada 500 kV Line*
2	Gateway South 500 kV Line(s)
3	Other Transmission Sensitivities

* A generic version of a northern Nevada project will be modeled that includes either Ely Energy Center or the Great Basin North & South 500 kV lines that follow along the SWIP corridor.

VI. SCHEDULE

The study schedule for the Gateway West Project is noted below.

Task	Start Date	End Date	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017			
			Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
WECC Regional Planning Process	7/5/2007	5/30/2008																								
WECC Phase 1 Rating Process	2/1/2008	12/31/2008																								
WECC Phase 2 Rating Process	1/1/2009	6/1/2010																								
WECC Phase 3 Rating Process	6/2/2010	12/31/2016																								
NEPA Process	7/2/2007	12/31/2011																								
BLM Right of Way Grants	7/2/2007	12/31/2011																								
Permitting	1/1/2008	12/31/2012																								
Right of Way Acquisition	1/1/2008	12/31/2013																								
Engineering	1/1/2008	12/31/2013																								
Construction	2/2/2010	12/31/2017																								

Appendix 1

Minimum Voltage Limits

Minimum Idaho and Utah Bus Voltage Limits			
Bus	Pre-Outage Min. Volt (p.u.)	Post-Disturbance Min. Volt (p.u.)	Comments
PacifiCorp	0.95	5% Deviation	
Idaho Power	0.95	5% Deviation	(N-1)

Minimum Wyoming Bus Voltage Limits			
Bus	Pre-Outage Min. Volt (p.u.)	Post-Disturbance Min. Volt (p.u.)	Comments
Central, Northern and Eastern Wyoming	0.95	0.90	Automatic capacitor switching at Miners, Foote Creek, Platte and Atlantic City.

Appendix 2

Excerpt from WECC TPL-(001 thru 004)-WECC-1-CR System Performance Criteria

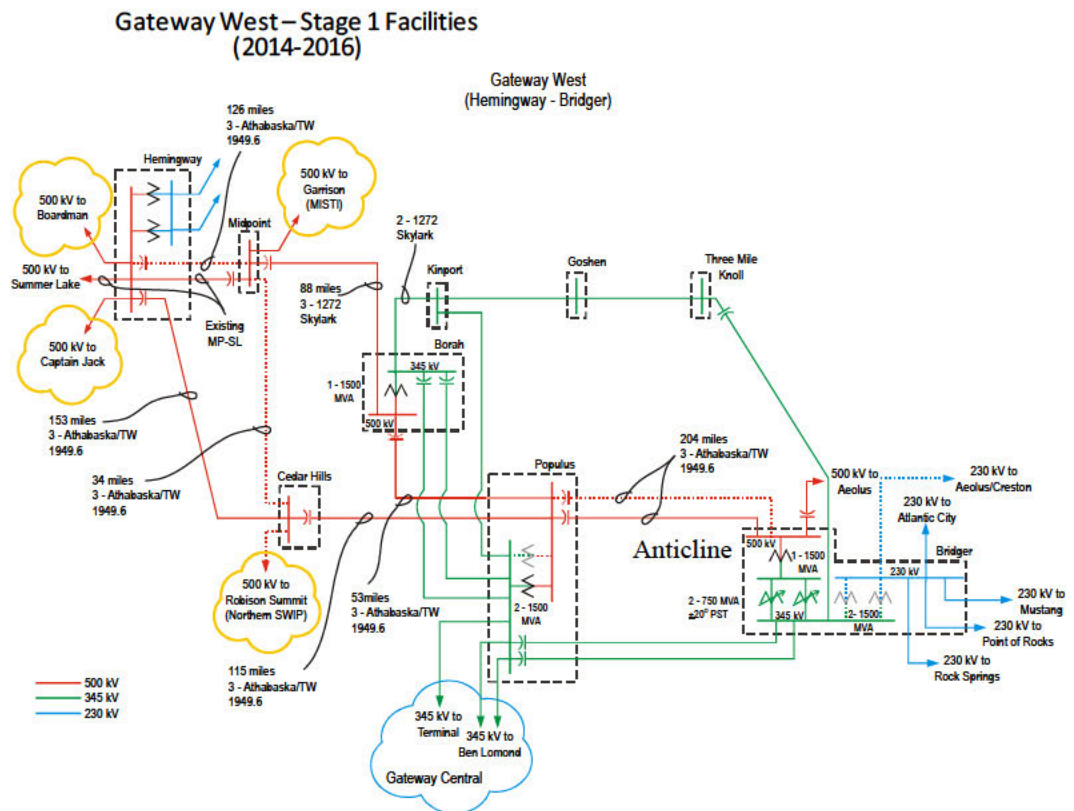
WECC DISTURBANCE-PERFORMANCE TABLE OF ALLOWABLE EFFECTS ON OTHER SYSTEMS

NERC and WECC Categories	Outage Frequency Associated with the Performance Category (outage/year)	Transient Voltage Dip Standard	Minimum Transient Frequency Standard	Post Transient Voltage Deviation Standard (See Note 3)
A	Not Applicable	Nothing in addition to NERC		
B	≥ 0.33	Not to exceed 25% at load buses or 30% at non-load buses. Not to exceed 20% for more than 20 cycles at load buses.	Not below 59.6 Hz for 6 cycles or more at a load bus.	Not to exceed 5% at any bus.
C	0.033 – 0.33	Not to exceed 30% at any bus. Not to exceed 20% for more than 40 cycles at load buses.	Not below 59.0 Hz for 6 cycles or more at a load bus.	Not to exceed 10% at any bus.
D	< 0.033	Nothing in addition to NERC		

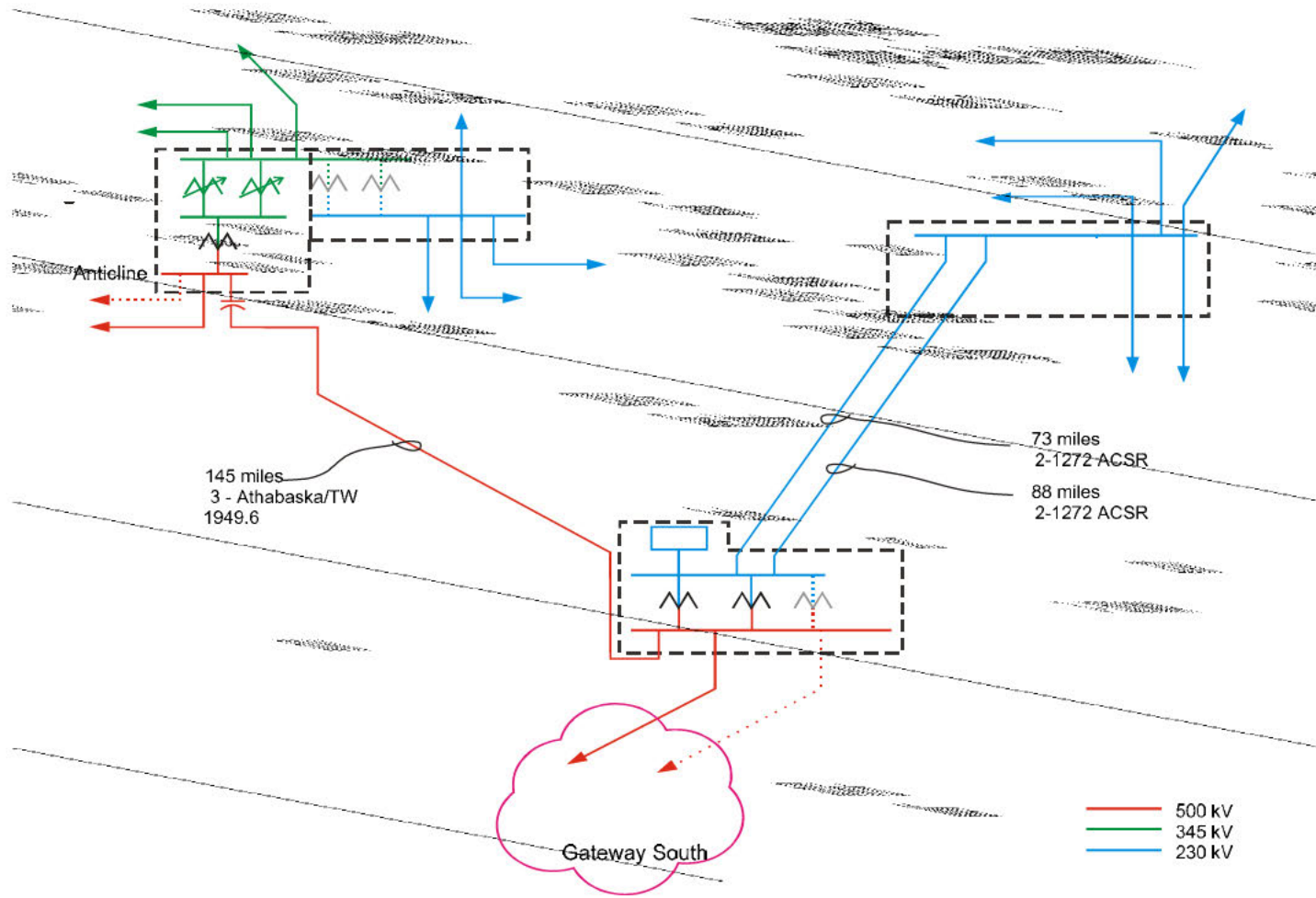
* PacifiCorp (Wyoming) buses allowed to deviate 10% for a level B disturbance.

Appendix 3

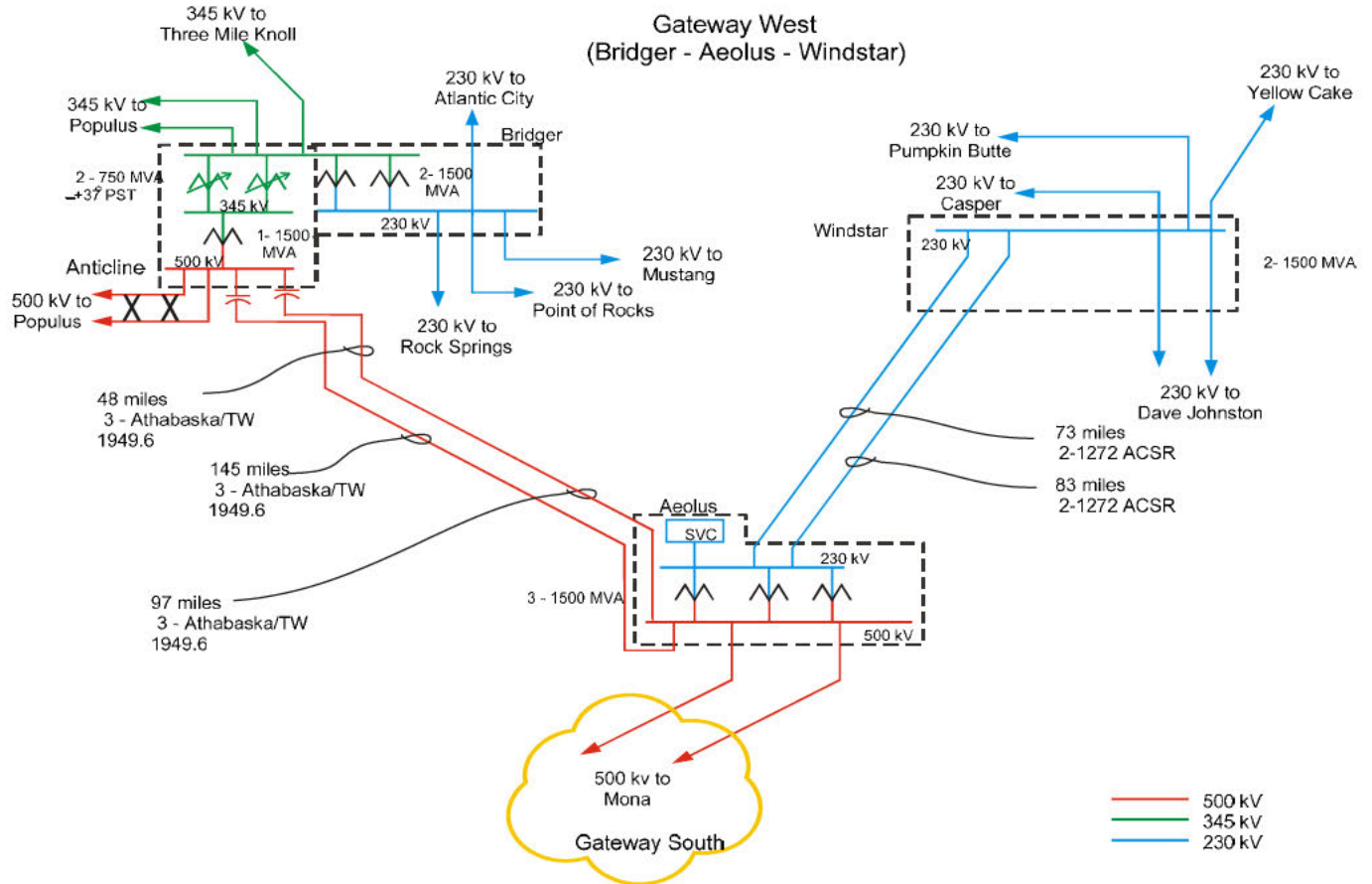
Energy Gateway Project Facilities



Gateway West – Stage 1 Facility
Bridger -Windstar (2014-2016)



**Gateway West – Stage 2 Facility
Bridger -Windstar (2017-2018)**



Appendix 4

Energy Gateway Project Facilities

As of 10-23-09, the facility impedances provided on the following pages were defined for the Energy Gateway Project facilities. As this project is a “work in progress”, these impedances can and will change as the project matures.

Gateway South Project Facilities

Circuit	Bus Numbers		Mileage	R	X	B	Rating (MVA) Normal / Emergency	Conductor	Conductor Name	% of Line Charging Comp'd by Reactors	argeted total MVAR of Reactors	Quantity / Size of Shunt Reactors	Bus Numbers		% Series Comp	mpedance of Series Caps in PU	Rating (MVA) Normal / Emergency		
	From	To											From	To					
•	67755	67756	133.3	0.0009	0.02690	2.70960	3681.5	4097.2	3-1590 ACSR/TWD	Athabaska/TW 19 9 6	80	217	4 x 50 MVAR	67756	67759	58	0.0153	2000	3000
	67755	67803												67802	67803				
	67799	67800												67800	67806				
	67803	67800												67806	67905				
•	67900	67800	133.3	0.0009	0.02690	2.7096	3681.5	4097.2	3-1590 ACSR/TWD	Athabaska/TW 19 9 6	80	217	4 x 50 MVAR	67800	67906	58	0.0153	2000	3000
	67904	67800												67906	67905				
	65995	67800												67906	67905				
	65995	67800												67906	67905				
•	67800	67899	7.2	0.00055	0.015	1.8730	3681.5	4097.2	3-1590 ACSR/TWD	Athabaska/TW 19 9 6	80	119	4 x 25 MVAR	67899	67899	50	0.00980	2000	3000
	67899	663												67899	67899				
	663	66289												66289	67899				
	67899	67899												67899	67899				
•	18 52	18 52	7.2	0.00007	0.00172	0.15791	2787.7	3886.7	3-1590 ACSR	Lapwing	80	153	2 x 75 MVAR	18 52	18 50	50	0.00980	2000	3000
	18 52	18 50												18 50	18 50				
	18 52	18 50												18 50	18 50				
	18 52	18 50												18 50	18 50				

IPCo 500 kV lines assumes trip at B item 1272 conductor, on 18 Eq. triangle within bundle, and 33333462.89 phase spacing.
 PacifiCorp 500 kV lines assume triple Athabaska TW 19 9 6 conductor, on 25.5' 18/18 inch triangle within bundle, and 37.5' foot phase spacing.

Gateway Central Project Facilities

Bus Numbers		Mileage	R	X	B	Rating (MVA)		Conductor	Conductor Name	% of Line Charging Comped by Reactors	Targeted Total MVAR of Reactors	Quantity / Size of Shunt Reactors	Bus Numbers		% Series Comp
From	To					Normal	Emergency						From	To	
Populus - Terminal															
Loop Borah Ben Lomond 345 kV into Populus (@BL, BL POP #1 connected to BL BM #1)															
60093	67790	Borah - Populus 345 kV #2	48.0018	0.00221	0.02414	0.40025	1183	1482	2-954 ACSR 54/7 (part of BL-BR)	Cardinal			60060	60083	56.55
67790	67793	Populus - Treasureton 345 kV #1	20.052	0.00092	0.01008	0.16827	1165	1482	2-954 ACSR 54/7 (part of BL-BR)	Cardinal					
67793	66510	Treasureton - Terminal 345 kV #1	112.358	0.00436	0.05672	0.93501	1165	1482	2-954 ACSR 54/7 (part of BL-BR)	Cardinal					
67790	65135	Populus - Ben Lomond 345 kV #2	86.1	0.00301	0.04477	0.69124	1332	1478	2-1272 ACSR	Bittern					
67790	65135	Populus - Ben Lomond 345 kV #3	81.63	0.00308	0.04209	0.66181	1332	1478	2-1272 ACSR	Bittern					
65135	66510	Ben Lomond - Terminal 345 kV #3	46.6	0.00164	0.02322	0.39237	1332	1478	2-1272 ACSR	Bittern					
65135	66510	Ben Lomond - Terminal 345 kV #4	46.6	0.00164	0.02322	0.39237	1332	1478	2-1272 ACSR	Bittern					
Loop Bridger Borah 345 kV into Populus															
60090	67790	Borah - Populus 345 kV #1	47.94	0.00169	0.02260	0.42876	1127	1553.6	2-1272 ACSR (part of Borah-Bridger)	Skylark			60060	60090	59
67791	60085	Populus - Bridger 345 kV #1	192.0	0.00631	0.09016	1.69402	1127	1553.6	1-2167 ACSR upgrade to 2-1272 ACSR (part of Borah-Bridger)	Skylark			67790	67791	43.18
Loop Bridger Kinport 345 kV into Populus															
60191	67790	Kinport - Populus 345 kV #1	41.81	0.00147	0.02027	0.36371	1127	1553.6	2-1272 ACSR (part of Kinport-Bridger)	Skylark			60091	60190	65.78
67792	60085	Populus - Bridger 345 kV #2	192.0	0.00634	0.09038	1.69167	1127	1553.6	upgrade to 2-1272 ACSR (part of Borah-Bridger)	Skylark			67790	67792	43.07
Populus 345 kV Reactive Support															
1 200 MVAR Shunt Capacitor, 2 90 MVAR Shunt Reactor															
Bridger - 3MK - Goshen Rep															
65665	60084	Goshen 3MK 345 kV 3MK Series Capacitor	56.5	0.00169	0.0263	0.50072	1386	1593.9	41.2 Ohms				60084	60092	60.63
60092	60085	3MK Bridger 345 kV	169.5	0.00507	0.07900	1.50217	1386	1593.9	1-2167 ACSR upgrade to 2-1272 ACSR (part of Goshen-Bridger)	Skylark	50 MVAR				
Mona - Limber - Terminal															
67805	67807	Mona - Limber 500 kV #1	65	0.00048	0.01345	1.30480	3681.5	4097.2	3-1590 ACSR/TWD	Athabaska/TW 1949.6	80	104	2 x 50 MVAR		
67805	67807	Mona - Limber 500 kV #2	65	0.00048	0.01345	1.30480	3681.5	4097.2	3-1590 ACSR/TWD	Athabaska/TW 1949.6	80	104	2 x 50 MVAR		
67807	67808	Limber 500/345 kV Transformer #1		0.00012	0.00871		1500.0	1680.0							
67807	67808	Limber 500/345 kV Transformer #2		0.00012	0.00871		1500.0	1680.0							
67808	66133	Limber - Oquirrh 345 kV #1	21	0.00074	0.01095	0.16844	1332	1478	2-1272 ACSR	Bittern 1272 ACSR					
67808	66133	Limber - Oquirrh 345 kV #2	21	0.00074	0.01095	0.16844	1332	1478	2-1272 ACSR	Bittern 1272 ACSR					
67808	66510	Limber - Terminal 345 kV #1	40	0.00140	0.02085	0.32084	1332	1478	2-1272 ACSR	Bittern 1272 ACSR					
67808	66510	Limber - Terminal 345 kV #2	40	0.00140	0.02085	0.32084	1332	1478	2-1272 ACSR	Bittern 1272 ACSR					
66133	66510	Oquirrh - Terminal 345 kV #1	14.4	0.00050	0.00673	0.12907	1332	1478	2-1272 ACSR	Bittern 1272 ACSR					
66133	66510	Oquirrh - Terminal 345 kV #2	14.4	0.00050	0.00673	0.12907	1332	1478	2-1272 ACSR	Bittern 1272 ACSR					
66133	66510	Oquirrh - Terminal 345 kV #3	14.4	0.00050	0.00673	0.12907	1332	1478	2-1272 ACSR	Bittern 1272 ACSR					
66133	66510	Oquirrh - Terminal 345 kV #4	14.4	0.00050	0.00673	0.12907	1332	1478	2-1272 ACSR	Bittern 1272 ACSR					
65260	66080	Camp Will - 90th 345 kV #3	10.65	0.00030	0.00440	0.08140	1395.9	1724.0	2-1272 ACSR/TWD	Potomac/TW 1557.4					
65260	66080	Camp Will - 90th 345 kV #4	10.65	0.00030	0.00440	0.08140	1395.9	1724.0	2-1272 ACSR/TWD	Potomac/TW 1557.4					
Mona 500 kV Reactive Support															
2 200 MVAR Shunt Capacitors															

Appendix 21

TSS Approved Exceptions to the NERC/WECC Standards

**Accepted Voltage and Frequency Exceptions
To the WECC Reliability Criteria for Transmission System Planning**

Bus Name/Location	Company	Acceptable Voltage/Frequency Dip	Level of WECC Reliability Criteria	Reference
Northern New Mexico	PNM	6% Post-Transient Voltage Deviation	A*	1997 Path Rating Catalog, Path 48 Northern New Mexico (NM2) Study Criteria
Southern New Mexico	PNM	7% Post-Transient Voltage Deviation	A*	1997 Path Rating Catalog, Path 48 Northern New Mexico (NM2) Study Criteria
BIGCREEK13.8	SCE	59.47 Hz 23 cycles below 59.6	A*	1992 Study Program, Case NT08
BIGCREEK230.	SCE	59.5 Hz 21 cycles below 59.6	A*	1992 Study Program, Case NT08
EASTWOOD230.	SCE	59.5 Hz 21 cycles below 59.6	A*	1992 Study Program, Case NT08
RECTOR 230.	SCE	59.56 Hz 15 cycles below 59.6	A*	1992 Study Program, Case NT08
SPRINGVL230.	SCE	59.57 Hz 13 cycles below 59.6	A*	1992 Study Program, Case NT08
OMAR G13.8	SCE	59.57 Hz 13 cycles below 59.6	A*	1992 Study Program, Case NT08
SYC CYNG13.8	SCE	59.58 Hz 11 cycles below 59.6	A*	1992 Study Program, Case NT08
VESTAL 230.	SCE	59.59 Hz 9 cycles below 59.6	A*	1992 Study Program, Case NT08
BLNDL G112.5	PACE	59.43 Hz 15 cycles below 59.6	A*	1993 Study Program, Case NT12
BLUNDELL46.0	PACE	59.53 Hz 10 cycles below 59.6	A*	1993 Study Program, Case NT12
MONTANA113.8	MPC	58.66 Hz 14 cycles below 59.4	B*	1992 Study Program, Case NT38B
COLSTP 222.0	MPC	58.86 Hz 14 cycles below 59.4	B*	1992 Study Program, Case NT38B
COLSTP 115	MPC	59.13 Hz 10 cycles below 59.4	B*	1992 Study Program, Case NT38B
COLSTP 122.0	MPC	59.14 Hz 9 cycles below 59.4	B*	1992 Study Program, Case NT38B
HARDIN 115	MPC	59.27 Hz 7 cycles below 59.4	B*	1992 Study Program, Case NT38B
COLSTRP 230.	MPC	59.13 Hz 9 cycles below 59.4	B*	1992 Study Program, Case NT38B
CORETTE 18.0	MPC	59.29 Hz 9 cycles below 59.4	B*	1992 Study Program, Case NT38B

**Accepted Voltage and Frequency Exceptions
To the WECC Reliability Criteria for Transmission System Planning**

Bus Name/Location	Company	Acceptable Voltage/Frequency Dip	Level of WECC Reliability Criteria	Reference
HARDIN 230.	MPC	59.31 Hz 6 cycles below 59.4	B*	1992 Study Program, Case NT38B
MILCTYDC230.	WAPA UM	59.27 Hz 8 cycles below 59.4	B*	1992 Study Program, Case NT38B
ROSEBUD 230.	WAPA UM	59.30 Hz 7 cycles below 59.4	B*	1992 Study Program, Case NT38B
DIABLO 500.	PG&E	31.8% Transient Voltage Dip	C*	1993 Study Program, Case FT09
Ft. CREEK 34.5	PACE	36.1% Transient Voltage Dip	C*	1997 Study Program, Case 9709
Ft. CREEK 230	PACE	35.6% Transient Voltage Dip	C*	1997 Study Program, Case 9709
MINERS 230	PACE	35.4% Transient Voltage Dip	C*	1997 Study Program, Case 9709
PLATTE 230	PACE	32.4% Transient Voltage Dip	C*	1997 Study Program, Case 9709
NTL 138	BCHA	53.2% Transient Voltage Dip	C*	1994 Study Program, Case FT14
Southern Nevada Area	SPP	46.6% Transient Voltage Dip	C*	1998 Study Program, Case 9813
WAPA L.M. Area EC Zone	WAPA LM	30.7% Transient Voltage Dip	C*	Response to Performance Log Item 95-02
Between Alberta and BCHA	BCHA	Separation and associated low voltages	A-D*	1988 Study Program, Case NT04
ROSEBUD 115.	TSG&T	59.2 Hz 15 cycles below 59.6	B	2003 Study Program, Case D0310, D0329
ROSEBUD 13.8	TSG&T	59.2 Hz 15 cycles below 59.6	B	2003 Study Program, Case D0310, D0329
CARLIN TREND AREA	SPPR	7% Post-Transient Voltage Deviation	B	2007 Study Program, Case D0707

**Accepted Voltage and Frequency Exceptions
To the WECC Reliability Criteria for Transmission System Planning**

Bus Name/Location	Company	Acceptable Voltage/Frequency Dip	Level of WECC Reliability Criteria	Reference
NORTHEASTERN NEW MEXICO AREA	TSG&T	7% Post-Transient Voltage Deviation	B	2003 Study Program, Case D0309 2004 Study Program, Case D0421
SOUTHERN NEW MEXICO AREA	TSG&T	7% Post-Transient Voltage Deviation	B	2005 Study Program, Case D0509
OTHER BUSES IN PNM AREA	TSG&T	6% Post-Transient Voltage Deviation	B	2003 Study Program, Case D0333
WESTERN COLORADO AREA	TSG&T	7% Post-Transient Voltage Deviation	B	2004 Study Program, Case D0424
SOUTHERN COLORADO AREA	TSG&T	7% Post-Transient Voltage Deviation	B	2003 Study Program, Case D0309 2004 Study Program, Case D0421, D0424
OTHER TRI-STATE AREAS	TSG&T	6% Post-Transient Voltage Deviation	B	
BRIDGER1-5 22.0	PACE & IPC	59.42 Hz 6 cycles below 59.6	B	2007 Study Program, Case D0710, D0727
BRIDGER 34.5	PACE & IPC	59.55 Hz 6 cycles below 59.6	B	2007 Study Program, Case D0710, D0727
WALSENBURG 69, 115, 230	TSG&T	8% Post-Transient Voltage Deviation	B	
PTRSNFLT 230	PACE & IPC	14% Post-Transient Voltage Deviation	C	2007 Study Program, Case D0709
PTRSNFUR 69	PACE & IPC	13% Post-Transient Voltage Deviation	C	2007 Study Program, Case D0709
PTRSNFRG 69	PACE & IPC	12% Post-Transient Voltage Deviation	C	2007 Study Program, Case D0709
AMPS 69	PACE & IPC	13% Post-Transient Voltage Deviation	C	2007 Study Program, Case D0709
AMPS 230	PACE & IPC	12% Post-Transient Voltage Deviation	C	2007 Study Program, Case D0709

**Accepted Voltage and Frequency Exceptions
To the WECC Reliability Criteria for Transmission System Planning**

Bus Name/Location	Company	Acceptable Voltage/Frequency Dip	Level of WECC Reliability Criteria	Reference
BIGGRASS 69	PACE & IPC	11.5% Post-Transient Voltage Deviation	C	2007 Study Program, Case D0709
BIGGRASS 161	PACE & IPC	11% Post-Transient Voltage Deviation	C	2007 Study Program, Case D0709

* Refers to old WSCC Disturbance Performance Table.

Docket No. UE 374
Exhibit Sierra Club/724

**PUBLIC UTILITY COMMISSION
OF OREGON**

UE 374

SIERRA CLUB EXHIBIT 724

Cross-Examination Exhibit

Aeolus West Transmission Path Transfer Capability Assessment



*Updated Study Report
Revision 2.1*

March 30, 2018

Prepared by
PacifiCorp – Transmission Planning

Updated
***Aeolus West Transmission Path
Transfer Capability Assessment***

Table of Contents

Executive Summary 1

1 Introduction 4

 1.1 Purpose 4

 1.2 Plan of Service 4

 1.3 Planned Operating Date 5

 1.4 Scope 5

2 Study Criteria..... 5

 2.1 Thermal Loading 5

 2.2 Steady State Voltage Range 6

 2.3 Post-Transient Voltage Deviation 7

 2.4 Dynamic Stability Analysis Criteria 7

 2.5 Dynamic Voltage Response 7

3 Base Case Development 8

 3.1 Base Case Selection 8

 3.2 Generating Facility Additions 10

 3.3 Base Case Modification and Tuning 11

4 Path Studies 12

 4.1 Aeolus West vs. TOT 4B 12

 4.2 Base Case Development..... 15

 4.3 Dynamic Stability Analysis..... 16

5 Sensitivity Analysis 16

6 Study Conclusions 17

Appendix A – Path Definitions..... 18

Appendix B – Power Flow Plots..... 18

Appendix C – Dynamic Stability Results (Case C7) 18

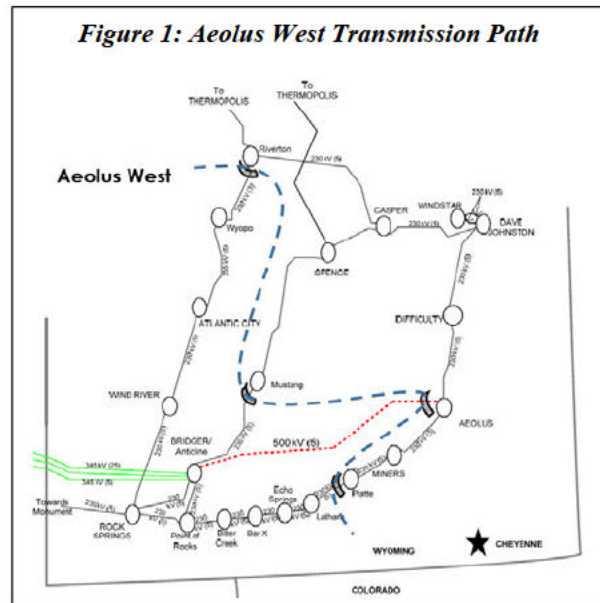
Updated
Aeolus West Transmission Path
Transfer Capability Assessment

Executive Summary

This assessment was conducted to document the Transfer Capability of the Aeolus West¹ transmission path once the Gateway West – Subsegment D.2² (Bridger/Anticline – Aeolus) transmission facilities (D.2 Project) are added to the Wyoming transmission system and assumed resources identified in the PacifiCorp 2017R RFP³ Shortlist were added.

The Aeolus West transmission path (see Figure 1) is a new path that will be formed by adding the D.2 Project in parallel with the TOT 4A⁴ (Path 37) transmission path facilities. The anticipated in-service date for the D.2 Project is October 31, 2020. The D.2 Project is part of PacifiCorp’s Energy Vision 2020 (EV2020) initiative which includes the following major transmission facilities and network upgrades to support new wind generation resources:

- Aeolus 500/230 kV substation,
- Shirley Basin – Freezeout 230 kV line loop-in to Aeolus,
- Anticline 500/345 kV substation,
- Aeolus – Anticline 500 kV new line,
- Bridger – Anticline 345 kV new line,
- Shirley Basin – Aeolus 230 kV #1 line rebuild,
- Shirley Basin – Aeolus 230 kV #2 new line,



¹ The Aeolus West transmission path will include the following major transmission elements: Aeolus* – Anticline 500 kV, Platte* – Latham 230 kV, Mustang* – Bridger 230 kV and Riverton* – Wyopo 230 kV transmission lines. (*meter location)

² Gateway West – Subsegment D.2 is a key component of the Energy Vision 2020 (EV2020) initiative that was announced by PacifiCorp on April 4, 2017. Other components of the EV2020 initiative include repowering PacifiCorp’s existing wind fleet in southeast Wyoming and adding approximately 1,100 MW of new wind generation east of the Aeolus West transmission path. [Subsequent to the initial announcement, technical studies have demonstrated that as high as 1,510 MW can be integrated east of the Aeolus West transmission path.]

³ The PacifiCorp 2017R Request for Proposals for renewable resources (2017R RFP) solicited cost-competitive bids for up to 1,270 MW of new or repowered wind energy interconnecting with or delivering to PacifiCorp’s Wyoming system with the use of third-party firm transmission service and any additional wind energy located outside of Wyoming capable of delivering energy to PacifiCorp’s transmission system that will reduce system costs and provide net benefits for customers.

⁴ The existing TOT 4A (Path 37) transmission path is comprised of the Riverton* – Wyopo 230 kV, Platte – Standpipe* 230 kV and Spence* – Mustang 230 kV transmission lines. (*meter location)

Updated
***Aeolus West Transmission Path
Transfer Capability Assessment***

- Aeolus – Freezeout 230 kV line reconductor,
- Freezeout – Standpipe 230 kV line reconductor,
- Latham dynamic voltage control device,
- Separate the double-circuit portion of the Ben Lomond - Naughton 230 kV #1 and Ben Lomond - Birch Creek 230 kV #2 lines to create two single-circuit lines,
- Railroad – Croydon 138 kV partial line reconductor,
- Aeolus 230 kV shunt reactor,
- Shirley Basin 230 kV shunt reactor,

The WECC 2021-22 HW power flow base case was utilized for the Aeolus West transfer capability assessment studies. In support of the EV2020 initiative, which calls for the addition of new and repowered wind resources in Wyoming, the base case was modified to achieve the transfer levels evaluated by utilizing PacifiCorp 2017R RFP Shortlist resources as evaluated in the Large Generation Interconnection (LGI) queue, which added 1510 MW east of the Aeolus West “cut plane” and 221 MW in southwest Wyoming. For different Aeolus West transfer levels (heavy and light) and 2400 MW flow across the Jim Bridger West path, resource levels in eastern Wyoming were varied relative to the Jim Bridger Generation in central Wyoming and the Emery/Hunter and Huntington generation in central Utah.

Contingencies that were considered in this analysis include:

- N-1 of D.2 Project facilities
- N-1, N-2 Bridger contingencies
- All eastern, central and northern Wyoming transmission system contingencies performed as part of the TPL-001-4 annual assessment.

For this transfer capability assessment, simultaneous interaction between the Aeolus West path and the TOT 4B path was evaluated; however, the interactions with other transmission paths (Yellowtail South, Jim Bridger West, TOT 1A and TOT 3) were monitored throughout the study. Subsequent transfer capability assessments will evaluate interaction with TOT 3 (Path 36), Bonanza West (Path 33) and TOT 1A (Path 30) transmission paths. (See Appendix A.)

In this revision of the report, the power flow analysis was re-evaluated to identify maximum transfer capability by stressing both the Aeolus West and the TOT 4B paths simultaneously. If required, additional power from Western Area Power Administration (WAPA) was imported into the PacifiCorp East (PACE) balancing authority area.

Updated
***Aeolus West Transmission Path
Transfer Capability Assessment***

Conclusions

Technical studies have demonstrated that the interconnected Bulk Electric System (BES) in Wyoming with the D.2 Project added can support the PacifiCorp 2017R RFP Shortlist resources, and that system performance will meet all North American Electric Reliability Corporation (NERC) and Western Electricity Coordinating Council (WECC) performance criteria.

Preliminary power flow studies demonstrate that by utilizing existing and planned southeast Wyoming resources⁵, the Aeolus West transmission path can transfer up to 1829 MW under simultaneous transfer conditions with the TOT 4B transmission path, effectively⁶ increasing the east to west transfer levels across Wyoming by 951 MW. Power flow findings also indicated:

- Dynamic voltage control is necessary at the Latham 230 kV substation to mitigate low voltage conditions resulting from loss of Bridger/Anticline – Aeolus transmission facilities.
- Under certain operating conditions, one Remedial Action Scheme (RAS) will need to be implemented to trip generation following outage of specific transmission facilities in southeast Wyoming.
- The location (and output level) of new and repowered wind resources can influence the transfer capability level across the Aeolus West transmission path and the Aeolus West vs. TOT 4B nomogram curve.

Dynamic stability studies evaluated a wide range of critical system disturbances in eastern Wyoming. The analyses identified two outages with poor voltage performance, and another outage identified a wind turbine modeling problem. These issues are all attributed to the wind turbine models at the Q0706, Q0707 and Q0708 projects. PacifiCorp is working with the wind turbine manufacture to resolve these issues. Aside from these issues, the studied outages evaluated meet the dynamic performance criteria with the system being stable and damped.

⁵ Eastern Wyoming Resources: Existing Wind: 1124 MW, Dave Johnston (net) 717 MW; Wyodak (PacifiCorp – net) 268 MW, New Wind – behind the Aeolus West “cut plane”: 1510 MW; east Wyoming: 1270 MW, north Wyoming: 240 MW.

⁶ Effective transfers were determined by subtracting the existing TOT 4A path maximum¹³ transfer level (960 MW) from the Aeolus West transfer level (1829 MW) and adding the Platte area loads (82 MW) that are upstream of the Aeolus West metering point.

Updated
Aeolus West Transmission Path
Transfer Capability Assessment

1 Introduction

1.1 Purpose

The purpose of the study is to demonstrate that the interconnected transmission Bulk Electric System (BES) in Wyoming with the D.2 Project added can support the PacifiCorp 2017R RFP Shortlist resources and can be operated reliably during normal and contingency operations throughout the planning horizon. To achieve this purpose, the study will: (1) identify the new Aeolus West transmission path limitations, (2) evaluate the interactions between the Aeolus West and the TOT 4B transmission paths and develop a nomogram that depicts system limitations, and (3) identify any necessary Remedial Action Schemes (RAS).

This report will summarize the results of the power flow and dynamic stability analysis of the Aeolus West transmission path and will demonstrate that Wyoming transmission system performance with the D.2 project added meets all NERC and WECC performance criteria.

1.2 Plan of Service

The D.2 Project, and supporting network upgrades consists of the following system improvements:

1. Add Aeolus 500/230 kV substation
2. Add Aeolus 500/230 kV, 1600 MVA transformer
3. Loop the Shirley Basin – Freezeout 230 kV line into Aeolus,
4. Add Anticline 500/345 kV substation
5. Add Anticline 500/345 kV, 1600 MVA transformer
6. Add the Aeolus – Anticline 500 kV transmission line, 137.8-miles, 3x1272 ACSR (Bittern) conductor
7. Add the Anticline – Bridger 345 kV line, 5.1-miles, 3x1272 ACSR (Bittern) conductor
8. Add the Aeolus 230 kV, 60 MVAr shunt reactor
9. Add the Shirley Basin 230 kV, 60 MVAr shunt reactor
10. Add Aeolus 500 kV, 200 MVAr shunt capacitor
11. Add Anticline 500 kV, 200 MVAr shunt capacitor
12. Rebuilding of the Aeolus – Shirley Basin 230 kV #1 line, 2x1557 ACSS/TW (Hudson/TW) conductor
13. Add the Aeolus – Shirley Basin 230 kV #2 line, 2x1557 ACSS/TW (Hudson/TW) conductor
14. Reconductor the Aeolus – Freezeout 230 kV line, 2x1272 ACSR (Bittern) conductor

Updated
***Aeolus West Transmission Path
Transfer Capability Assessment***

15. Reconductor the Freezeout – Standpipe 230 kV line, 2x1272 ACSR (Bittern) conductor
16. Add dynamic reactive device at Latham 230 kV substation.
17. Separate eight miles of the double-circuit Ben Lomond - Naughton 230 kV #1 and Ben Lomond - Birch Creek 230 kV #2 lines to create two single-circuit lines, and
18. Reconductor 2.35 miles of the Railroad - Croydon 138 kV line, 1222 ACCC high temperature conductor,

1.3 Planned Operating Date

The in-service date for all facilities associated with the D.2 Project is October 31, 2020.

1.4 Scope

The Aeolus West transfer capability assessment assumes the addition of new wind generation facilities as noted in Table 1, which includes the PacifiCorp 2017R RFP Shortlist resources as evaluated in LGI queue studies. While the new technology and model information of the repowered units was used in the steady-state and dynamic stability analysis, no incremental MW output was considered; i.e., each repowered facility was limited to its current LGI agreement generation capacity levels. The study was performed using a 2021-22 heavy winter WECC approved case which was modified to include the D.2 Project facilities. The system model assumed summer line ratings to assess the thermal limitation of the Wyoming system. Load served from Platte is normally represented as an open point between Platte – Whiskey Peak 115 kV. The system configuration with Platte 115 kV normally open is presently the most limiting scenario for the existing TOT 4A/4B nomogram.

2 Study Criteria

2.1 Thermal Loading

For system normal conditions described by the P0⁷ event, thermal loading on BES transmission lines and transformers is required to be within continuous ratings.

For contingency conditions described by P1-P7 category planning events, thermal loading on transmission lines and transformers should remain within 30-minute emergency ratings.

⁷ Facility outage events that are identified with “P” designations are referenced to the TPL-001-4 NERC standard.

Updated
Aeolus West Transmission Path
Transfer Capability Assessment

The thermal ratings of PacifiCorp’s BES transmission lines and transformers are based on the most recent PacifiCorp’s Weak Link Transmission Database and Weak Link Transformer Database.

Table 1: Generating Resources Studied

Existing Wyoming Thermal Generation	Existing East Wyoming Wind Generation	New Wyoming Wind Generation
2396 MW <ul style="list-style-type: none"> • Dave Johnston (DJ): 717 MW • Wyodak (PacifiCorp): 268 MW • Jim Bridger (PacifiCorp): 1411 MW 	1124 MW (Foote Creek, Rock River, High Plains, Seven Mile Hill, Dunlap, Root Creek, Top of the World, Glenrock, Three Buttes, Chevron)	1731 MW <ul style="list-style-type: none"> • Eastern Wyoming (Aeolus, Shirley Basin, Windstar): 1270 MW • Northern Wyoming (Bighorn Basin): 240 MW • Southwest Wyoming (Uinta County) : 221 MW See Table 4.

2.2 Steady State Voltage Range

The steady state voltage ranges at all PacifiCorp BES buses shall be within acceptable limits as established in PacifiCorp’s Engineering Handbook section 1B.3 “Planning Standards for Transmission Voltage⁸” as shown below.

Table 2: Voltage Criteria

Operating System Configuration	Normal Conditions (P0)		Contingency Conditions (P1-P7)	
	Vmin (pu)	Vmax (pu)	Vmin (pu)	Vmax (pu)
Looped	0.95	1.06 ⁹	0.90	1.10
Radial	0.90	1.06 ⁹	0.85	1.10

⁸ PacifiCorp Engineering Handbook “Planning Standards for Transmission Voltage,” April 8, 2013.

⁹ In some situations, voltages may go as high as 1.08 pu at non-load buses, contingent upon equipment rating review.

Updated
***Aeolus West Transmission Path
Transfer Capability Assessment***

Steady state voltage ranges at all applicable BES buses on adjacent systems were screened based on the limits established by WECC regional criterion as follows:

- 95% to 105% of nominal for P0 event (system normal),
- 90% to 110% of nominal for P1-P7 events (contingency).

2.3 Post-Transient Voltage Deviation

Post-contingency steady state voltage deviation at each applicable BES load serving bus (having no intermediate connection) shall not exceed 8% for P1 events.

2.4 Dynamic Stability Analysis Criteria

All voltages, frequencies and relative rotor angles are required to be stable and damped. Cascading or uncontrolled separation shall not occur and dynamic voltage response shall be within established limits.

2.5 Dynamic Voltage Response

Dynamic stability voltage response criteria are based on WECC Regional Performance Criteria WR1.3 through WR1.5 as follows:

- Dynamic stability voltage response at the applicable BES buses serving load (having no intermediate connection) shall recover to at least 80% of pre-contingency voltage within 20 seconds of the initiating event for all P1-P7 category events, for each applicable bus serving load.
- For voltage swings following fault clearing and voltage recovery above 80%, voltage dips at each applicable BES bus serving load (having no intermediate buses) shall not dip below 70% of pre-contingency voltage for more than 30 cycles or remain below 80% of pre-contingency voltage for more than two seconds for all P1-P7 category events.
- For contingencies without a fault (P2-1 category event), voltage dips at each applicable BES bus serving load (having no intermediate buses) shall not dip below 70% of pre-contingency voltage for more than 30 cycles or remain below 80% of pre-contingency voltage for more than two seconds.

The following criteria were used to investigate the potential for cascading and uncontrolled islanding:

Updated
***Aeolus West Transmission Path
Transfer Capability Assessment***

- Load interruption due to successive line tripping for thermal violations shall be confined to the immediate impacted areas and shall not propagate to other areas. The highest available emergency rating is used to determine the tripping threshold for lines or transformers when evaluating a scenario that may lead to cascading.
- Voltage deficiencies caused by either the initiating event or successive line tripping shall be confined to the immediate impacted areas, and shall not propagate to other areas.

Positive damping in stability analysis is demonstrated by showing that the amplitude of power angle or voltage magnitude oscillations after a minimum of 10 seconds is less than the initial post-contingency amplitude. Oscillations that do not show positive damping within a 30-second time frame shall be deemed unacceptable.

Stability studies shall be performed for planning events to determine whether the BES meets the performance requirements.

- Single contingencies (P1 category events): No generating unit shall pull out of synchronism (excludes generators being disconnected from the system by fault clearing action or by a special protection system).
- Multiple contingencies (P2-P7 category events): When a generator pulls out of synchronism in the simulations, the resulting apparent impedance swings shall not result in the tripping of any transmission system elements other than the generating unit and its directly connected facilities.
- Power oscillations are evaluated by exhibiting acceptable damping. The absence of positive damping within a 30-second time frame is considered un-damped.

3 Base Case Development

3.1 Base Case Selection

The base case development process involves selecting an approved WECC base case, updating the models to represent planned transmission facilities (D.2 Project) and existing and new wind generation (see Table 1) facilities, and then tuning the cases to maximum transfer levels on the WECC transmission path(s) being studied. For this study, the WECC approved base case 2021-22 HW (created on August 19, 2016) was selected. This case meets key criteria in that it is close to the Projects' in-service date of October 31, 2020, includes average load conditions based on 2021 load projections and has an accompanying dynamic stability base case available. This study focused on simultaneous transmission path interaction in the Wyoming area

Updated
***Aeolus West Transmission Path
Transfer Capability Assessment***

between the Aeolus West and the TOT 4B transmission paths; however, other transmission paths such as Yellowtail South (non-WECC path), Jim Bridger West, TOT 1A and TOT 3 (See Appendix A for path definitions) were monitored throughout the study.

The various critical components for this study purpose selected from the 2021-22 HW base case are listed below:

Table 3: Wyoming Load, Generation and Platte Normal Open Configuration in Base Case

Load or Generation	Amount (MW)
North Wyoming PAC Load (including Wyodak load of 42 MW)	391 MW
North Wyoming - WAPA Load	211 MW
Eastern Wyoming PAC Load (including DJ load of 56 MW)	474 MW
Eastern Wyoming PAC Loads on WAPA System	95 MW
Central Wyoming Load (including JB load of 130 MW)	434 MW
Yellowtail South Flow	192 MW
Yellowtail Generation	140/260 MW (Online/Max)
WAPA's Existing Small Generation ¹⁰ in North Wyoming	26/50 MW(Online/Max)
WAPA's Existing Small Generation ¹¹ in Eastern Wyoming	484/584 MW(Online/Max)
Wyodak Generation (PacifiCorp/Black Hills)	350/380 MW (Online/Max)
Dry Fork Generation (Basin Electric)	420/440 MW (Online/Max)
Gross Laramie River Generation I (WAPA's swing machine)	605 MW(Max)

¹⁰ WAPA's small generation in north Wyoming includes; Boysen, Buffalo Bill, Heart Mountain, Shoshone, Spring Mountain

¹¹ WAPA's small generation in eastern Wyoming includes; Alcova, Fremont, Glendo, Guernsey, Kortes, Seminoe, CLR_1, SS_Gen1 AND CPGSTN

Updated
***Aeolus West Transmission Path
Transfer Capability Assessment***

Load or Generation	Amount (MW)
Gross Laramie River Generation II	590/605 MW(Online/Max)
Gross Dave Johnston (DJ) Generation	700/774 MW(Online/Max)
Total Existing PAC East Wyoming Wind ¹² Generation	885.7/1124 MW (Online/Max)
Rapid City DC W Tie	130 w2e (200 MW-bidirectional)
Stegall DC Tie	100 e2w (110 MW-bidirectional)
Sydney DC Tie	196 e2w (200 MW-bidirectional)
TOT 4A Flow	627 MW
TOT 4B Flow	469 MW
Jim Bridger (JB) Generation	2200 MW
Jim Bridger West Flow	2027 MW
TOT 3 Flow	1259.1 MW
TOT 1A Flow	195 MW
Platte – Mustang 115 kV Normal Open Point	Platte – Normal Open

3.2 Generating Facility Additions

The transmission path assessment studies outlined in Section 4 were performed by utilizing the resources identified in Table 4 to evaluate the performance of the Aeolus West transmission path. Transmission and generation projects with an in-service date beyond 2020 were excluded from the analysis. While Table 4 provides the general location of the resources included in the study, Figure 2 provides an overview of PacifiCorp’s Wyoming transmission system and provides a visual illustration of the location of each of the existing and new generation (noted in red) resources, and identifies the location of the Aeolus West and TOT 4B transmission path constraints.

¹² PAC eastern Wyoming wind generation includes; Root Creek, Three Buttes, Top of The World, Glenrock, Rolling Hills, Dunlap. Seven Mile Hill, Foote Creek and High Plains wind generation

Updated
***Aeolus West Transmission Path
Transfer Capability Assessment***

Table 4: New Wyoming Wind Resources

Proposed New Wind Facilities	LGI Queue Number	Project Size	Point of Interconnection
Northern Wyoming (Bighorn Basin)	Q542	240 MW	Frannie - Yellowtail 230 kV line
Eastern Wyoming (Aeolus/Shirley Basin/Windstar Area)	Q706	250 MW	Aeolus 230 kV
	Q707	250 MW	Shirley Basin 230 kV
	Q708	250 MW	Shirley Basin 230 kV
	Q712	520 MW	Windstar 230 kV
Southwest Wyoming (Uinta County)	Q715	120 MW	Canyon Compression – Railroad 138 kV line
	Q810	101 MW	Canyon Compression – Railroad 138 kV line
TOTAL		1731 MW	

3.3 Base Case Modification and Tuning

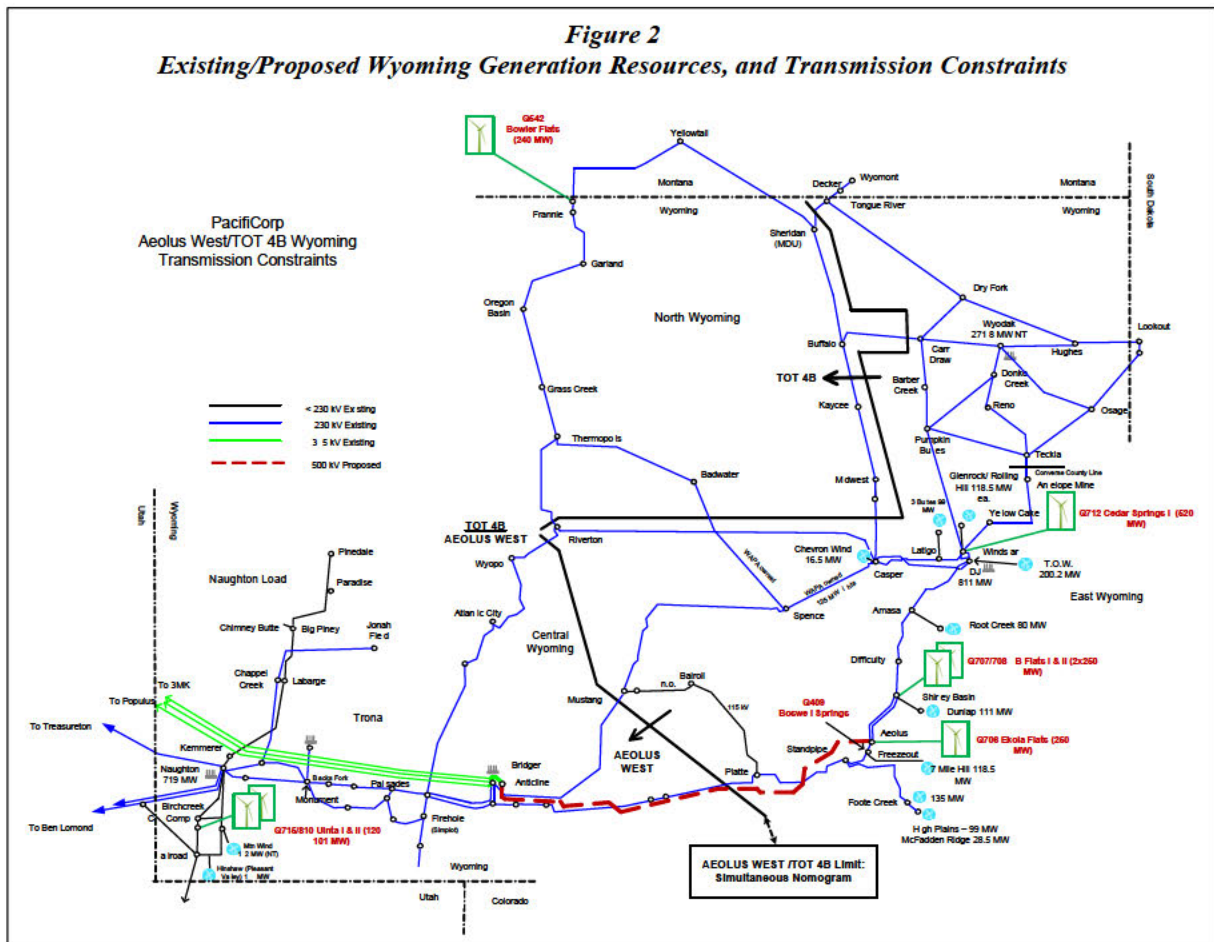
The 2021-22HW base case was modified to reflect the most recent Foote Creek, High Plains, Top of the World and Three Buttes wind generation modeling as per the recent MOD-032 data submitted by each generator owner (GO). Transmission line impedances between Dave Johnston and Standpipe were verified and updated and the transmission line ratings in the 2021-22 heavy winter case were modified to summer ratings, which represent the most conservative thermal limitations. The Platte – Standpipe 230 kV dynamic line rating of 608/666/680 MVA was assumed during the analysis.

The generation resources listed in Table 4 were added to the base case and the existing repowered wind farm generator models and collector system data were updated. The Aeolus West path was stressed by maximizing the output on all of the existing and new wind generation facilities. Output for the repowered wind generation facilities was limited to the existing LGI agreement generation capacity levels. The additional generation in southeast Wyoming was displaced with Jim Bridger, central and southern Utah generation. The Jim Bridger generation output was maintained such that Jim Bridger West path flows were maintained near 2400 MW.

As per the available data obtained for the various wind generation facilities at the time of this study analysis, the base cases were reviewed and adjusted to ensure voltages in the collector system of wind generation facilities were below 1.05 p.u. and that there was no reactive power

Updated
Aeolus West Transmission Path
Transfer Capability Assessment

GSU loop flow conditions for wind generation facilities that have multiple main generator step-up GSU transformers.



This process involved tuning transformer and generator parameters such that generators were producing appropriate reactive power output. Additionally, within the 230 kV transmission system it was verified that the shunt reactive devices were accurately represented, voltage profiles were normal, reactive power flows were within normal operating ranges and transmission system voltage was maintained to match acceptable PacifiCorp Transmission Voltage Schedules.

4 Path Studies

4.1 Aeolus West vs. TOT 4B

Based on the assumptions outlined above, the study demonstrated that the Aeolus West maximum transfer capability limit is 1829 MW, while meeting all NERC and WECC performance criteria. While this transfer level is 869 MW above the present TOT 4A (960

Updated
***Aeolus West Transmission Path
Transfer Capability Assessment***

MW¹³) path limit for similar conditions, east to west transfers have effectively increased by 951 MW due to shifting the Platte area load (82 MW) east of the Aeolus West cut plane. The Aeolus West path was stressed by using 3351 MW of total generation resources, which includes thermal (Dave Johnston, 717 MW - net), existing wind (1124 MW), and new wind (1510 MW) resources. The 240 MW of new wind resource in Big Horn Basin was varied with Wyodak generation as necessary. It was assumed that only the thermal generation at Dave Johnston and Wyodak generating plants in eastern Wyoming would be adjusted to maintain transfers on the Aeolus West and the TOT 4B transmission paths.

Table 5: Aeolus West and TOT 4B Corner Point Cases (See Figure 3)

Case	Aeolus West (MW)	TOT 4B (MW)	Limiting Element	Outage
1	1829	100	Platte- Latham 230 kV line	Anticline – Aeolus 500 kV line outage with RAS
2	1803	300	Platte- Latham 230 kV line	Anticline – Aeolus 500 kV line outage with RAS
3	1777	500	Platte- Latham 230 kV line	Anticline – Aeolus 500 kV line outage with RAS
4	1763	607	Platte- Latham 230 kV line	Anticline – Aeolus 500 kV line outage with RAS
			Dave Johnston South Tap – Refinery Tap – Casper 115 kV line	Casper 230 kV CB 1H4001 failure causing Casper – Dave Johnston 230 kV and Casper 230/115 kV transformer outage or Casper – Dave Johnston 230 kV line outage
5	1628	699	Platte- Latham 230 kV line	Anticline – Aeolus 500 kV line outage with RAS

¹³ Maximum nomogram point with normal open point at Platte utilizing the dynamic line rating on Platte – Standpipe 230 kV line.

Updated
***Aeolus West Transmission Path
Transfer Capability Assessment***

Case	Aeolus West (MW)	TOT 4B (MW)	Limiting Element	Outage
			Dave Johnston South Tap – Refinery Tap – Casper 115 kV line	Casper 230 kV CB 1H4001 failure causing Casper – Dave Johnston 230 kV and Casper 230/115 kV transformer outage or Casper – Dave Johnston 230 kV line outage
6	1125	880	Yellowtail – Sheridan 230 kV line	N-0

See Appendix B for power flow plots.

The low voltage issue in the Big Horn Wyoming area is an existing issue for the Yellowtail – Frannie 230 kV line outage or future Q0542 POI – Frannie 230 kV outage. This issue is resolved by adding capacitor banks at various locations in north Wyoming. A project to install a new 30 MVAR shunt capacitor bank at Grass Creek 230 kV, two new 20 MVAR shunt capacitor banks at Frannie and a new 7.5 MVAR capacitor bank at Hilltop 115 kV are proposed.

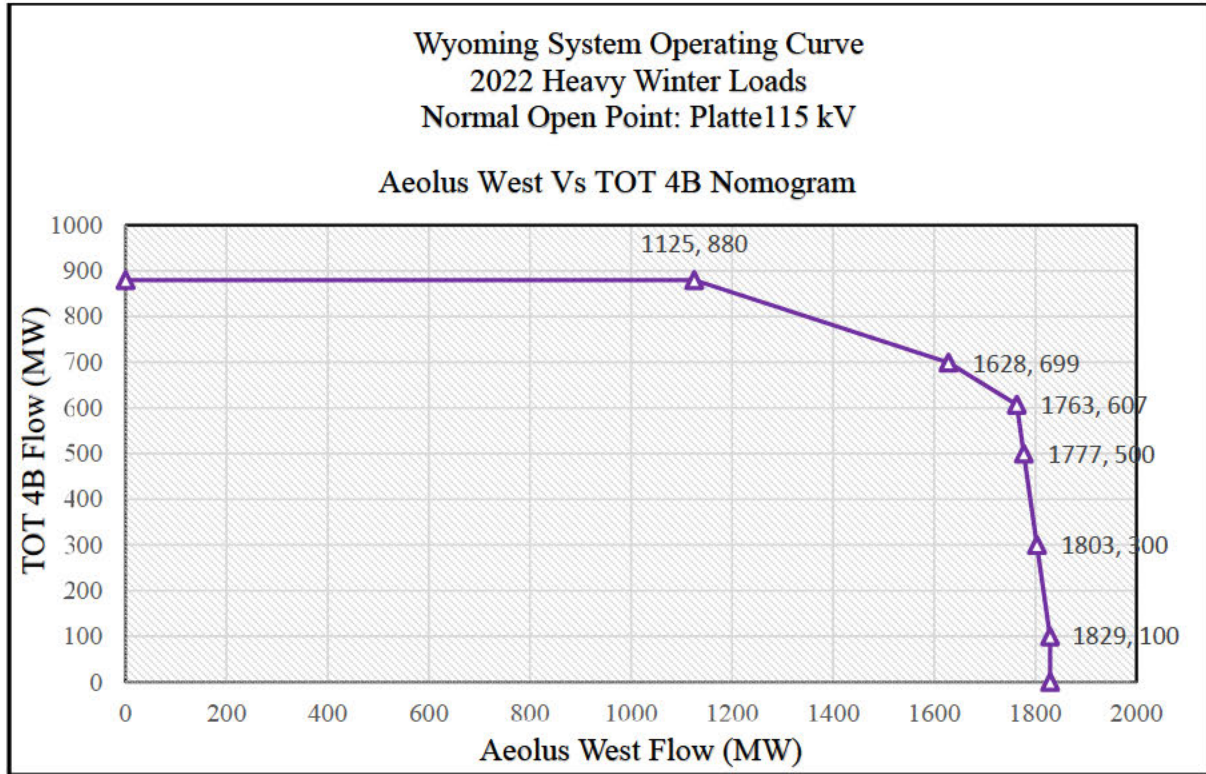
In the study, one RAS scheme was identified for N-1 outages:

- i. Aeolus RAS to trip approximately 630 MW of wind generation depending on pre-outage flow conditions for any of the new transmission element outages between Aeolus – Jim Bridger.

Study results are summarized in Table 5 and illustrated in Figure 3. In reviewing Figure 3, it is evident that the Aeolus West and TOT 4B path interaction are minimized with the addition of the D.2 Project, as indicated by the straight horizontal line (implying no path interaction) when Aeolus West flows are below 1125 MW. The Aeolus West vs TOT 4B nomogram “knee point” is at Aeolus West flows of 1763 MW (TOT 4B, 607 MW). As TOT 4B flows increase from that point, Aeolus West flows reduce; likewise, from the knee point as TOT 4B flows decrease, Aeolus West flows increase.

Updated
Aeolus West Transmission Path
Transfer Capability Assessment

Figure 3: Aeolus West Vs TOT 4B Nomogram



4.2 Base Case Development

The 2021-22 HW WECC case was modified to simultaneously stress the Aeolus West and the TOT 4B path flows. The Aeolus West path was stressed using all of eastern and north Wyoming resources for a total of 3619 MW (existing and future) wind and net coal resources. These resources were displaced with Jim Bridger and resources in central and southern Utah such that the Jim Bridger West flows were maintained near 2400 MW.

The TOT 4B path flows were adjusted between a minimum of 100 MW and a maximum of 880 MW. Additional resources were exported from PACE to Montana and WAPA to Montana to adjust flows across the TOT 4B path between 300 MW and 880 MW using Crossover, Rimrock and Steam Plant phase shifting transformers in Montana.

The Shiprock, San Juan and Gladstone phase shifting transformers were locked to regulate flow across the TOT 3 path between Colorado and Wyoming.

Updated
***Aeolus West Transmission Path
Transfer Capability Assessment***

4.3 Dynamic Stability Analysis

The dynamic stability analysis was performed using PSS/E models provided by both General Electric (GE) and Vestas's for the repowered and new wind generation. The generic model for the Root Creek wind model was updated to the GE0501 model (GE 1.85 units). Top of the World and Three Buttes wind farms in eastern Wyoming were updated to the GE 1.5 wind turbine model provided by GE for PTI V33. A generic WECC model was used for the Latham dynamic reactive device.

The stability study was focused in the eastern Wyoming region to demonstrate the acceptable performance from various new wind farms in the region. The real power, reactive power and voltage output from the new and the existing wind farm generators were reviewed to evaluate their ability to support the transmission grid voltage and system stability during various outage scenarios. Due to the combination of different wind turbine models, dynamic analysis also ensured that no interaction issues were being observed.

The dynamic stability study was performed for one (worst case) nomogram point on the Aeolus West vs. the TOT 4B nomogram curve, which reflected the heaviest Aeolus West flow conditions.

Dynamic stability analysis was performed on selective critical outages based on anticipated post fault impacts on the wind generation performance, especially for the portion of the system with a calculated short circuit ratio of approximately 2.3. See Appendix C for the dynamic stability analysis summary and dynamic plots.

5 Sensitivity Analysis

The sensitivity analysis focused on the evaluation of two different RAS generation tripping scenarios to ascertain which scheme would be the most effective at tripping generation following outage of the D.2 Project facilities between Bridger and Aeolus.

A dynamic stability sensitivity analysis was performed to evaluate the system impact and generator performance for a single element outage on the D.2 segment between Aeolus 230 kV and Bridger 345 kV buses which requires a RAS for generator tripping. Two different sets of generator tripping locations and tripping levels (approximately 630 MW) were selected. The generation tripping of 607 MW, which includes High Plains, Seven Mile Hill, Q706 and Dunlap wind generation was compared with generation tripping of 628 MW, which includes High Plains, Q0706 and Q0707 wind generation. For summary results and plots, please see dynamic simulation cases 1a – 1f2 in Appendix C.

Updated
***Aeolus West Transmission Path
Transfer Capability Assessment***

6 Study Conclusions

Technical studies demonstrated that with the addition of the planned D.2 Project facilities to the Wyoming transmission system, system performance will meet all NERC and WECC performance criteria.

Updated power flow studies demonstrate that by utilizing existing and planned southeast Wyoming resources⁵, the Aeolus West transmission path can transfer up to 1829 MW under simultaneous transfer conditions with the TOT 4B transmission path, effectively⁶ increasing the east to west transfer levels across Wyoming by 951 MW. Power flow findings also indicated:

- Dynamic voltage control is necessary at the Latham 230 kV substation to mitigate low voltage conditions resulting from loss of Bridger/Anticline – Aeolus transmission facilities.
- Under certain operating conditions, one RAS scheme will need to be implemented to trip generation following the outage of specific transmission facilities.
- The location (and output level) of new and repowered wind resources can influence the transfer capability level across the Aeolus West transmission path, the Aeolus West and TOT 4B nomogram curve and the area under the nomogram curve.

Dynamic stability studies evaluated a wide range of critical system disturbances in eastern Wyoming. The analyses identified two outages with poor voltage performance, and another outage identified a wind turbine modeling problem. These issues are all attributed to the wind turbine models at the Q0706, Q0707 and Q0708 projects. PacifiCorp is working with the wind turbine manufacture to resolve these issues. Aside from these issues, the studied outages evaluated meet the dynamic performance criteria with the system being stable and damped.

Updated
Aeolus West Transmission Path
Transfer Capability Assessment

Report Appendices

Appendix A – Path Definitions

Appendix B – Power Flow Plots

Appendix C – Dynamic Stability Results (Case C7)

Quote Date	Data Type:	Commodity:	POD:	COBHLH	COBLLH	Palo VerdeHL	Palo VerdeLL	Mid-Columbia	Mid-Columbia	NP 15HLH	NP 15LLH	SP 15HLH	SP 15LLH	Henry Hub G	SOCALBOR	SANJUAN	Opal Gas	Malin Gas	Stanfield Gas	SUMAS	AECO	GADSBY	Currant Cree	Lakeside	Z CHEBRN*
				FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC
12/30/2016				COB N-S	COB N-S	PV	PV	MID-C	MID-C	NP15	NP15	SP15	SP15	HENRYHUB	SOCALBOR	SANJUAN	ROCKOPAL	MALINGAS	STANFLDS	SUMASS	AECO	GADSBY	CURRRCRK	LAKESIDE	Z CHEBRN
Start	End	Peak Type:		COB Forward Prices		Palo Verde Forward Prices		Mid-Columbia Forward Prices		NP 15 Forward Prices		SP 15 Forward Prices		Henry Hub Gas Fwd Price	SOCALBOR Fwd Price	SANJUAN Fwd Price	Opal Gas Fwd Price	Malin Gas Fwd Price	Stanfield Gas Fwd Price	SUMAS Fwd Price	AECO Fwd Price	GADSBY Fwd Price	Currant Creek Fwd Price	Lakeside Fwd Price	Z CHEBRN * Fwd Price
				HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat
01/01/17	01/31/17	Jan 2017		43.20	30.45	32.75	27.25	39.00	27.75	42.25	34.00	39.50	33.75	3.93	3.75	3.56	3.66	3.79	3.75	4.81	2.68	4.17	3.92	3.96	5.83
02/01/17	02/28/17	Feb 2017		34.00	26.05	29.50	26.40	31.00	23.50	39.25	32.50	36.75	31.75	3.72	3.76	3.63	3.66	3.68	3.65	3.88	2.68	3.96	3.77	3.74	4.16
03/01/17	03/31/17	Mar 2017		29.25	22.50	27.50	24.00	25.50	20.25	36.00	28.75	32.75	28.25	3.68	3.53	3.42	3.45	3.45	3.42	3.19	2.64	3.74	3.55	3.53	3.43
04/01/17	04/30/17	Apr 2017		28.54	20.31	27.16	22.00	23.54	17.13	32.88	27.09	29.59	25.82	3.57	3.38	3.27	3.26	3.29	3.26	2.74	2.49	3.55	3.36	3.34	2.92
05/01/17	05/31/17	May 2017		25.18	14.01	26.21	21.12	21.80	11.50	33.91	24.88	29.60	23.72	3.54	3.29	3.19	3.22	3.25	3.22	2.65	2.46	3.50	3.32	3.30	2.83
06/01/17	06/30/17	Jun 2017		25.44	12.48	29.68	23.10	20.46	8.88	36.96	25.83	31.72	24.72	3.56	3.35	3.18	3.24	3.29	3.26	2.70	2.45	3.52	3.34	3.31	2.88
07/01/17	07/31/17	Jul 2017		36.86	24.38	42.18	28.34	33.22	22.05	43.25	32.74	43.10	32.01	3.59	3.52	3.35	3.30	3.39	3.36	2.94	2.46	3.58	3.40	3.38	3.13
08/01/17	08/31/17	Aug 2017		39.52	29.70	38.76	27.80	36.31	24.99	44.55	35.44	43.52	33.99	3.58	3.53	3.35	3.35	3.29	3.39	3.36	3.04	2.48	3.57	3.39	3.37
09/01/17	09/30/17	Sep 2017		37.62	29.97	33.06	25.07	33.22	26.16	41.95	33.08	40.14	33.00	3.55	3.44	3.27	3.26	3.38	3.35	3.02	2.50	3.54	3.36	3.33	3.22
10/01/17	10/31/17	Oct 2017		32.32	27.12	29.89	25.73	28.35	23.63	41.83	32.54	37.29	31.59	3.57	3.38	3.26	3.29	3.33	3.30	3.09	2.54	3.57	3.39	3.37	3.30
11/01/17	11/30/17	Nov 2017		34.40	27.69	29.59	24.94	31.19	26.75	41.83	33.57	39.25	32.25	3.60	3.58	3.36	3.42	3.47	3.44	3.44	2.69	3.30	3.52	3.50	3.69
12/01/17	12/31/17	Dec 2017		37.53	30.25	32.03	28.09	34.65	27.83	43.10	36.65	41.21	35.91	3.70	3.87	3.54	3.59	3.58	3.54	3.76	2.77	3.88	3.70	3.67	4.03
01/01/18	01/31/18	Jan 2018		37.43	31.61	32.55	27.04	32.82	28.33	42.53	33.74	39.00	32.70	3.78	3.84	3.60	3.66	3.62	3.59	3.64	2.85	3.95	3.57	3.74	3.90
02/01/18	02/28/18	Feb 2018		32.04	27.25	30.38	26.26	30.76	25.67	41.31	32.57	37.90	31.75	3.73	3.77	3.55	3.60	3.58	3.55	3.46	2.80	3.88	3.71	3.68	3.71
03/01/18	03/31/18	Mar 2018		29.18	25.19	30.07	24.45	27.28	22.40	37.67	30.64	35.25	30.80	3.62	3.50	3.39	3.38	3.46	3.43	3.34	2.68	3.65	3.48	3.45	3.58
04/01/18	04/30/18	Apr 2018		24.44	19.26	21.09	16.90	20.43	13.80	27.92	23.45	24.25	22.75	2.98	2.68	2.57	2.65	2.63	2.61	2.10	2.12	2.90	2.74	2.72	2.25
05/01/18	05/31/18	May 2018		24.33	13.81	22.79	16.60	18.57	10.69	26.81	21.16	24.75	20.23	2.91	2.61	2.51	2.50	2.56	2.54	2.04	2.04	2.75	2.59	2.57	2.18
06/01/18	06/30/18	Jun 2018		25.44	14.63	25.48	18.90	19.91	10.01	29.88	22.99	26.00	21.68	2.92	2.64	2.51	2.52	2.58	2.56	2.03	2.04	2.77	2.61	2.59	2.17
07/01/18	07/31/18	Jul 2018		35.36	21.33	36.23	24.83	30.24	18.50	39.00	29.59	37.90	28.62	2.94	2.91	2.62	2.60	2.63	2.62	2.23	2.02	2.85	2.69	2.67	2.38
08/01/18	08/31/18	Aug 2018		39.27	29.70	35.35	24.93	34.02	23.15	40.17	32.03	38.37	30.39	2.93	2.91	2.65	2.59	2.66	2.64	2.21	2.01	2.85	2.68	2.67	2.37
09/01/18	09/30/18	Sep 2018		36.17	29.97	30.83	23.40	30.24	24.75	38.03	29.89	35.59	29.50	2.91	2.69	2.57	2.57	2.64	2.61	2.23	2.02	2.82	2.66	2.64	2.38
10/01/18	10/31/18	Oct 2018		30.62	27.02	26.22	22.79	26.19	20.93	36.88	29.93	33.01	28.31	2.93	2.59	2.54	2.59	2.65	2.62	2.27	2.06	2.84	2.68	2.66	2.42
11/01/18	11/30/18	Nov 2018		34.40	27.69	25.95	22.09	28.46	24.18	36.88	30.87	34.75	28.86	2.97	2.91	2.76	2.82	2.82	2.80	2.87	2.16	3.08	2.91	2.89	3.09
12/01/18	12/31/18	Dec 2018		37.53	29.95	32.03	28.09	34.65	27.83	43.10	36.65	41.21	35.91	3.70	3.87	3.54	3.59	3.58	3.54	3.76	2.77	3.88	3.70	3.67	4.03
01/01/19	01/31/19	Jan 2019		34.95	32.83	32.51	28.08	32.81	27.77	42.63	34.27	38.25	33.37	3.20	3.22	3.02	3.05	3.04	3.01	3.03	2.33	3.32	3.15	3.13	3.26
02/01/19	02/28/19	Feb 2019		34.33	31.50	31.88	27.27	31.88	26.97	41.41	33.28	37.50	32.40	3.16	3.15	2.99	3.01	3.00	2.98	2.82	2.29	3.27	3.10	3.08	3.03
03/01/19	03/31/19	Mar 2019		31.83	30.17	29.35	25.65	29.06	25.37	37.76	31.30	34.50	31.43	3.09	3.10	2.92	2.90	2.94	2.91	2.76	2.24	3.16	2.99	2.97	2.97
04/01/19	04/30/19	Apr 2019		29.89	21.46	22.69	15.15	22.93	15.45	26.22	24.25	24.25	21.75	2.72	2.46	2.35	2.42	2.37	2.35	1.90	1.95	2.66	2.50	2.49	2.03
05/01/19	05/31/19	May 2019		26.18	14.96	23.39	14.25	19.97	12.69	27.11	20.16	24.75	17.18	2.69	2.44	2.32	2.32	2.34	2.32	1.83	1.87	2.56	2.40	2.39	1.96
06/01/19	06/30/19	Jun 2019		26.44	15.78	25.48	16.05	20.16	11.31	28.88	20.84	26.00	17.18	2.72	2.48	2.35	2.35	2.37	2.35	1.83	1.87	2.59	2.43	2.41	1.96
07/01/19	07/31/19	Jul 2019		36.81	18.13	36.68	27.23	31.24	17.95	39.10	30.29	38.00	29.27	2.75	2.71	2.38	2.40	2.46	2.44	2.00	1.86	2.65	2.48	2.47	2.14
08/01/19	08/31/19	Aug 2019		39.47	26.50	35.30	26.98	35.02	20.20	40.27	32.73	38.37	31.04	2.76	2.72	2.42	2.41	2.48	2.46	2.02	1.88	2.66	2.50	2.48	2.16
09/01/19	09/30/19	Sep 2019		37.57	26.77	32.88	23.80	31.24	22.45	37.93	30.59	35.39	30.15	2.76	2.55	2.40	2.41	2.49	2.46	2.07	1.92	2.65	2.49	2.48	2.21
10/01/19	10/31/19	Oct 2019		33.32	28.72	28.87	26.49	27.74	23.28	38.13	31.83	33.01	29.96	2.79	2.47	2.41	2.44	2.51	2.48	2.07	1.93	2.68	2.52	2.51	2.22
11/01/19	11/30/19	Nov 2019		35.40	29.29	28.60	25.79	29.46	26.53	38.13	32.77	34.75	30.56	2.85	2.87	2.63	2.68	2.72	2.70	2.64	2.06	2.94	2.77	2.75	2.84
12/01/19	12/31/19	Dec 2019		38.53	31.55	30.74	28.58	32.05	27.00	39.25	35.61	36.49	33.83	2.99	3.05	2.80	2.87	2.87	2.84	3.01	2.19	3.13	2.96	2.94	3.23
01/01/20	01/31/20	Jan 2020		35.90	34.53	34.56	29.23	34.06	29.22	44.08	35.52	39.25	34.42	3.10	3.14	2.91	2.98	2.95	2.93	3.11	2.25	3.24	3.08	3.06	3.34
02/01/20	02/29/20	Feb 2020		35.28	33.20	33.93	28.42	33.13	28.42	42.86	34.53	38.50	33.45	3.07	3.09	2.87	2.95	2.92	2.90	2.87	2.23	3.21	3.04	3.02	3.08
03/01/20	03/31/20	Mar 2020		32.78	31.87	31.40	26.80	30.31	26.82	39.21	32.55	35.50	32.48	3.00	3.07	2.81	2.85	2.86	2.83	2.82	2.20	3.10	2.94	2.92	3.03
04/01/20	04/30/20	Apr 2020		31.39	22.21	24.44	18.50	25.43	16.00	29.77	26.65														

04/01/22	04/30/22	Apr 2022	35.09	25.21	27.04	21.85	29.13	18.30	31.62	29.15	28.70	27.70	2.75	2.60	2.44	2.53	2.43	2.40	2.19	1.94	2.78	2.62	2.60	2.37	
05/01/22	05/31/22	May 2022	31.38	18.71	27.74	20.95	26.17	15.54	32.51	25.06	29.20	23.13	2.74	2.60	2.43	2.45	2.41	2.39	2.14	1.88	2.70	2.53	2.52	2.31	
06/01/22	06/30/22	Jun 2022	31.64	19.53	29.83	22.75	26.36	14.16	34.28	25.74	30.45	23.13	2.77	2.64	2.47	2.49	2.45	2.43	2.16	1.89	2.73	2.57	2.56	2.33	
07/01/22	07/31/22	Jul 2022	42.16	30.53	41.08	30.28	36.74	28.45	43.20	33.49	41.95	32.27	2.81	2.89	2.51	2.54	2.53	2.51	2.35	1.91	2.79	2.62	2.61	2.53	
08/01/22	08/31/22	Aug 2022	44.82	38.90	39.70	30.03	40.52	30.70	44.37	35.93	42.32	34.04	2.84	2.92	2.57	2.57	2.59	2.56	2.35	1.90	2.82	2.66	2.64	2.53	
09/01/22	09/30/22	Sep 2022	42.92	39.17	37.28	26.85	36.74	32.95	42.03	33.79	39.34	33.15	2.85	2.74	2.56	2.58	2.60	2.58	2.42	1.88	2.83	2.67	2.65	2.60	
10/01/22	10/31/22	Oct 2022	38.52	36.82	33.57	32.84	33.79	30.18	42.63	34.83	36.96	35.06	2.88	2.68	2.57	2.62	2.63	2.60	2.44	2.00	2.87	2.70	2.69	2.63	
11/01/22	11/30/22	Nov 2022	40.60	37.39	33.30	32.14	35.51	33.43	42.63	35.77	38.70	35.66	2.96	3.05	2.84	2.87	2.84	2.82	3.02	2.13	3.12	2.96	2.94	3.24	
12/01/22	12/31/22	Dec 2022	43.73	39.65	35.44	34.93	38.10	33.90	43.75	38.61	40.44	38.93	3.12	3.24	3.03	3.07	3.01	2.98	3.41	2.27	3.33	3.16	3.14	3.66	
01/01/23	01/31/23	Jan 2023	38.05	32.23	38.36	32.13	38.36	31.97	47.93	38.47	44.15	37.37	3.28	3.44	3.18	3.22	3.14	3.11	3.31	2.44	3.49	3.31	3.29	3.56	
02/01/23	02/28/23	Feb 2023	39.92	33.75	39.37	35.22	39.36	32.99	46.19	40.08	44.21	39.58	3.86	4.01	3.75	3.76	3.78	3.70	3.64	3.12	4.03	3.86	3.84	3.88	
03/01/23	03/31/23	Mar 2023	37.14	32.66	35.29	32.61	35.23	30.32	41.80	37.59	39.74	37.28	3.68	3.80	3.56	3.56	3.57	3.52	3.49	2.95	3.83	3.66	3.64	3.72	
04/01/23	04/30/23	Apr 2023	35.64	30.12	30.73	27.60	31.83	25.55	35.08	33.58	33.00	32.61	3.36	3.33	3.12	3.16	3.15	3.11	2.93	2.52	3.42	3.25	3.24	3.11	
05/01/23	05/31/23	May 2023	32.51	24.83	31.05	27.11	28.63	21.89	35.22	30.74	33.33	29.96	3.37	3.34	3.13	3.12	3.14	3.10	2.84	2.50	3.37	3.20	3.19	3.02	
06/01/23	06/30/23	Jun 2023	33.43	25.82	32.40	27.99	29.48	21.78	36.58	31.48	34.30	30.34	3.40	3.37	3.18	3.13	3.16	3.11	2.86	2.51	3.38	3.22	3.20	3.04	
07/01/23	07/31/23	Jul 2023	45.48	34.86	44.95	34.43	41.68	32.52	45.90	37.42	45.15	36.76	3.44	3.51	3.20	3.17	3.21	3.15	2.96	2.58	3.42	3.26	3.24	3.14	
08/01/23	08/31/23	Aug 2023	47.63	39.63	45.29	35.06	45.26	34.83	48.10	39.61	46.97	38.65	3.47	3.56	3.25	3.25	3.29	3.23	3.05	2.59	3.50	3.34	3.32	3.23	
09/01/23	09/30/23	Sep 2023	45.00	40.15	42.18	33.12	42.77	36.44	45.96	38.75	44.57	38.40	3.49	3.50	3.28	3.29	3.33	3.26	3.14	2.73	3.54	3.38	3.36	3.33	
10/01/23	10/31/23	Oct 2023	42.14	38.56	37.81	35.18	38.42	33.90	44.84	39.19	41.79	39.29	3.60	3.57	3.37	3.41	3.44	3.39	3.25	2.82	3.67	3.50	3.48	3.44	
11/01/23	11/30/23	Nov 2023	43.78	39.76	38.63	35.87	39.86	36.44	46.33	41.00	44.08	40.92	3.79	3.92	3.65	3.71	3.71	3.66	3.69	3.14	3.97	3.80	3.78	3.89	
12/01/23	12/31/23	Dec 2023	44.66	40.24	38.88	36.79	40.48	36.02	45.63	41.58	44.00	41.83	3.89	4.00	3.79	3.78	3.79	3.73	3.84	3.17	4.05	3.88	3.86	4.06	
01/01/24	01/31/24	Jan 2024	42.97	37.32	41.37	36.13	41.73	35.81	48.85	42.00	46.85	41.61	4.02	4.17	3.95	3.94	3.93	3.97	3.90	3.30	4.21	4.04	4.02	4.15	
02/01/24	02/29/24	Feb 2024	41.11	37.59	42.26	38.42	42.54	38.51	46.87	43.89	46.68	43.75	4.55	4.70	4.43	4.42	4.50	4.37	4.28	3.92	4.69	4.52	4.50	4.51	
03/01/24	03/31/24	Mar 2024	38.06	36.75	36.62	34.81	37.10	34.77	41.74	40.68	40.73	40.14	4.26	4.35	4.12	4.09	4.10	4.09	4.01	3.62	4.36	4.19	4.17	4.24	
04/01/24	04/30/24	Apr 2024	36.20	35.03	34.42	33.35	34.53	32.81	38.55	38.01	37.30	37.52	3.98	4.06	3.80	3.80	3.87	3.82	3.67	3.11	4.05	3.89	3.87	3.85	
05/01/24	05/31/24	May 2024	33.64	30.95	34.37	33.27	31.10	28.23	37.93	36.43	37.47	36.80	4.00	4.08	3.82	3.82	3.78	3.87	3.81	3.54	3.12	4.04	3.89	3.86	3.72
06/01/24	06/30/24	Jun 2024	35.22	32.11	34.98	33.22	32.60	29.40	38.89	37.23	38.16	37.54	4.04	4.10	3.89	3.77	3.87	3.78	3.57	3.13	4.02	3.86	3.84	3.74	
07/01/24	07/31/24	Jul 2024	48.80	39.19	48.82	38.59	46.63	36.59	48.61	41.35	48.35	41.25	4.08	4.13	3.90	3.80	3.89	3.80	3.57	3.25	4.05	3.89	3.87	3.75	
08/01/24	08/31/24	Aug 2024	50.45	40.37	50.89	40.08	50.00	38.97	51.82	43.29	51.62	43.26	4.10	4.20	3.92	3.92	4.00	3.90	3.75	3.29	4.18	4.01	4.00	3.93	
09/01/24	09/30/24	Sep 2024	47.08	41.13	47.09	39.39	48.79	39.94	49.89	43.72	49.80	43.66	4.13	4.27	3.99	3.99	4.05	3.95	3.86	3.48	4.24	4.08	4.06	4.05	
10/01/24	10/31/24	Oct 2024	45.77	40.29	42.05	37.53	43.04	37.62	47.06	43.56	46.62	43.52	4.32	4.47	4.17	4.20	4.26	4.18	4.05	3.64	4.46	4.30	4.28	4.24	
11/01/24	11/30/24	Nov 2024	46.95	42.14	43.95	39.61	44.22	39.45	50.03	46.23	49.46	46.18	4.63	4.79	4.46	4.55	4.59	4.51	4.37	4.14	4.81	4.64	4.62	4.57	
12/01/24	12/31/24	Dec 2024	45.59	40.83	42.32	38.65	42.87	38.15	47.55	44.56	47.56	44.72	4.65	4.75	4.55	4.50	4.56	4.49	4.27	4.06	4.77	4.60	4.57	4.49	
01/01/25	01/31/25	Jan 2025	47.89	42.41	44.38	40.14	45.09	39.66	49.77	45.53	49.55	45.84	4.75	4.90	4.71	4.66	4.71	4.62	4.49	4.17	4.93	4.76	4.74	4.74	
02/01/25	02/28/25	Feb 2025	43.20	39.64	44.58	40.98	44.86	40.96	49.19	45.62	49.15	46.73	4.79	4.92	4.68	4.68	4.73	4.64	4.56	4.18	4.93	4.76	4.74	4.79	
03/01/25	03/31/25	Mar 2025	41.37	39.89	40.40	38.31	40.61	38.04	44.65	43.42	44.53	44.55	4.62	4.71	4.52	4.45	4.53	4.45	4.39	3.97	4.72	4.55	4.53	4.62	
04/01/25	04/30/25	Apr 2025	40.59	39.55	39.65	38.46	39.41	37.60	42.62	41.67	42.55	43.78	4.48	4.57	4.30	4.30	4.38	4.31	4.15	3.54	4.55	4.39	4.37	4.33	
05/01/25	05/31/25	May 2025	36.44	33.48	36.49	35.22	33.83	30.79	40.68	38.71	39.78	40.40	4.30	4.35	4.11	4.05	4.14	4.07	3.81	3.55	4.30	4.14	4.12	3.99	
06/01/25	06/30/25	Jun 2025	38.09	33.81	37.82	35.08	35.57	31.09	42.15	38.88	41.08	39.74	4.31	4.38	4.18	4.18	4.05	4.13	4.06	3.77	3.54	4.30	4.14	4.12	3.95
07/01/25	07/31/25	Jul 2025	52.14	41.89	52.12	41.15	50.18	39.22	52.89	44.43	52.07	44.15	4.36	4.41	4.21	4.07	4.18	4.09	3.84	3.62	4.33	4.16	4.15	4.02	
08/01/25	08/31/25	Aug 2025	54.94	44.42	55.73	44.07	54.50	43.26	57.64	48.06	56.82	47.99	4.39	4.51	4.22	4.17	4.24	4.18	4.00	3.60	4.42	4.26	4.24	4.18	
09/01/25	09/30/25	Sep 2025	50.07	42.94	50.51	41.53	51.75	41.76	54.50	46.99	53.95	46.94	4.28	4.45	4.14	4.07	4.17	4.07	3.96	3.63	4.33	4.16	4.15	4.15	
10/01/25	10/31/25	Oct 2025	46.41	40.91	42.63	38.30	43.62	38.17	48.60	44.12	47.72	44.74	4.30	4.52	4.14	4.13	4.19	4.11	3.97	3.62	4.38	4.22	4.20	4.16	
11/01/25	11/30/25	Nov 2025	46.14	41.09	43.18	38.65	43.35	38.35	49.23	44.54	48.48	45.24	4.35	4.53	4.19	4.24	4.31	4.24	4.02	3.87	4.51	4.34	4.32	4.22	
12/01/25	12/31/25	Dec 2025	46.57	41.23	43.70	39.75	43.78	38.49	48.38	45.26	49.23	46.39	4.62	4.75	4.53	4.47	4.55	4.47	4.23	3.98	4.73	4.56	4.54	4.45	
01/01/26	01/31/26	Jan 2026	49.18	43.71	45.74	41.11	46.31	40.89	51.29	46.40	51.24	47.86	4.86	4.99	4.82	4.71	4.79	4.70	4.48	4.16	4.98	4.81	4.79	4.73	
02/01/26	02/28/26	Feb 2026	43.46	40.69	46.08	42.28	46.29	42.30	49.81	45.82	50.77	48.44	4.90	5.05	4.83	4.77	4.83	4.75	4.52	4.18	5.04	4.87	4.84	4.76	
03/01/26	03/31/26	Mar 2026	42.35	41.56	41.31	39.57	41.53	39.41	44.57	44.08	45.64	46.04	4.73	4.82	4.61	4.54	4.63	4.57	4.42	3.88	4.81	4.64	4.61	4.65	
04/01/26	04/30/26	Apr 2026	41.28	40.20	40.22	39.35	39.62	37.78	42.81	42.77	42.73	45.11	4.55	4.65	4.38	4.35	4.43	4.36	4.20	3.61	4.60	4.44	4.4		

05/01/28	05/31/28	May 2028	41.02	36.94	40.46	39.71	38.23	34.04	44.47	42.09	43.33	45.32	4.79	4.81	4.63	4.51	4.62	4.56	4.34	4.16	4.76	4.59	4.58	4.51
06/01/28	06/30/28	Jun 2028	44.09	37.93	42.03	39.47	40.92	34.95	48.21	43.52	44.91	45.38	4.83	4.84	4.70	4.49	4.60	4.53	4.37	4.18	4.75	4.58	4.56	4.54
07/01/28	07/31/28	Jul 2028	56.62	48.19	58.25	46.53	56.52	45.28	60.46	50.50	57.90	50.45	4.90	4.91	4.76	4.55	4.67	4.60	4.44	4.31	4.80	4.64	4.62	4.62
08/01/28	08/31/28	Aug 2028	59.05	48.74	60.39	47.69	59.61	46.99	63.76	53.07	61.57	52.65	4.93	5.04	4.76	4.66	4.76	4.67	4.62	4.34	4.92	4.75	4.73	4.80
09/01/28	09/30/28	Sep 2028	53.34	47.88	53.27	46.22	55.23	46.83	57.72	51.70	56.80	52.21	4.88	5.02	4.77	4.66	4.74	4.65	4.62	4.51	4.92	4.75	4.73	4.81
10/01/28	10/31/28	Oct 2028	53.18	46.87	47.45	43.09	50.15	43.92	54.21	49.50	53.42	50.49	4.91	5.09	4.81	4.76	4.83	4.73	4.70	4.56	5.02	4.85	4.83	4.89
11/01/28	11/30/28	Nov 2028	54.21	48.25	50.04	45.10	51.18	45.28	56.64	51.81	55.68	52.39	5.04	5.25	4.93	4.93	5.02	4.95	4.95	4.76	5.19	5.02	5.00	5.15
12/01/28	12/31/28	Dec 2028	53.54	48.33	48.75	45.85	50.52	45.36	54.52	51.91	55.37	53.05	5.33	5.50	5.30	5.22	5.28	5.18	5.19	4.86	5.49	5.32	5.30	5.41
01/01/29	01/31/29	Jan 2029	54.99	48.93	50.29	46.06	51.89	45.90	55.52	51.02	55.67	52.64	5.35	5.52	5.32	5.29	5.36	5.25	5.28	4.86	5.56	5.39	5.37	5.53
02/01/29	02/28/29	Feb 2029	47.88	45.04	50.58	47.01	51.34	47.41	54.02	50.35	54.77	53.54	5.39	5.55	5.31	5.32	5.38	5.29	5.31	4.88	5.59	5.42	5.40	5.54
03/01/29	03/31/29	Mar 2029	46.39	46.50	44.91	43.97	45.84	44.17	48.09	48.20	47.73	50.85	5.21	5.31	5.08	5.11	5.18	5.08	5.08	4.59	5.37	5.20	5.18	5.31
04/01/29	04/30/29	Apr 2029	45.50	44.42	43.06	42.26	43.50	41.81	45.20	45.70	43.92	47.55	5.04	5.11	4.89	4.82	4.92	4.86	4.79	4.29	5.07	4.91	4.89	4.97
05/01/29	05/31/29	May 2029	40.90	36.77	41.39	40.77	38.02	33.80	44.06	41.97	43.12	45.76	4.88	4.91	4.73	4.61	4.72	4.66	4.46	4.22	4.86	4.69	4.68	4.64
06/01/29	06/30/29	Jun 2029	43.20	37.93	41.57	40.14	40.17	34.90	46.44	42.87	43.96	45.73	4.92	4.94	4.78	4.59	4.71	4.66	4.48	4.22	4.84	4.68	4.66	4.65
07/01/29	07/31/29	Jul 2029	58.91	48.72	58.87	47.66	56.98	45.72	59.70	49.05	57.25	50.78	4.96	4.99	4.81	4.61	4.73	4.63	4.49	4.28	4.86	4.70	4.68	4.68
08/01/29	08/31/29	Aug 2029	60.48	49.43	61.81	48.92	61.33	48.11	64.30	52.80	61.61	52.84	5.01	5.08	4.82	4.72	4.82	4.75	4.69	4.32	4.98	4.81	4.79	4.88
09/01/29	09/30/29	Sep 2029	55.29	48.64	56.03	47.98	57.68	48.21	59.44	52.08	58.62	52.78	4.89	5.08	4.76	4.66	4.76	4.65	4.62	4.43	4.92	4.75	4.74	4.81
10/01/29	10/31/29	Oct 2029	53.96	47.37	48.93	44.21	50.88	44.35	54.26	49.53	53.31	50.85	4.92	5.14	4.79	4.76	4.85	4.75	4.71	4.48	5.02	4.85	4.84	4.90
11/01/29	11/30/29	Nov 2029	53.41	47.93	48.85	44.51	50.33	44.90	55.39	51.22	54.78	51.99	5.04	5.31	4.95	4.99	5.05	4.96	4.98	4.71	5.25	5.09	5.07	5.17
12/01/29	12/31/29	Dec 2029	53.35	48.42	48.65	45.57	50.27	45.39	53.75	50.90	54.96	52.96	5.31	5.46	5.29	5.24	5.31	5.21	5.22	4.82	5.50	5.33	5.31	5.44
01/01/30	01/31/30	Jan 2030	54.79	49.60	50.14	46.52	51.64	46.50	56.44	51.89	55.99	53.52	5.42	5.58	5.45	5.37	5.44	5.35	5.35	4.96	5.64	5.46	5.44	5.60
02/01/30	02/28/30	Feb 2030	49.42	47.43	50.71	47.42	51.86	48.12	55.09	51.71	55.37	54.49	5.47	5.61	5.45	5.39	5.47	5.38	5.39	5.01	5.66	5.49	5.47	5.63
03/01/30	03/31/30	Mar 2030	48.23	47.87	45.22	44.48	46.40	44.88	48.85	49.34	48.55	51.17	5.32	5.42	5.18	5.23	5.22	5.22	5.23	4.72	5.50	5.33	5.31	5.46
04/01/30	04/30/30	Apr 2030	47.29	45.93	43.61	42.75	44.41	42.96	46.41	47.09	44.67	48.92	5.18	5.26	5.00	4.99	5.07	5.03	4.96	4.58	5.24	5.07	5.06	5.13
05/01/30	05/31/30	May 2030	43.35	38.83	43.94	43.31	40.29	35.72	46.40	44.34	45.06	48.23	5.16	5.22	4.99	4.93	5.03	4.97	4.84	4.56	5.18	5.01	5.00	5.01
06/01/30	06/30/30	Jun 2030	45.37	40.26	43.58	42.45	42.19	37.05	48.72	45.44	45.50	47.76	5.20	5.23	5.06	4.91	5.03	4.97	4.85	4.62	5.16	5.00	4.98	5.03
07/01/30	07/31/30	Jul 2030	62.94	51.15	61.91	49.62	60.55	48.04	63.38	51.60	60.39	53.37	5.28	5.31	5.09	4.93	5.06	5.00	4.84	4.74	5.18	5.02	5.00	5.02
08/01/30	08/31/30	Aug 2030	63.62	52.75	64.50	51.48	64.14	50.88	67.72	55.95	64.61	55.82	5.31	5.41	5.13	5.06	5.16	5.07	5.03	4.77	5.31	5.15	5.13	5.21
09/01/30	09/30/30	Sep 2030	59.37	52.18	58.93	50.36	60.71	50.81	63.65	55.84	62.00	55.92	5.26	5.44	5.09	5.13	5.20	5.13	5.13	4.94	5.39	5.22	5.20	5.32
10/01/30	10/31/30	Oct 2030	56.59	49.72	51.12	46.33	53.43	46.62	57.73	52.69	56.12	53.62	5.29	5.48	5.12	5.20	5.26	5.16	5.20	4.99	5.46	5.30	5.28	5.40
11/01/30	11/30/30	Nov 2030	55.25	50.03	50.75	46.82	52.09	46.92	57.92	53.85	56.70	54.23	5.41	5.66	5.26	5.41	5.47	5.35	5.41	5.13	5.67	5.50	5.48	5.61
12/01/30	12/31/30	Dec 2030	55.71	51.36	51.40	48.42	52.55	48.24	56.91	54.08	57.80	55.76	5.70	5.85	5.66	5.64	5.70	5.61	5.63	5.31	5.74	5.74	5.72	5.85
01/01/31	01/31/31	Jan 2031	57.09	51.49	52.12	48.38	53.86	48.31	58.83	53.94	58.32	55.40	5.59	5.77	5.58	5.56	5.62	5.53	5.55	5.20	5.83	5.66	5.64	5.80
02/01/31	02/28/31	Feb 2031	51.22	48.96	52.51	48.68	53.85	49.45	57.22	53.57	57.49	55.95	5.64	5.82	5.53	5.61	5.67	5.58	5.59	5.26	5.88	5.71	5.68	5.83
03/01/31	03/31/31	Mar 2031	50.32	49.51	47.12	46.07	48.51	46.56	51.12	50.88	50.82	53.22	5.49	5.62	5.34	5.46	5.52	5.44	5.44	4.92	5.73	5.56	5.53	5.67
04/01/31	04/30/31	Apr 2031	49.52	48.22	46.43	45.36	46.88	45.27	48.24	49.22	46.91	51.36	5.34	5.44	5.17	5.17	5.26	5.20	5.14	4.74	5.43	5.26	5.25	5.32
05/01/31	05/31/31	May 2031	45.13	41.29	44.78	44.35	42.13	38.18	47.83	46.08	46.27	49.63	5.29	5.34	5.13	5.05	5.16	5.10	4.98	4.70	5.31	5.14	5.13	5.15
06/01/31	06/30/31	Jun 2031	47.52	41.88	45.34	43.90	44.30	38.71	51.00	47.02	47.69	49.30	5.34	5.37	5.17	5.05	5.16	5.10	5.00	4.73	5.31	5.14	5.13	5.17
07/01/31	07/31/31	Jul 2031	65.53	53.15	64.41	51.53	63.12	49.95	66.16	53.83	63.04	55.50	5.43	5.47	5.26	5.10	5.22	5.17	5.01	4.82	5.35	5.19	5.17	5.19
08/01/31	08/31/31	Aug 2031	65.94	54.93	66.76	53.72	66.50	53.24	70.34	58.28	67.09	58.13	5.47	5.58	5.26	5.22	5.32	5.25	5.19	4.85	5.47	5.31	5.29	5.37
09/01/31	09/30/31	Sep 2031	61.22	53.16	60.72	51.36	62.81	51.91	66.61	57.44	64.10	57.73	5.35	5.56	5.19	5.23	5.31	5.23	5.23	4.98	5.49	5.32	5.31	5.42
10/01/31	10/31/31	Oct 2031	57.79	50.83	51.50	46.99	54.53	47.66	59.28	54.14	57.27	54.46	5.40	5.61	5.22	5.32	5.38	5.28	5.32	5.04	5.58	5.41	5.40	5.52
11/01/31	11/30/31	Nov 2031	56.98	51.36	52.13	47.95	53.75	48.19	59.55	54.87	57.92	55.32	5.47	5.73	5.34	5.49	5.55	5.46	5.47	5.13	5.75	5.58	5.56	5.67
12/01/31	12/31/31	Dec 2031	57.27	52.18	52.20	49.28	54.03	49.00	58.12	55.11	58.86	56.99	5.77	5.97	5.73	5.71	5.77	5.68	5.70	5.50	5.98	5.81	5.79	5.92
01/01/32	01/31/32	Jan 2032	59.75	53.90	54.71	50.69	56.42	50.84	62.03	56.73	61.36	58.36	5.91	6.07	5.87	5.86	5.94	5.81	5.86	5.60	6.13	5.96	5.94	6.11
02/01/32	02/29/32	Feb 2032	53.87	52.25	54.86	51.24	56.09	52.09	60.18	56.53	59.74	58.35	5.94	6.14	5.86	5.91	5.97	5.87	5.91	5.65	6.17	6.00	5.98	6.14
03/01/32	03/31/32	Mar 2032	52.43	51.60	48.80	47.96	50.31	48.41	53.18	52.92	52.54	55.80	5.71	5.87	5.55	5.66	5.74	5.63	5.66	5.37	5.93	5.76	5.74	5.89
04/01/32	04/30/32	Apr 2032	51.19	49.71	47.76	46.76	48.00	46.58	50.20	51.22	48.31	53.21	5.49	5.65	5.28	5.39	5.46	5.40	5.34	5.05	5.64	5.47	5.46	5.52
05/01/32	05/31/32	May 2032	45.39	40.76	45.64	44.95	42.18	37.49	48.37	46.32	46.69	49.99	5.37	5.42	5.20	5.11	5.22	5.14	5.08	4.93	5.36	5.20	5.18	5.25

06/01/34	06/30/34	Jun 2034	53.48	46.83	50.31	48.24	49.98	43.50	56.54	52.09	52.25	54.14	5.76	5.84	5.60	5.52	5.68	5.62	5.44	5.12	5.78	5.61	5.60	5.62
07/01/34	07/31/34	Jul 2034	71.74	58.11	69.57	56.25	68.68	54.71	71.76	58.77	67.99	60.76	5.83	5.96	5.64	5.59	5.75	5.67	5.46	5.22	5.84	5.68	5.66	5.64
08/01/34	08/31/34	Aug 2034	72.14	60.35	72.38	58.31	71.66	57.81	75.86	63.34	72.26	63.95	5.88	6.10	5.62	5.78	5.86	5.76	5.70	5.27	6.04	5.87	5.85	5.88
09/01/34	09/30/34	Sep 2034	64.48	58.07	63.23	55.14	64.90	55.96	67.77	60.93	66.50	62.31	5.67	5.94	5.51	5.67	5.72	5.59	5.62	5.30	5.92	5.76	5.74	5.81
10/01/34	10/31/34	Oct 2034	61.56	54.71	54.17	50.05	58.10	51.32	62.14	57.52	60.73	58.40	5.70	5.99	5.52	5.72	5.78	5.68	5.72	5.35	5.97	5.81	5.79	5.91
11/01/34	11/30/34	Nov 2034	61.70	55.11	55.25	51.06	58.23	51.71	63.60	61.89	59.32	5.76	6.05	5.62	5.81	5.92	5.81	5.92	5.38	6.07	5.91	5.89	6.12	
12/01/34	12/31/34	Dec 2034	61.37	56.77	55.15	52.77	57.90	53.36	61.96	59.85	62.75	61.58	6.10	6.37	6.05	6.12	6.31	6.20	6.32	5.76	6.38	6.21	6.19	6.54
01/01/35	01/31/35	Jan 2035	63.26	57.74	57.04	53.76	59.70	54.24	66.41	60.52	64.33	62.01	6.21	6.44	6.19	6.26	6.44	6.29	6.47	5.88	6.53	6.36	6.33	6.72
02/01/35	02/28/35	Feb 2035	58.61	56.90	57.52	53.91	59.60	55.49	64.11	60.51	63.42	62.29	6.26	6.49	6.18	6.27	6.47	6.34	6.49	5.90	6.54	6.37	6.35	6.72
03/01/35	03/31/35	Mar 2035	57.10	55.92	52.02	51.44	54.36	52.45	56.46	56.86	55.81	59.65	6.06	6.29	5.88	6.09	6.18	6.06	6.14	5.75	6.36	6.19	6.17	6.37
04/01/35	04/30/35	Apr 2035	55.62	53.67	51.05	49.82	52.16	50.22	53.34	54.86	51.23	56.52	5.86	6.08	5.63	5.86	5.90	5.80	5.83	5.45	6.12	5.95	5.94	6.01
05/01/35	05/31/35	May 2035	51.25	45.85	51.05	50.00	47.81	42.39	53.52	51.83	51.64	55.98	5.88	6.06	5.72	5.83	5.90	5.81	5.75	5.41	6.08	5.92	5.90	5.92
06/01/35	06/30/35	Jun 2035	53.26	47.15	50.74	49.51	49.75	43.67	56.09	52.63	52.26	55.40	5.91	6.03	5.78	5.73	5.86	5.78	5.65	5.21	5.99	5.82	5.80	5.82
07/01/35	07/31/35	Jul 2035	73.97	59.75	71.77	57.89	70.68	56.25	74.01	60.84	69.84	62.39	6.01	6.14	5.85	5.85	5.98	5.86	5.75	5.29	6.10	5.94	5.92	5.93
08/01/35	08/31/35	Aug 2035	75.41	62.20	75.29	60.03	74.48	59.68	79.51	65.99	75.08	65.99	6.06	6.26	5.85	5.98	6.06	5.93	5.91	5.47	6.23	6.07	6.05	6.10
09/01/35	09/30/35	Sep 2035	68.27	60.65	67.58	57.90	67.95	58.11	73.21	64.65	71.03	64.93	5.88	6.11	5.72	5.90	5.93	5.80	5.85	5.49	6.15	5.99	5.97	6.04
10/01/35	10/31/35	Oct 2035	63.23	56.00	56.99	51.87	59.67	52.52	65.25	59.68	62.92	60.15	5.90	6.14	5.72	5.91	5.98	5.88	5.91	5.49	6.17	6.00	5.99	6.10
11/01/35	11/30/35	Nov 2035	62.03	56.12	56.15	51.83	58.49	52.62	65.30	60.56	63.07	60.69	5.96	6.27	5.86	6.01	6.19	6.06	6.19	5.59	6.27	6.11	6.09	6.39
12/01/35	12/31/35	Dec 2035	61.76	57.92	56.00	53.92	58.20	54.43	63.55	61.53	63.85	62.90	6.29	6.54	6.24	6.29	6.49	6.37	6.49	5.83	6.59	6.39	6.37	6.70
01/01/36	01/31/36	Jan 2036	66.12	60.44	59.88	56.29	62.47	56.85	68.47	63.57	67.00	64.83	6.47	6.80	6.43	6.55	6.80	6.67	6.80	5.85	6.82	6.65	6.63	7.05
02/01/36	02/29/36	Feb 2036	60.63	58.62	59.12	55.79	61.55	57.24	66.01	62.62	65.07	64.30	6.52	6.72	6.43	6.52	6.65	6.55	6.65	6.15	6.79	6.62	6.59	6.88
03/01/36	03/31/36	Mar 2036	59.44	57.95	53.91	53.31	56.43	54.39	59.42	58.94	58.04	61.60	6.32	6.52	6.15	6.33	6.42	6.30	6.40	6.03	6.60	6.43	6.41	6.63
04/01/36	04/30/36	Apr 2036	57.44	55.36	52.69	51.08	53.89	51.86	55.31	57.38	53.03	58.70	6.12	6.28	5.91	6.10	6.13	6.05	6.03	5.88	6.35	6.19	6.17	6.21
05/01/36	05/31/36	May 2036	52.80	47.60	53.18	51.82	49.22	44.07	55.55	53.63	53.40	57.73	6.13	6.28	5.97	6.05	6.12	6.03	5.97	5.65	6.30	6.14	6.12	6.14
06/01/36	06/30/36	Jun 2036	56.78	49.81	55.62	52.02	53.14	46.27	59.64	55.20	56.05	57.48	6.17	6.25	6.05	5.93	6.10	6.00	5.85	5.40	6.18	6.02	6.00	6.02
07/01/36	07/31/36	Jul 2036	76.89	61.93	74.55	59.65	73.79	58.23	76.62	62.96	72.54	64.87	6.27	6.35	6.12	6.03	6.20	6.05	5.91	5.43	6.29	6.12	6.10	6.10
08/01/36	08/31/36	Aug 2036	77.89	65.07	77.75	62.80	76.92	62.54	81.53	68.67	77.28	68.28	6.32	6.52	6.12	6.25	6.32	6.20	6.17	5.73	6.51	6.34	6.32	6.35
09/01/36	09/30/36	Sep 2036	70.72	62.29	69.96	59.27	70.83	59.82	75.75	66.70	73.48	67.18	6.12	6.35	5.97	6.12	6.17	6.03	6.08	5.73	6.37	6.21	6.19	6.27
10/01/36	10/31/36	Oct 2036	65.25	57.71	58.91	53.56	61.61	54.15	67.68	62.21	65.32	62.17	6.15	6.42	5.98	6.15	6.25	6.13	6.18	5.75	6.41	6.24	6.22	6.37
11/01/36	11/30/36	Nov 2036	64.18	58.22	57.95	54.08	60.55	54.65	67.62	62.73	65.23	63.01	6.22	6.52	6.10	6.25	6.42	6.32	6.43	5.85	6.51	6.34	6.32	6.63
12/01/36	12/31/36	Dec 2036	64.14	59.60	58.18	55.59	60.50	56.02	66.02	63.41	66.32	64.62	6.55	6.75	6.52	6.52	6.74	6.60	6.74	6.02	6.96	6.62	6.59	6.95
01/01/37	01/31/37	Jan 2037	67.87	62.15	61.36	57.87	64.14	58.48	69.32	65.28	68.71	67.04	6.62	6.98	6.58	6.69	6.96	6.82	6.98	6.02	6.79	6.68	6.76	7.23
02/01/37	02/28/37	Feb 2037	64.40	62.15	60.88	57.57	63.93	59.69	68.30	65.31	67.33	66.74	6.67	6.93	6.60	6.65	6.96	6.84	6.96	6.14	6.92	6.75	6.73	7.19
03/01/37	03/31/37	Mar 2037	62.06	60.04	55.54	54.51	58.71	56.39	60.89	61.02	60.21	63.11	6.46	6.67	6.31	6.48	6.58	6.46	6.57	6.19	6.75	6.58	6.56	6.79
04/01/37	04/30/37	Apr 2037	59.94	58.10	54.71	53.61	56.36	54.48	56.73	59.63	54.82	61.65	6.26	6.45	6.07	6.26	6.29	6.15	6.21	5.85	6.51	6.35	6.33	6.38
05/01/37	05/31/37	May 2037	56.27	52.25	54.54	53.29	52.68	48.68	57.40	57.30	54.99	59.62	6.27	6.45	6.12	6.24	6.29	6.15	6.14	5.85	6.49	6.33	6.31	6.31
06/01/37	06/30/37	Jun 2037	60.15	52.18	57.68	53.65	56.45	48.61	61.27	57.56	57.53	59.80	6.31	6.43	6.24	6.14	6.26	6.17	6.02	5.59	6.39	6.22	6.21	6.19
07/01/37	07/31/37	Jul 2037	78.84	63.75	76.21	61.17	75.63	60.05	77.81	64.25	73.85	66.72	6.43	6.53	6.29	6.22	6.36	6.21	6.09	5.55	6.48	6.21	6.29	6.27
08/01/37	08/31/37	Aug 2037	81.39	67.51	79.85	64.71	79.26	64.45	83.05	70.14	78.99	70.42	6.46	6.70	6.27	6.43	6.50	6.38	6.36	5.98	6.68	6.52	6.50	6.54
09/01/37	09/30/37	Sep 2037	73.57	64.67	71.87	60.88	72.62	61.81	76.92	67.85	75.37	68.99	6.27	6.55	6.14	6.26	6.33	6.21	6.26	5.86	6.51	6.35	6.33	6.45
10/01/37	10/31/37	Oct 2037	66.12	59.02	59.35	54.57	62.41	55.37	67.48	63.20	65.52	63.21	6.29	6.57	6.12	6.29	6.38	6.26	6.33	5.88	6.55	6.38	6.36	6.52
11/01/37	11/30/37	Nov 2037	66.39	60.37	59.83	55.63	62.67	56.71	68.82	64.86	66.72	64.94	6.36	6.67	6.26	6.39	6.63	6.51	6.65	6.03	6.66	6.49	6.47	6.85
12/01/37	12/31/37	Dec 2037	65.77	61.62	59.53	57.31	62.04	57.96	66.92	65.64	67.51	67.11	6.70	6.96	6.67	6.70	6.96	6.84	7.01	6.22	6.97	6.80	6.78	7.23
01/01/38	01/31/38	Jan 2038	71.44	65.46	64.26	60.74	67.60	61.69	73.01	68.78	71.64	69.95	6.93	7.33	6.91	6.98	7.35	7.17	7.37	6.31	7.25	7.08	7.06	7.61
02/01/38	02/28/38	Feb 2038	68.36	65.66	63.66	60.16	67.83	62.88	71.04	68.22	70.15	69.67	6.98	7.24	6.93	6.98	7.31	7.15	7.37	6.47	7.25	7.08	7.06	7.60
03/01/38	03/31/38	Mar 2038	65.20	62.79	58.06	57.22	61.69	59.04	63.47	64.55	62.40	66.74	6.77	6.98	6.61	6.79	6.89	6.77	6.86	6.49	7.05	6.88	6.86	7.09
04/01/38	04/30/38	Apr 2038	62.82	60.42	57.21	55.53	59.09	56.72	59.48	62.06	57.26	63.61	6.56	6.75	6.31	6.54	6.59	6.49	6.54	6.17	6.79	6.63	6.61	6.72
05/01/38	05/31/38	May 2038	57.80	52.50	57.36	55.60	54.05	48.85	59.25	58.65	56.83	61.98	6.58	6.75	6.42	6.51	6.58	6.44	6.40	6.07	6.76	6.59	6.58	6.57
06/01/38	06/30/38	Jun 2038	63.07	54.74	59.24	55.74	59.29	51.07	63.88	60.35	59.27	61.86	6.61	6.75	6.52	6.44	6.56	6.44	6.33	5.89	6.69	6.52	6.51	6.50
07/0																								

07/01/40	07/31/40	Jul 2040	88.94	72.77	85.28	69.46	85.09	68.83	87.70	73.91	82.62	75.39	7.21	7.40	7.10	7.01	7.18	6.99	6.90	6.31	7.26	7.10	7.08
08/01/40	08/31/40	Aug 2040	91.39	76.03	89.42	72.61	87.79	72.31	92.62	79.81	88.73	80.81	7.27	7.62	7.12	7.25	7.32	7.16	7.19	6.75	7.50	7.34	7.32
09/01/40	09/30/40	Sep 2040	80.23	71.75	76.72	67.41	77.82	68.14	81.99	75.36	79.79	76.08	7.05	7.40	6.92	7.01	7.12	6.97	7.01	6.57	7.27	7.10	7.08
10/01/40	10/31/40	Oct 2040	75.07	66.49	67.27	61.64	71.06	62.56	76.35	71.34	74.13	71.14	7.08	7.49	6.94	7.07	7.36	7.19	7.34	6.64	7.32	7.16	7.14
11/01/40	11/30/40	Nov 2040	76.73	68.64	68.77	63.30	72.70	64.68	79.11	74.23	76.63	73.79	7.16	7.60	7.18	7.16	7.62	7.47	7.67	6.75	7.42	7.25	7.23
12/01/40	12/31/40	Dec 2040	74.98	70.39	68.08	65.32	70.95	66.42	76.62	75.08	76.33	76.05	7.54	7.95	7.65	7.52	7.98	7.84	8.04	7.14	7.79	7.62	7.60
01/01/41	01/31/41	Jan 2041	78.99	71.85	71.70	66.65	74.86	67.79	80.77	75.96	79.40	76.96	7.60	8.09	7.70	7.70	8.05	7.90	7.85	6.97	7.97	7.80	7.77
02/01/41	02/28/41	Feb 2041	76.43	73.65	71.04	66.64	75.34	69.93	79.34	76.60	77.30	77.48	7.68	8.02	7.66	7.72	8.13	7.98	8.24	7.30	7.99	7.82	7.79
03/01/41	03/31/41	Mar 2041	72.34	69.97	64.65	63.32	68.42	65.97	69.27	70.24	68.16	72.83	7.43	7.70	7.30	7.47	7.64	7.51	7.66	7.13	7.74	7.57	7.55
04/01/41	04/30/41	Apr 2041	69.39	66.48	62.90	61.02	65.36	62.50	65.09	68.12	62.51	69.46	7.21	7.42	7.04	7.19	7.25	7.12	7.19	6.83	7.44	7.28	7.26
05/01/41	05/31/41	May 2041	65.28	59.02	63.09	61.29	61.23	55.09	66.46	64.65	62.49	68.66	7.23	7.43	7.10	7.19	7.23	7.12	7.12	6.80	7.44	7.28	7.26
06/01/41	06/30/41	Jun 2041	68.15	60.62	65.57	61.59	64.27	56.69	68.65	66.30	64.14	67.83	7.27	7.45	7.21	7.06	7.21	7.06	6.98	6.44	7.31	7.15	7.13
07/01/41	07/31/41	Jul 2041	91.71	74.54	88.33	71.30	87.84	70.49	90.70	75.62	85.62	77.70	7.38	7.57	7.27	7.17	7.34	7.15	7.06	6.46	7.43	7.26	7.24
08/01/41	08/31/41	Aug 2041	94.17	78.11	92.01	74.80	90.87	74.53	95.69	82.49	91.36	82.88	7.43	7.79	7.28	7.42	7.49	7.32	7.36	6.91	7.67	7.51	7.49
09/01/41	09/30/41	Sep 2041	84.86	74.40	83.11	70.67	82.72	70.74	88.99	79.01	86.83	79.30	7.21	7.57	7.08	7.17	7.28	7.13	7.17	6.72	7.43	7.26	7.24
10/01/41	10/31/41	Oct 2041	77.36	68.37	69.92	63.59	73.25	64.34	79.58	74.22	76.50	73.47	7.25	7.66	7.10	7.23	7.53	7.36	7.51	6.80	7.48	7.32	7.30
11/01/41	11/30/41	Nov 2041	77.79	69.82	70.06	64.15	73.67	65.78	80.73	75.76	78.19	75.38	7.32	7.77	7.34	7.32	7.79	7.64	7.85	6.91	7.58	7.42	7.40
12/01/41	12/31/41	Dec 2041	77.30	72.14	70.23	66.79	73.19	68.07	79.10	77.16	78.65	77.82	7.72	8.13	7.83	7.70	8.17	8.02	8.22	7.30	7.96	7.80	7.77
01/01/42	01/31/42	Jan 2042	81.33	73.89	73.65	68.43	77.09	69.73	83.21	78.15	81.66	78.91	7.78	8.28	7.87	7.87	8.24	8.09	8.03	7.13	8.14	7.97	7.95
02/01/42	02/28/42	Feb 2042	79.29	75.38	72.42	68.02	77.48	71.27	80.90	78.15	78.62	78.43	7.86	8.20	7.84	7.89	8.32	8.16	8.43	7.47	8.16	7.99	7.97
03/01/42	03/31/42	Mar 2042	74.80	71.51	66.13	64.68	70.66	67.37	70.86	71.98	69.49	74.52	7.61	8.07	7.47	7.64	7.82	7.68	7.84	7.30	7.91	7.74	7.72
04/01/42	04/30/42	Apr 2042	70.92	68.19	64.55	62.06	66.84	64.11	66.54	69.87	63.87	71.00	7.37	7.59	7.20	7.36	7.41	7.28	7.36	6.99	7.61	7.44	7.43
05/01/42	05/31/42	May 2042	67.33	60.38	64.83	62.65	63.19	56.37	66.93	66.00	63.53	69.38	7.39	7.61	7.26	7.36	7.39	7.28	7.28	6.95	7.61	7.44	7.43
06/01/42	06/30/42	Jun 2042	71.50	62.78	68.00	63.37	67.37	58.74	71.32	68.54	66.68	69.43	7.43	7.62	7.37	7.22	7.37	7.22	7.14	6.59	7.47	7.31	7.29
07/01/42	07/31/42	Jul 2042	93.48	76.43	90.15	72.95	89.60	72.24	92.69	78.16	87.46	79.78	7.55	7.74	7.43	7.34	7.51	7.32	7.22	6.61	7.59	7.43	7.41
08/01/42	08/31/42	Aug 2042	96.85	80.67	94.90	77.55	92.46	76.90	98.37	85.22	94.06	85.14	7.61	7.97	7.45	7.59	7.66	7.49	7.53	7.07	7.84	7.68	7.66
09/01/42	09/30/42	Sep 2042	87.44	76.23	84.61	71.99	84.58	72.41	91.49	81.43	89.18	81.90	7.37	7.74	7.24	7.34	7.45	7.30	7.34	6.88	7.59	7.43	7.41
10/01/42	10/31/42	Oct 2042	79.00	69.88	71.71	64.99	74.79	65.76	81.94	76.17	78.71	74.84	7.41	7.84	7.26	7.39	7.70	7.53	7.68	6.95	7.65	7.48	7.47
11/01/42	11/30/42	Nov 2042	79.09	71.79	71.36	65.86	74.88	67.63	82.53	77.65	79.33	77.25	7.49	7.95	7.51	7.49	7.97	7.82	8.03	7.07	7.75	7.58	7.56
12/01/42	12/31/42	Dec 2042	79.71	73.76	72.22	68.25	75.50	69.60	81.30	79.43	81.00	79.94	7.89	8.32	8.01	7.87	8.35	8.20	8.41	7.47	7.81	7.97	7.95
01/01/43	01/31/43	Jan 2043	83.20	75.59	75.35	70.01	78.87	71.33	85.13	79.95	83.53	80.72	7.96	8.47	8.06	8.06	8.43	8.27	8.21	7.29	8.33	8.15	8.13
02/01/43	02/28/43	Feb 2043	81.12	77.12	74.08	69.59	79.26	72.91	82.76	79.95	80.43	80.24	8.04	8.39	8.02	8.08	8.51	8.35	8.63	7.64	8.34	8.17	8.15
03/01/43	03/31/43	Mar 2043	76.52	73.15	67.66	66.17	72.28	68.92	72.49	73.63	71.08	76.24	7.78	8.06	7.64	7.82	8.00	7.86	8.02	7.47	8.09	7.92	7.90
04/01/43	04/30/43	Apr 2043	72.55	69.75	66.03	63.48	68.37	65.58	68.07	71.47	65.34	72.63	7.54	7.76	7.37	7.52	7.58	7.45	7.52	7.15	7.78	7.61	7.60
05/01/43	05/31/43	May 2043	68.88	61.77	66.32	64.09	64.64	57.66	68.47	67.52	64.99	70.97	7.56	7.78	7.43	7.52	7.56	7.45	7.45	7.11	7.78	7.61	7.60
06/01/43	06/30/43	Jun 2043	73.15	64.23	69.56	64.83	68.92	60.10	72.96	70.12	68.21	71.03	7.60	7.80	7.54	7.39	7.54	7.39	7.31	6.74	7.64	7.48	7.48
07/01/43	07/31/43	Jul 2043	95.63	78.19	92.23	74.62	91.66	73.90	94.82	79.96	89.47	81.61	7.72	7.92	7.60	7.51	7.68	7.49	7.39	6.76	7.76	7.59	7.57
08/01/43	08/31/43	Aug 2043	99.08	82.53	97.08	79.33	94.59	78.67	100.63	87.18	96.23	87.09	7.78	8.15	7.62	7.76	7.84	7.66	7.70	7.23	8.02	7.85	7.83
09/01/43	09/30/43	Sep 2043	89.45	77.99	86.55	73.65	86.53	74.07	93.60	83.30	91.23	83.78	7.54	7.92	7.41	7.51	7.62	7.47	7.51	7.03	7.76	7.60	7.58
10/01/43	10/31/43	Oct 2043	80.82	71.49	73.36	66.49	76.51	67.28	83.82	77.92	80.52	76.57	7.58	8.02	7.43	7.58	7.88	7.70	7.86	7.11	7.82	7.65	7.64
11/01/43	11/30/43	Nov 2043	80.91	73.44	73.01	67.37	76.81	69.19	84.43	79.44	81.15	79.03	7.66	8.13	7.68	7.66	8.15	8.00	8.21	7.23	7.92	7.76	7.74
12/01/43	12/31/43	Dec 2043	81.55	75.46	73.88	69.82	77.23	71.21	83.17	81.25	82.87	81.78	8.08	8.51	8.19	8.06	8.55	8.39	8.61	7.64	8.32	8.15	8.13
01/01/44	01/31/44	Jan 2044	85.11	77.32	77.08	71.62	80.68	72.97	87.08	81.79	85.46	82.58	8.14	8.66	8.24	8.24	8.62	8.46	8.40	7.46	8.51	8.34	8.32
02/01/44	02/29/44	Feb 2044	82.98	78.89	75.79	71.19	81.09	74.59	84.66	81.79	82.28	82.08	8.22	8.58	8.20	8.26	8.70	8.54	8.82	7.82	8.53	8.36	8.34
03/01/44	03/31/44	Mar 2044	78.28	74.83	69.21	67.69	73.95	70.51	74.16	75.33	72.72	77.99	7.96	8.24	7.82	8.00	8.18	8.04	8.20	7.64	8.27	8.10	8.08
04/01/44	04/30/44	Apr 2044	74.22	71.36	67.55	64.94	69.95	67.09	69.63	73.12	66.84	74.30	7.72	7.94	7.54	7.70	7.76	7.62	7.70	7.32	7.95	7.79	7.77
05/01/44	05/31/44	May 2044	70.47	63.19	67.84	65.57	66.13	58.99	70.04	69.07	66.48	72.60	7.74	7.96	7.60	7.70	7.74	7.62	7.62	7.28	7.95	7.79	7.77
06/01/44	06/30/44	Jun 2044	74.83	65.70	71.16	66.32	70.50	61.48	74.63	71.73	69.78	72.66	7.78	7.98	7.72	7.56	7.72	7.56	7.48	6.89	7.81	7.65	7.63
07/01/44	07/31/44	Jul 2044	97.83	79.99	94.35	76.34	93.77	75.60	97.00	81.80	91.53	79.09	7.90	8.10	7.78	7.68	7.86	7.66	7.56	6.91	7.93	7.77	7.75
08/01/44	08/31/44	Aug 2044	101.36	84.43	99.31	81.16	96.77	80.48	102.95	89.18	98.44	89.10	7.96	8.34	7.80	7.94	8.02	7.84	7.88	7.40	8.19	8.03	8.01
09/01/44	09/30/44	Sep 2044	91.51	79.78	88.55	75.34	88.52	75.77	95.75	85.22	93.33	85.71	7.72	8.10	7.58	7.68	7.80	7.64	7				

	08/01/46	08/31/46	Aug 2046	106.08	88.35	103.93	84.94	101.27	84.22	107.74	93.33	103.02	93.24	8.33	8.73	8.16	8.31	8.39	8.20	8.25	7.74	8.56	8.40	8.38	8.43	
	09/01/46	09/30/46	Sep 2046	95.77	83.49	92.67	78.85	92.64	79.30	100.20	89.18	97.67	89.69	8.08	8.48	7.93	8.04	8.16	7.99	8.04	7.53	8.29	8.13	8.11	8.22	
	10/01/46	10/31/46	Oct 2046	86.52	76.54	78.54	71.18	81.91	72.03	89.74	83.42	86.20	81.97	8.12	8.58	7.95	8.10	8.43	8.25	8.41	7.61	8.35	8.19	8.17	8.60	
	11/01/46	11/30/46	Nov 2046	86.62	76.63	78.16	72.13	82.01	74.07	90.39	85.05	86.88	84.61	8.20	8.71	8.22	8.20	8.73	8.56	8.79	7.74	8.46	8.30	8.28	8.99	
	12/01/46	12/31/46	Dec 2046																							

			COBHLH	COBLLH	Palo VerdeHL	Palo VerdeLL	Mid-ColumbiaHL	Mid-ColumbiaLL	NP 15HLH	NP 15LLH	SP 15HLH	SP 15LLH	Henry Hub G	SOCALBOR	SANJUAN	Opal Gas	Malin Gas	Stanfield Gas	SUMAS	AECO	GADSBY	Current Cree	Lakeside	Z_CHEBRN*		
			FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	
11/8/2016			ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	
Commodity:			COB N-S	COB N-S	PV	PV	MID-C	MID-C	NP15	NP15	SP15	SP15	HENRYHUB	SOCALBOR	SANJUAN	ROCKOPAL	MALINGAS	STANFLDS	SUMASS	AECO	GADSBY	CURRCCRK	LAKESIDE	Z_CHEBRN		
Tue, 5/31/2005																										
			COB		Palo Verde		Mid-Columbia		NP 15		SP 15		Henry Hub Gas	SOCALBOR	SANJUAN	Opal Gas	Malin Gas	Stanfield Gas	SUMAS	AECO	GADSBY	Current Cree	Lakeside	Z_CHEBRN		
			Forward Prices		Forward Prices		Forward Prices		Forward Prices		Forward Prices		Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price		
Start	End	Peak Type:	HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat		
01/01/17	01/31/17	Jan 2017	29.38	24.96	28.62	23.66	27.52	22.40	37.01	30.68	35.10	29.61	2.81	3.00	2.73	2.72	2.73	2.71	2.75	1.90	2.99	2.81	2.79	2.96		
02/01/17	02/28/17	Feb 2017	28.82	23.25	28.08	23.43	25.74	20.80	35.96	29.80	34.43	28.75	2.85	3.00	2.74	2.76	2.76	2.74	2.69	1.91	3.03	2.85	2.83	2.90		
03/01/17	03/31/17	Mar 2017	23.01	20.14	24.30	21.16	19.80	16.25	32.78	27.33	30.33	26.54	2.85	2.72	2.56	2.58	2.61	2.59	2.23	1.90	2.85	2.67	2.66	2.41		
04/01/17	04/30/17	Apr 2017	23.10	16.40	24.19	18.86	19.25	11.99	30.96	24.62	27.01	22.52	2.82	2.63	2.50	2.48	2.52	2.50	2.11	1.85	2.74	2.57	2.55	2.26		
05/01/17	05/31/17	May 2017	21.61	12.15	24.54	18.29	18.56	9.45	31.93	23.17	27.72	21.39	2.83	2.62	2.49	2.49	2.52	2.49	1.99	1.85	2.75	2.57	2.56	2.13		
06/01/17	06/30/17	Jun 2017	21.84	11.30	27.03	20.41	18.19	7.56	33.76	24.96	29.12	22.84	2.86	2.67	2.55	2.52	2.57	2.54	2.02	1.86	2.78	2.61	2.59	2.16		
07/01/17	07/31/17	Jul 2017	34.68	21.70	36.21	25.76	30.59	19.47	39.75	29.59	39.02	29.34	2.90	2.87	2.70	2.63	2.68	2.66	2.30	1.89	2.89	2.71	2.70	2.45		
08/01/17	08/31/17	Aug 2017	37.18	27.78	35.86	25.76	33.32	22.98	40.94	32.03	39.40	31.16	2.91	2.90	2.71	2.64	2.70	2.68	2.36	1.88	2.90	2.73	2.71	2.53		
09/01/17	09/30/17	Sep 2017	35.39	27.08	31.14	23.23	30.69	24.15	38.56	29.89	36.34	30.25	2.90	2.82	2.65	2.62	2.70	2.68	2.37	1.92	2.88	2.71	2.69	2.53		
10/01/17	10/31/17	Oct 2017	31.39	25.92	27.69	24.01	27.35	22.50	38.36	30.64	34.91	29.69	2.92	2.75	2.60	2.67	2.71	2.68	2.44	1.98	2.93	2.76	2.74	2.61		
11/01/17	11/30/17	Nov 2017	33.41	26.46	27.40	23.28	29.75	24.55	38.36	31.61	36.75	30.31	2.97	3.01	2.79	2.83	2.88	2.86	2.85	2.12	3.10	2.92	2.90	3.06		
12/01/17	12/31/17	Dec 2017	36.45	28.62	29.66	26.22	33.55	26.50	39.53	34.51	38.59	33.65	3.13	3.32	3.06	3.06	3.04	3.02	3.20	2.26	3.33	3.15	3.13	3.43		
01/01/18	01/31/18	Jan 2018	34.43	29.16	29.37	24.41	32.22	25.30	39.46	31.53	35.75	30.11	3.22	3.36	3.12	3.14	3.11	3.08	3.07	2.33	3.41	3.24	3.21	3.30		
02/01/18	02/28/18	Feb 2018	32.12	27.60	28.83	24.18	30.24	23.70	39.46	31.25	35.43	30.10	3.20	3.32	3.09	3.11	3.09	3.07	2.98	2.32	3.38	3.21	3.18	3.21		
03/01/18	03/31/18	Mar 2018	29.16	25.39	26.55	21.91	24.95	21.05	38.33	29.63	34.68	29.04	3.14	3.09	3.00	2.97	3.03	3.00	2.92	2.26	3.23	3.07	3.05	3.14		
04/01/18	04/30/18	Apr 2018	23.95	17.50	22.39	18.56	20.15	13.24	30.76	25.37	27.16	25.12	2.76	2.53	2.42	2.49	2.43	2.41	1.98	1.94	2.74	2.58	2.56	2.12		
05/01/18	05/31/18	May 2018	21.86	12.35	25.04	18.19	19.56	10.15	29.58	23.02	27.32	21.99	2.74	2.51	2.42	2.41	2.42	2.40	1.97	1.92	2.65	2.49	2.48	2.11		
06/01/18	06/30/18	Jun 2018	23.54	13.50	27.53	20.69	20.19	9.76	32.81	25.06	29.12	24.59	2.76	2.55	2.44	2.43	2.44	2.42	1.96	1.92	2.67	2.51	2.50	2.10		
07/01/18	07/31/18	Jul 2018	35.18	22.30	36.16	23.81	32.04	19.77	41.00	29.64	37.97	29.34	2.79	2.79	2.53	2.47	2.52	2.50	2.17	1.91	2.72	2.56	2.54	2.32		
08/01/18	08/31/18	Aug 2018	37.68	28.58	35.81	23.86	36.02	24.73	42.39	31.53	38.65	31.16	2.79	2.80	2.57	2.47	2.54	2.51	2.17	1.91	2.72	2.56	2.54	2.32		
09/01/18	09/30/18	Sep 2018	35.89	28.13	34.39	23.73	34.39	27.00	40.31	30.39	35.59	30.25	2.78	2.59	2.51	2.46	2.52	2.50	2.20	1.94	2.71	2.55	2.53	2.36		
10/01/18	10/31/18	Oct 2018	31.89	27.47	28.69	24.16	28.45	24.49	39.86	31.79	35.16	30.44	2.80	2.53	2.49	2.49	2.54	2.52	2.23	1.97	2.74	2.57	2.56	2.38		
11/01/18	11/30/18	Nov 2018	33.91	28.01	28.40	23.43	31.20	27.99	39.86	32.76	37.00	31.06	2.86	2.91	2.80	2.74	2.77	2.75	2.85	2.12	2.99	2.83	2.81	3.06		
12/01/18	12/31/18	Dec 2018	36.95	30.17	30.66	26.37	34.55	28.49	41.03	35.66	38.84	34.50	3.00	3.19	2.95	2.92	2.92	2.89	3.23	2.21	3.18	3.02	3.00	3.47		
01/01/19	01/31/19	Jan 2019	35.18	31.31	31.47	27.51	33.22	28.00	42.26	34.68	36.95	34.21	3.10	3.20	3.00	3.01	3.01	2.98	3.01	2.29	3.27	3.10	3.08	3.24		
02/01/19	02/28/19	Feb 2019	34.62	30.20	30.93	27.28	31.24	26.40	41.21	33.80	36.28	33.35	3.08	3.15	2.99	2.99	2.98	2.96	2.81	2.27	3.25	3.08	3.06	3.02		
03/01/19	03/31/19	Mar 2019	32.36	29.09	27.15	25.01	24.80	22.40	38.03	32.03	33.58	32.49	3.02	3.11	2.93	2.93	2.93	2.91	2.76	2.23	3.19	3.03	3.01	2.97		
04/01/19	04/30/19	Apr 2019	29.45	22.55	25.84	17.31	23.60	16.14	30.21	28.02	27.16	25.32	2.73	2.55	2.47	2.46	2.38	2.36	2.06	2.01	2.71	2.55	2.53	2.21		
05/01/19	05/31/19	May 2019	26.26	16.95	25.84	16.54	22.66	10.44	31.18	23.57	27.72	20.49	2.72	2.56	2.45	2.38	2.37	2.35	2.01	1.95	2.63	2.47	2.45	2.15		
06/01/19	06/30/19	Jun 2019	26.49	17.65	28.13	18.66	22.29	12.66	33.11	24.31	29.12	20.49	2.76	2.60	2.49	2.42	2.41	2.39	2.02	1.96	2.67	2.50	2.49	2.16		
07/01/19	07/31/19	Jul 2019	36.33	20.60	36.71	27.66	35.44	19.67	41.60	31.19	38.27	30.19	2.79	2.84	2.53	2.48	2.51	2.48	2.19	1.96	2.72	2.56	2.55	2.34		
08/01/19	08/31/19	Aug 2019	38.83	28.43	36.36	27.16	38.32	22.63	42.79	33.63	38.65	32.01	2.81	2.86	2.57	2.49	2.53	2.51	2.22	1.98	2.74	2.58	2.56	2.37		
09/01/19	09/30/19	Sep 2019	37.04	28.68	34.94	24.63	35.44	24.90	40.41	31.49	35.59	31.10	2.81	2.68	2.55	2.49	2.53	2.51	2.26	2.02	2.74	2.57	2.56	2.42		
10/01/19	10/31/19	Oct 2019	33.09	29.92	30.04	26.91	29.45	28.40	41.06	34.29	35.16	32.24	2.84	2.61	2.57	2.52	2.56	2.54	2.28	2.04	2.77	2.61	2.59	2.43		
11/01/19	11/30/19	Nov 2019	35.11	30.46	29.75	26.18	32.20	29.90	41.06	35.26	37.00	32.86	2.90	2.97	2.79	2.76	2.83	2.80	2.87	2.15	3.02	2.86	2.84	3.09		
12/01/19	12/31/19	Dec 2019	38.15	32.62	32.01	29.12	35.55	30.40	42.23	38.16	38.84	36.30	3.04	3.16	2.97	2.96	2.98	2.95	3.26	2.27	3.22	3.05	3.03	3.49		
01/01/20	01/31/20	Jan 2020	36.28	35.16	32.52	28.41	34.22	31.25	42.81	34.63	37.55	35.91	3.14	3.23	3.11	3.06	3.06	3.03	3.24	2.32	3.33	3.16	3.13	3.48		
02/01/20	02/29/20	Feb 2020	35.72	34.05	31.98	28.18	32.24	29.65	41.76	33.75	36.88	35.05	3.10	3.18	3.07	3.02	3.03	3.00	2.99	2.30	3.29	3.12	3.10	3.21		
03/01/20	03/31/20	Mar 2020	33.46	32.94	28.20	25.91	25.80	25.65	38.58	31.98	34.18	34.19	3.04	3.15	3.01	2.95	2.96	2.93	2.94	2.26	3.22	3.05	3.03	3.16		
04/01/20	04/30/20	Apr 2020	30.75	22.75	26.84	18.71	24.60	16.29	31.16	28.32	27.91	27.17	2.74	2.54	2.48	2.47	2.46	2.43	2.11	2.02	2.72	2.56	2.54	2.28		
05/01/20	05/31/20	May 2020	27.56	17.15	26.84	17.94	23.66	14.55	32.13	23.87	28.47	22.34	2.73	2.63	2.46	2.40	2.44	2.42	2.05	1.95	2.64	2.48	2.47	2.22		
06/01/20	06/30/20	Jun 2020	27.79	17.85	29.13	20.06	23.29	12.81	34.06	24.61	29.87	22.34	2.76	2.67	2.50	2.43	2.48	2.46	2.07	1.97	2.68	2.51	2.50	2.24		
07/01/20	07/31/20	Jul 2020	37.43	21.95	39.05	28.01	36.49	22.47	42.85	32.29	39.02	31.09	2.80	2.86	2.54	2.49	2.57	2.54	2.26	1.97	2.74	2.57	2.56	2.43		
08/01/20	08/31/20	Aug 2020	39.93	29.78	38.70	27.51	39.37	25.43	44.04	34.73																

05/01/22	05/31/22	May 2022	26.36	16.15	29.34	22.84	25.06	15.75	35.43	26.97	30.87	25.14	2.94	2.92	2.82	2.68	2.65	2.62	2.41	2.15	2.94	2.77	2.76	2.60
06/01/22	06/30/22	Jun 2022	26.59	16.85	31.63	24.96	24.69	14.01	37.36	27.71	32.27	25.14	2.97	2.96	2.86	2.72	2.69	2.66	2.42	2.15	2.97	2.81	2.79	2.61
07/01/22	07/31/22	Jul 2022	39.68	23.95	41.56	31.06	39.54	26.02	44.75	34.04	41.42	33.09	3.01	3.21	2.90	2.78	2.77	2.75	2.62	2.18	3.03	2.87	2.85	2.82
08/01/22	08/31/22	Aug 2022	42.18	31.78	41.21	30.56	42.42	28.98	45.94	36.48	41.80	34.91	3.04	3.24	2.97	2.81	2.83	2.80	2.62	2.18	3.07	2.90	2.89	2.82
09/01/22	09/30/22	Sep 2022	40.39	32.03	39.79	28.03	39.54	31.25	43.56	34.34	38.74	34.00	3.05	3.06	2.96	2.82	2.84	2.81	2.69	2.25	3.08	2.91	2.89	2.89
10/01/22	10/31/22	Oct 2022	36.39	29.92	32.79	28.81	32.95	29.75	43.11	36.09	38.31	34.19	3.09	3.00	2.97	2.86	2.87	2.84	2.72	2.28	3.11	2.95	2.93	2.92
11/01/22	11/30/22	Nov 2022	38.41	30.46	32.50	28.08	35.70	33.25	43.11	37.06	40.15	34.81	3.17	3.32	3.17	3.12	3.12	3.09	3.34	2.42	3.38	3.21	3.19	3.58
12/01/22	12/31/22	Dec 2022	40.82	35.53	37.23	33.55	40.63	35.00	44.75	41.06	43.40	40.15	3.71	3.86	3.67	3.65	3.67	3.60	3.77	3.01	3.92	3.75	3.73	4.04
01/01/23	01/31/23	Jan 2023	42.09	34.72	38.56	33.88	42.02	34.30	45.45	40.22	43.65	39.50	3.91	4.10	3.89	3.84	3.87	3.82	3.85	3.21	4.12	3.95	3.92	4.12
02/01/23	02/28/23	Feb 2023	39.45	33.69	38.00	33.91	39.40	33.45	44.34	39.82	42.58	39.05	3.89	4.06	3.85	3.81	3.84	3.76	3.74	3.20	4.09	3.92	3.89	4.00
03/01/23	03/31/23	Mar 2023	35.94	31.58	33.39	30.92	33.20	29.42	40.11	37.06	38.45	36.59	3.72	3.86	3.66	3.62	3.64	3.58	3.58	3.03	3.89	3.72	3.69	3.84
04/01/23	04/30/23	Apr 2023	32.88	26.45	31.23	27.14	29.91	23.30	34.97	31.83	31.68	29.20	3.43	3.46	3.29	3.25	3.24	3.20	3.04	2.62	3.51	3.35	3.33	3.23
05/01/23	05/31/23	May 2023	30.09	21.66	31.69	26.73	28.14	20.19	36.50	29.36	32.75	26.39	3.44	3.47	3.29	3.20	3.23	3.18	2.95	2.61	3.46	3.29	3.27	3.15
06/01/23	06/30/23	Jun 2023	32.19	23.46	35.83	29.18	30.02	20.79	39.42	31.20	35.93	28.23	3.47	3.50	3.34	3.22	3.25	3.20	2.96	2.62	3.48	3.31	3.29	3.16
07/01/23	07/31/23	Jul 2023	42.77	31.81	44.04	35.46	42.02	31.77	45.32	37.92	43.67	37.53	3.51	3.63	3.37	3.26	3.30	3.25	3.07	2.68	3.52	3.35	3.33	3.27
08/01/23	08/31/23	Aug 2023	43.78	35.32	44.09	35.38	44.61	33.96	47.12	39.70	45.08	38.93	3.54	3.69	3.42	3.34	3.38	3.32	3.16	2.70	3.60	3.44	3.41	3.36
09/01/23	09/30/23	Sep 2023	42.83	35.33	42.86	33.99	43.58	35.62	46.92	39.25	44.28	38.99	3.55	3.63	3.44	3.37	3.41	3.35	3.25	2.83	3.63	3.46	3.44	3.46
10/01/23	10/31/23	Oct 2023	39.21	33.76	37.64	33.40	38.88	34.11	45.36	39.92	42.84	39.00	3.67	3.69	3.54	3.49	3.53	3.48	3.36	2.93	3.76	3.59	3.57	3.57
11/01/23	11/30/23	Nov 2023	42.01	35.73	38.52	34.01	41.07	36.76	47.24	41.96	45.30	40.78	3.86	4.01	3.78	3.79	3.81	3.77	3.82	3.24	4.06	3.89	3.87	4.04
12/01/23	12/31/23	Dec 2023	41.45	38.14	40.96	37.09	43.46	37.25	46.42	43.16	46.01	43.06	4.23	4.36	4.13	4.13	4.19	4.08	4.02	3.62	4.40	4.23	4.21	4.29
01/01/24	01/31/24	Jan 2024	49.81	42.08	43.65	39.06	47.33	39.70	49.63	45.30	49.06	45.14	4.47	4.65	4.43	4.37	4.46	4.38	4.24	3.85	4.65	4.47	4.45	4.51
02/01/24	02/29/24	Feb 2024	45.08	41.13	43.08	39.35	44.06	39.60	48.48	45.40	47.59	45.10	4.48	4.62	4.37	4.34	4.43	4.29	4.22	3.87	4.62	4.45	4.42	4.47
03/01/24	03/31/24	Mar 2024	40.33	38.03	37.64	35.64	38.11	35.54	43.18	41.64	42.03	41.04	4.19	4.28	4.06	4.02	4.09	4.02	3.94	3.55	4.29	4.12	4.10	4.19
04/01/24	04/30/24	Apr 2024	36.22	31.15	33.12	30.68	33.83	29.10	35.47	32.24	33.05	28.42	3.92	4.01	3.74	3.74	3.82	3.75	3.62	3.05	4.01	3.84	3.82	3.81
05/01/24	05/31/24	May 2024	33.81	27.16	34.04	30.63	31.22	24.63	37.58	31.75	34.63	27.64	3.94	4.02	3.77	3.72	3.80	3.74	3.49	3.08	3.98	3.81	3.79	3.69
06/01/24	06/30/24	Jun 2024	37.78	30.08	40.02	33.40	35.35	27.57	41.47	34.70	39.59	31.02	3.98	4.04	3.83	3.72	3.80	3.73	3.50	3.09	3.98	3.81	3.79	3.70
07/01/24	07/31/24	Jul 2024	45.87	39.68	46.51	39.85	44.51	37.52	45.89	41.81	45.92	41.98	4.01	4.06	3.84	3.74	3.83	3.74	3.52	3.19	4.01	3.84	3.82	3.72
08/01/24	08/31/24	Aug 2024	45.38	38.87	46.98	40.20	46.79	38.94	48.30	42.93	48.37	42.96	4.03	4.14	3.87	3.87	3.93	3.84	3.69	3.23	4.13	3.96	3.94	3.90
09/01/24	09/30/24	Sep 2024	45.26	38.63	45.93	39.95	47.61	39.98	50.28	44.16	49.82	43.97	4.06	4.19	3.92	3.92	3.98	3.89	3.80	3.42	4.18	4.01	3.99	4.02
10/01/24	10/31/24	Oct 2024	42.03	37.61	42.50	37.99	44.82	38.46	47.61	43.76	47.36	43.81	4.26	4.39	4.11	4.13	4.18	4.12	3.99	3.59	4.40	4.23	4.21	4.21
11/01/24	11/30/24	Nov 2024	45.62	41.00	44.53	39.94	46.44	40.27	51.37	46.87	50.45	46.74	4.55	4.71	4.38	4.47	4.51	4.45	4.29	4.07	4.74	4.57	4.55	4.51
12/01/24	12/31/24	Dec 2024	45.25	40.84	44.10	39.68	47.32	40.12	49.81	46.07	49.34	45.88	4.57	4.67	4.48	4.42	4.48	4.42	4.19	4.01	4.69	4.52	4.50	4.46
01/01/25	01/31/25	Jan 2025	51.96	44.43	46.51	41.40	50.17	42.05	52.23	47.74	51.22	47.45	4.66	4.80	4.62	4.57	4.62	4.53	4.41	4.09	4.85	4.67	4.65	4.68
02/01/25	02/28/25	Feb 2025	47.53	43.27	45.54	41.54	46.63	41.61	51.47	47.86	49.69	47.19	4.70	4.83	4.59	4.58	4.63	4.56	4.47	4.11	4.86	4.69	4.66	4.72
03/01/25	03/31/25	Mar 2025	43.56	41.29	41.01	39.16	41.39	38.88	46.95	44.94	45.47	44.95	4.54	4.62	4.44	4.36	4.44	4.38	4.30	3.90	4.64	4.47	4.44	4.55
04/01/25	04/30/25	Apr 2025	41.41	36.49	38.41	35.26	39.04	34.24	40.11	37.82	38.33	33.74	4.39	4.49	4.22	4.22	4.29	4.23	4.08	3.46	4.49	4.32	4.30	4.28
05/01/25	05/31/25	May 2025	37.11	31.07	36.52	33.52	34.47	28.48	40.85	35.68	37.54	31.28	4.21	4.27	4.04	3.98	4.06	4.00	3.75	3.49	4.24	4.07	4.05	3.94
06/01/25	06/30/25	Jun 2025	41.57	33.46	43.41	36.26	39.20	30.82	45.48	38.14	43.24	34.58	4.23	4.29	4.09	3.97	4.04	3.99	3.70	3.46	4.23	4.06	4.04	3.89
07/01/25	07/31/25	Jul 2025	48.52	42.40	50.10	43.49	48.59	41.54	50.00	45.44	50.03	46.04	4.27	4.32	4.13	4.00	4.09	4.00	3.76	3.55	4.27	4.10	4.08	3.97
08/01/25	08/31/25	Aug 2025	49.44	41.31	51.58	44.03	51.02	43.69	53.50	46.77	53.71	48.06	4.31	4.43	4.13	4.08	4.17	4.09	3.81	3.53	4.35	4.18	4.16	4.12
09/01/25	09/30/25	Sep 2025	49.68	41.96	49.50	43.21	50.91	43.63	56.07	48.39	53.58	48.12	4.20	4.36	4.06	4.00	4.08	3.99	3.88	3.55	4.27	4.10	4.08	4.09
10/01/25	10/31/25	Oct 2025	44.87	38.95	44.26	39.90	46.74	40.33	51.13	45.19	49.46	46.14	4.22	4.43	4.07	4.04	4.12	4.03	3.90	3.55	4.31	4.14	4.12	4.12
11/01/25	11/30/25	Nov 2025	45.32	39.70	45.42	40.24	46.82	40.63	51.59	46.02	50.43	46.50	4.27	4.45	4.12	4.16	4.22	4.16	3.94	3.79	4.43	4.26	4.23	4.16
12/01/25	12/31/25	Dec 2025	46.87	42.06	46.54	41.22	49.24	41.41	52.44	47.76	51.61	47.53	4.53	4.67	4.45	4.39	4.45	4.39	4.16	3.90	4.66	4.49	4.47	4.43
01/01/26	01/31/26	Jan 2026	51.16	45.04	47.62	42.32	50.84	43.00	55.53	49.96	52.98	48.96	4.75	4.89	4.72	4.62	4.68	4.60	4.38	4.07	4.89	4.72	4.70	4.65
02/01/26	02/28/26	Feb 2026	47.97	44.00	47.08	42.72	48.42	43.20	54.08	49.71	51.64	49.09	4.79	4.93	4.72	4.66	4.73	4.66	4.43	4.08	4.93	4.76	4.73	4.69
03/01/26	03/31/26	Mar 2026	44.34	42.29	42.06	39.97	42.56	39.91	48.26	45.88	46.77	46.30	4.63	4.71	4.50	4.45	4.52	4.46	4.31	3.80	4.72	4.55	4.52	4.57
04/01/26	04/30/26	Apr 2026	41.31	36.33	38.76	35.99	39.10	33.98	40.67	38.31	38.90	34.30	4.46	4.54	4.28	4.25	4.33	4.26	4.12	3.53	4.51	4.34	4.32	4.32
05/01/26	05/31/26	May 2026	37.39	31.44	37.77	34.76	34.58	28.67	41.78	36.58	38.68	32.19	4.33	4.38	4.16	4.05	4.14	4.08	3.82	3.58	4.31	4.15	4.13	4.01

			COBHLH	COBLLH	Palo VerdeHL	Palo VerdeLL	Mid-Columbia	Mid-Columbia	NP 15HLH	NP 15LLH	SP 15HLH	SP 15LLH	Henry Hub G	SOCALBOR	SANJUAN	Opal Gas	Malin Gas	Stanfield Gas	SUMAS	AECO	GADSBY	Current Cree	Lakeside	Z CHEBRN'		
			FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	
			ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	
			COB N-S	COB N-S	PV	PV	MID-C	MID-C	NP15	NP15	SP15	SP15	HENRYHUB	SOCALBOR	SANJUAN	ROCKOPAL	MALINGAS	STANFLDS	SUMASS	AECO	GADSBY	CURRNG	LAKESIDE	Z CHEBRN		
			Tue, 5/31/2005																							
			COB		Palo Verde		Mid-Columbia		NP 15		SP 15		Henry Hub Gas	SOCALBOR	SANJUAN	Opal Gas	Malin Gas	Stanfield Gas	SUMAS	AECO	GADSBY	Current Cree	Lakeside	Z CHEBRN		
			Forward Prices		Forward Prices		Forward Prices		Forward Prices		Forward Prices		Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	
Start	End	Peak Type:	HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	
01/01/17	01/31/17	Jan 2017	32.01	27.13	30.74	26.48	29.69	26.04	39.38	33.54	37.70	32.45	3.20	3.41	3.15	3.15	3.15	3.12	3.17	2.21	3.43	3.25	3.23	3.40		
02/01/17	02/28/17	Feb 2017	30.86	25.50	29.58	25.00	27.55	23.83	38.25	32.57	36.98	31.50	3.22	3.40	3.14	3.15	3.15	3.13	3.07	2.23	3.43	3.25	3.23	3.30		
03/01/17	03/31/17	Mar 2017	26.64	22.23	26.68	22.77	22.61	18.58	34.73	29.44	32.28	29.21	3.20	3.05	2.91	2.91	2.94	2.92	2.60	2.20	3.19	3.01	2.99	2.80		
04/01/17	04/30/17	Apr 2017	24.27	16.39	25.80	20.34	19.70	11.70	32.16	25.53	28.12	24.32	3.07	2.88	2.76	2.73	2.79	2.77	2.38	2.09	3.00	2.82	2.81	2.55		
05/01/17	05/31/17	May 2017	22.93	12.29	25.95	19.71	18.72	10.00	33.17	23.97	29.01	23.02	3.06	2.85	2.70	2.72	2.77	2.75	2.20	2.07	2.98	2.81	2.79	2.35		
06/01/17	06/30/17	Jun 2017	22.61	11.53	28.36	22.00	18.92	7.90	34.43	25.57	30.68	24.12	3.10	2.89	2.74	2.75	2.82	2.79	2.22	2.08	3.01	2.84	2.82	2.37		
07/01/17	07/31/17	Jul 2017	34.68	23.00	36.72	26.78	31.04	20.02	40.00	30.31	39.78	30.07	3.13	3.10	2.92	2.84	2.90	2.87	2.50	2.09	3.11	2.94	2.92	2.67		
08/01/17	08/31/17	Aug 2017	37.18	27.78	36.36	26.27	33.92	23.13	41.20	32.81	40.17	31.93	3.13	3.12	2.94	2.85	2.91	2.88	2.59	2.10	3.12	2.94	2.92	2.76		
09/01/17	09/30/17	Sep 2017	35.39	28.03	32.02	23.69	31.04	24.85	38.80	30.63	37.05	31.00	3.10	3.10	2.84	2.87	2.82	2.91	2.88	2.60	3.14	3.09	2.91	2.77		
10/01/17	10/31/17	Oct 2017	31.16	26.40	28.67	24.99	27.23	22.95	38.61	31.35	35.39	30.40	3.13	3.07	2.80	2.87	2.91	2.88	2.68	2.20	3.14	2.97	2.95	2.86		
11/01/17	11/30/17	Nov 2017	33.17	26.95	28.37	24.23	29.95	25.52	38.61	32.34	37.25	31.04	3.17	3.21	2.99	3.03	3.09	3.06	3.07	2.32	3.30	3.12	3.10	3.30		
12/01/17	12/31/17	Dec 2017	36.18	30.05	30.71	27.29	33.28	27.03	39.78	35.31	39.11	34.41	3.32	3.57	3.25	3.25	3.24	3.22	3.41	2.45	3.53	3.35	3.33	3.66		
01/01/18	01/31/18	Jan 2018	35.81	31.30	29.24	25.73	31.74	26.34	38.13	32.29	35.20	30.95	3.41	3.55	3.31	3.33	3.31	3.28	3.32	2.55	3.60	3.43	3.41	3.56		
02/01/18	02/28/18	Feb 2018	33.36	29.60	28.28	25.60	29.30	24.68	37.65	31.82	34.78	30.90	3.38	3.49	3.27	3.29	3.28	3.25	3.20	2.52	3.56	3.39	3.36	3.44		
03/01/18	03/31/18	Mar 2018	30.39	27.48	28.13	23.77	26.11	21.98	36.43	30.09	33.83	29.76	3.31	3.26	3.17	3.14	3.20	3.18	3.14	2.46	3.41	3.24	3.22	3.37		
04/01/18	04/30/18	Apr 2018	24.32	19.74	23.25	20.04	19.20	14.85	29.11	26.28	26.62	26.02	2.88	2.66	2.56	2.62	2.58	2.56	2.12	2.10	2.87	2.70	2.62	2.27		
05/01/18	05/31/18	May 2018	22.58	14.74	24.95	19.21	18.22	10.85	28.02	23.20	26.81	22.52	2.85	2.63	2.54	2.51	2.55	2.53	2.07	2.04	2.76	2.60	2.58	2.21		
06/01/18	06/30/18	Jun 2018	22.81	14.53	27.36	21.50	19.07	10.05	29.93	24.77	28.68	24.02	2.87	2.66	2.56	2.53	2.57	2.55	2.06	2.04	2.78	2.62	2.60	2.20		
07/01/18	07/31/18	Jul 2018	34.73	20.80	35.97	25.23	30.79	18.47	38.55	29.31	36.63	28.82	2.89	2.91	2.64	2.57	2.65	2.62	2.27	2.02	2.82	2.66	2.64	2.42		
08/01/18	08/31/18	Aug 2018	37.68	27.78	35.61	25.32	33.92	22.83	39.90	31.66	37.77	30.68	2.89	2.91	2.68	2.57	2.66	2.64	2.26	2.02	2.82	2.66	2.64	2.41		
09/01/18	09/30/18	Sep 2018	35.89	28.03	34.17	22.94	30.79	25.00	37.80	29.63	35.80	29.75	2.88	2.71	2.63	2.56	2.65	2.63	2.30	2.05	2.81	2.65	2.63	2.46		
10/01/18	10/31/18	Oct 2018	31.66	26.15	27.42	23.84	27.23	21.70	37.61	29.85	33.39	28.90	2.91	2.65	2.61	2.59	2.68	2.65	2.32	2.08	2.85	2.68	2.67	2.48		
11/01/18	11/30/18	Nov 2018	33.67	26.70	27.12	23.08	29.95	25.27	37.61	30.84	35.25	29.54	2.96	3.03	2.90	2.84	2.88	2.85	2.95	2.23	3.10	2.93	2.91	3.17		
12/01/18	12/31/18	Dec 2018	36.68	28.90	29.46	26.14	33.28	25.78	38.78	33.81	37.11	33.06	3.10	3.30	3.05	3.02	3.03	3.00	3.35	2.33	3.29	3.12	3.10	3.59		
01/01/19	01/31/19	Jan 2019	32.96	32.33	31.44	28.68	30.34	27.74	38.23	32.99	35.20	32.00	3.20	3.32	3.10	3.11	3.11	3.08	3.13	2.41	3.38	3.21	3.19	3.36		
02/01/19	02/28/19	Feb 2019	32.36	31.05	30.28	27.20	28.20	25.88	37.10	32.02	34.48	31.05	3.17	3.26	3.08	3.08	3.08	3.05	2.91	2.39	3.35	3.18	3.16	3.13		
03/01/19	03/31/19	Mar 2019	29.94	29.78	27.38	24.97	23.66	21.23	33.73	30.09	31.58	30.11	3.11	3.21	3.01	3.02	3.02	3.09	2.86	2.34	3.28	3.11	3.09	3.08		
04/01/19	04/30/19	Apr 2019	27.57	22.49	25.55	17.49	21.75	15.10	26.86	26.58	26.62	24.32	2.79	2.62	2.53	2.51	2.44	2.42	2.13	2.07	2.76	2.60	2.58	2.27		
05/01/19	05/31/19	May 2019	24.28	16.99	25.55	16.66	20.77	13.40	27.87	21.95	27.21	19.12	2.78	2.63	2.51	2.43	2.43	2.41	2.08	2.01	2.68	2.52	2.50	2.22		
06/01/19	06/30/19	Jun 2019	24.51	17.68	27.96	18.95	20.97	11.70	29.88	22.72	28.68	19.12	2.81	2.66	2.55	2.46	2.47	2.44	2.08	2.02	2.71	2.55	2.53	2.22		
07/01/19	07/31/19	Jul 2019	36.18	20.60	36.52	26.93	32.04	18.42	39.10	30.01	38.08	29.47	2.84	2.90	2.58	2.52	2.56	2.53	2.25	2.01	2.77	2.60	2.59	2.40		
08/01/19	08/31/19	Aug 2019	38.68	28.43	36.16	26.42	34.92	21.38	40.30	32.51	38.47	31.33	2.86	2.91	2.62	2.53	2.58	2.56	2.27	2.03	2.78	2.62	2.60	2.43		
09/01/19	09/30/19	Sep 2019	36.89	28.68	34.72	23.84	32.04	23.65	37.90	30.33	35.35	30.40	2.85	2.73	2.60	2.52	2.58	2.56	2.31	2.07	2.77	2.61	2.59	2.47		
10/01/19	10/31/19	Oct 2019	32.66	30.70	29.82	27.24	28.23	23.85	37.71	31.65	33.39	29.85	2.88	2.66	2.61	2.55	2.60	2.58	2.32	2.08	2.80	2.64	2.62	2.48		
11/01/19	11/30/19	Nov 2019	34.67	31.25	29.52	26.48	30.95	27.42	37.71	32.64	35.25	30.49	2.94	3.02	2.83	2.81	2.87	2.85	2.33	2.21	3.06	2.90	2.88	3.14		
12/01/19	12/31/19	Dec 2019	37.68	33.45	31.86	29.54	34.28	27.93	38.88	35.61	37.11	34.01	3.08	3.20	3.01	3.00	3.03	3.00	3.31	2.33	3.26	3.10	3.08	3.55		
01/01/20	01/31/20	Jan 2020	34.46	33.93	31.99	29.18	31.69	28.94	39.13	33.99	36.10	33.15	3.19	3.28	3.16	3.11	3.11	3.08	3.30	2.38	3.37	3.20	3.18	3.54		
02/01/20	02/29/20	Feb 2020	33.86	32.65	30.83	27.70	29.55	27.08	38.00	33.02	35.38	32.20	3.15	3.23	3.12	3.07	3.07	3.05	3.05	2.36	3.33	3.17	3.14	3.28		
03/01/20	03/31/20	Mar 2020	31.44	31.38	27.93	25.47	25.01	22.43	34.63	31.09	32.48	31.26	3.08	3.20	3.05	3.00	3.01	2.98	3.00	2.32	3.26	3.09	3.07	3.22		
04/01/20	04/30/20	Apr 2020	29.07	21.09	26.55	18.59	23.00	14.20	27.11	26.48	27.52	25.67	2.79	2.62	2.55	2.53	2.53	2.50	2.21	2.08	2.78	2.61	2.60	2.36		
05/01/20	05/31/20	May 2020	25.78	15.59	26.55	17.76	22.02	12.50	28.12	21.85	28.11	20.47	2.79	2.71	2.54	2.45	2.51	2.49	2.15	2.02	2.70	2.54	2.52	2.32		
06/01/20	06/30/20	Jun 2020	26.01	16.28	28.96	20.05	22.22	10.80	30.13	22.62	29.58	20.47	2.82	2.75	2.58	2.48	2.55	2.53	2.17	2.03	2.73	2.57	2.55	2.34		
07/01/20	07/31/20	Jul 2020	37.68	22.00	38.07	27.88	33.54	19.57	40.00	31.01	39.13	30.47	2.86	2.94	2.62	2.54	2.64	2.61	2.35	2.04	2.79	2.63	2.61	2.54		
08/01/20	08/31/20	Aug 2020	40.18	29.83	37.71	27.37	36.42	22.53	41.20	33.51																

05/01/22	05/31/22	May 2022	27.58	15.99	29.55	23.51	23.22	13.80	35.57	26.65	30.51	25.67	2.98	2.98	2.87	2.74	2.71	2.68	2.47	2.20	2.99	2.83	2.81	2.66	
06/01/22	06/30/22	Jun 2022	27.81	16.68	31.96	25.80	23.42	12.10	37.58	27.42	31.98	25.67	3.01	3.02	2.91	2.77	2.75	2.72	2.48	2.21	3.02	2.86	2.84	2.67	
07/01/22	07/31/22	Jul 2022	40.18	24.00	40.57	30.33	36.04	24.07	42.40	33.01	41.81	32.47	3.05	3.28	2.95	2.83	2.83	2.80	2.67	2.23	3.09	2.92	2.90	2.88	
08/01/22	08/31/22	Aug 2022	42.68	31.83	40.21	29.82	38.92	27.03	43.60	35.51	42.20	34.33	3.08	3.30	3.02	2.86	2.89	2.86	2.68	2.23	3.12	2.96	2.94	2.88	
09/01/22	09/30/22	Sep 2022	40.89	32.08	38.77	27.24	36.04	29.30	41.20	33.33	39.08	33.40	3.09	3.13	3.01	2.87	2.90	2.87	2.74	2.30	3.13	2.96	2.94	2.95	
10/01/22	10/31/22	Oct 2022	36.66	30.45	32.02	28.04	32.23	27.25	41.01	33.55	36.69	32.55	3.13	3.06	3.02	2.91	2.93	2.90	2.77	2.33	3.17	3.00	2.98	2.98	
11/01/22	11/30/22	Nov 2022	38.67	31.00	31.72	27.28	34.95	30.82	41.01	34.54	38.55	33.19	3.21	3.38	3.21	3.16	3.16	3.13	3.38	2.46	3.43	3.26	3.24	3.62	
12/01/22	12/31/22	Dec 2022	40.94	35.67	36.88	33.21	40.24	33.79	43.70	39.83	42.61	39.38	3.74	3.89	3.70	3.68	3.70	3.63	3.80	3.04	3.95	3.78	3.76	4.07	
01/01/23	01/31/23	Jan 2023	43.38	36.45	38.74	34.54	40.76	34.77	45.58	40.65	43.78	39.87	3.93	4.14	3.92	3.87	3.87	3.90	3.84	3.88	3.23	4.15	3.98	3.95	4.15
02/01/23	02/28/23	Feb 2023	40.72	35.34	37.88	33.95	38.06	33.79	44.44	40.21	42.68	39.38	3.92	4.10	3.87	3.84	3.87	3.78	3.77	3.23	4.11	3.94	3.92	4.02	
03/01/23	03/31/23	Mar 2023	37.13	33.15	33.71	30.98	32.81	29.43	40.10	37.36	38.45	36.87	3.74	3.89	3.68	3.64	3.66	3.61	3.61	3.05	3.92	3.75	3.72	3.86	
04/01/23	04/30/23	Apr 2023	33.54	26.32	31.33	27.51	29.01	22.30	35.02	31.76	31.48	29.64	3.45	3.49	3.31	3.28	3.27	3.22	3.22	3.06	2.65	3.54	3.37	3.35	3.26
05/01/23	05/31/23	May 2023	30.69	21.57	31.79	27.07	27.22	19.22	36.57	29.20	32.57	26.65	3.46	3.50	3.32	3.23	3.26	3.21	2.98	2.64	3.49	3.32	3.30	3.18	
06/01/23	06/30/23	Jun 2023	32.80	23.38	35.99	29.60	29.38	19.83	39.52	31.06	35.78	28.49	3.50	3.53	3.37	3.24	3.27	3.22	2.99	2.65	3.51	3.34	3.32	3.19	
07/01/23	07/31/23	Jul 2023	43.02	31.84	43.54	35.09	40.27	30.80	44.15	37.41	43.87	37.22	3.53	3.67	3.40	3.28	3.33	3.27	3.09	2.71	3.55	3.38	3.36	3.30	
08/01/23	08/31/23	Aug 2023	44.03	35.35	43.59	35.01	42.86	32.98	46.95	39.22	45.29	38.64	3.56	3.72	3.44	3.37	3.41	3.35	3.18	2.73	3.63	3.46	3.44	3.39	
09/01/23	09/30/23	Sep 2023	43.08	35.36	42.35	33.59	41.83	34.64	45.74	38.74	44.45	38.69	3.57	3.66	3.46	3.39	3.44	3.38	3.27	2.86	3.66	3.49	3.47	3.49	
10/01/23	10/31/23	Oct 2023	39.34	34.03	37.26	33.01	38.52	32.86	44.31	38.66	42.02	38.18	3.69	3.73	3.56	3.52	3.55	3.51	3.38	2.96	3.79	3.62	3.59	3.60	
11/01/23	11/30/23	Nov 2023	42.14	36.00	38.13	33.61	40.69	35.55	46.19	40.71	44.50	39.97	3.88	4.04	3.80	3.81	3.83	3.79	3.84	3.26	4.09	3.92	3.89	4.06	
12/01/23	12/31/23	Dec 2023	41.45	38.14	40.96	37.09	43.46	37.25	46.42	43.16	46.01	43.06	4.23	4.36	4.13	4.13	4.19	4.08	4.02	3.62	4.40	4.23	4.21	4.29	
01/01/24	01/31/24	Jan 2024	49.81	42.08	43.65	39.06	47.33	39.70	49.63	45.30	49.06	45.14	4.47	4.65	4.43	4.37	4.46	4.38	4.24	3.85	4.65	4.48	4.45	4.51	
02/01/24	02/29/24	Feb 2024	45.08	41.13	43.08	39.35	44.06	39.60	48.48	45.40	47.59	45.10	4.48	4.62	4.37	4.34	4.43	4.29	4.22	3.87	4.62	4.45	4.42	4.48	
03/01/24	03/31/24	Mar 2024	40.33	38.03	37.64	35.64	38.11	35.54	43.18	41.64	42.03	41.04	4.19	4.28	4.06	4.02	4.09	4.02	3.94	3.55	4.29	4.12	4.10	4.20	
04/01/24	04/30/24	Apr 2024	36.22	31.15	33.12	30.68	33.83	29.10	35.47	32.24	33.05	28.42	3.92	4.01	3.74	3.74	3.82	3.75	3.62	3.05	4.01	3.84	3.82	3.82	
05/01/24	05/31/24	May 2024	33.81	27.16	34.04	30.63	31.22	24.63	37.58	31.75	34.63	27.64	3.94	4.02	3.77	3.72	3.80	3.74	3.49	3.08	3.98	3.81	3.79	3.69	
06/01/24	06/30/24	Jun 2024	37.78	30.08	40.02	33.40	35.35	27.57	41.47	34.70	39.59	31.32	3.98	4.04	3.83	3.72	3.80	3.73	3.50	3.09	3.98	3.81	3.79	3.70	
07/01/24	07/31/24	Jul 2024	45.87	39.68	46.51	39.85	44.51	37.52	46.89	41.81	45.92	41.98	4.01	4.06	3.84	3.74	3.83	3.74	3.52	3.19	4.01	3.84	3.82	3.73	
08/01/24	08/31/24	Aug 2024	45.38	38.87	46.98	40.20	46.79	38.94	48.30	42.93	48.37	42.96	4.03	4.14	3.87	3.87	3.93	3.84	3.69	3.23	4.13	3.96	3.94	3.90	
09/01/24	09/30/24	Sep 2024	45.26	38.63	45.93	39.95	47.61	39.98	50.28	44.16	49.82	43.97	4.06	4.19	3.92	3.92	3.98	3.89	3.80	3.42	4.10	4.01	3.99	4.02	
10/01/24	10/31/24	Oct 2024	42.03	37.61	42.50	37.99	44.82	38.46	47.61	43.76	47.36	43.81	4.26	4.39	4.11	4.13	4.18	4.12	3.99	3.59	4.40	4.23	4.21	4.21	
11/01/24	11/30/24	Nov 2024	45.62	41.00	44.53	39.94	46.44	40.27	51.37	46.87	50.45	46.74	4.55	4.71	4.38	4.47	4.51	4.45	4.29	4.07	4.74	4.57	4.55	4.52	
12/01/24	12/31/24	Dec 2024	45.25	40.84	44.10	39.68	47.32	40.12	49.81	46.07	49.34	45.88	4.57	4.67	4.48	4.42	4.48	4.42	4.19	4.01	4.69	4.52	4.50	4.47	
01/01/25	01/31/25	Jan 2025	51.96	44.43	46.51	41.40	50.17	42.05	52.23	47.74	51.22	47.45	4.66	4.80	4.62	4.57	4.62	4.53	4.41	4.09	4.85	4.67	4.65	4.68	
02/01/25	02/28/25	Feb 2025	47.53	43.27	45.54	41.54	46.63	41.61	51.47	47.86	49.69	47.19	4.70	4.83	4.59	4.58	4.63	4.56	4.47	4.11	4.86	4.69	4.66	4.72	
03/01/25	03/31/25	Mar 2025	43.56	41.29	41.01	39.16	41.39	38.88	46.95	44.94	45.47	44.95	4.54	4.62	4.44	4.36	4.44	4.38	4.30	3.90	4.64	4.47	4.44	4.55	
04/01/25	04/30/25	Apr 2025	41.41	36.49	38.41	35.26	39.04	34.24	40.11	37.82	38.33	33.74	4.39	4.49	4.22	4.22	4.29	4.23	4.08	3.46	4.49	4.32	4.30	4.28	
05/01/25	05/31/25	May 2025	37.11	31.07	36.52	33.52	34.47	28.48	40.65	35.68	37.54	31.28	4.21	4.27	4.04	3.98	4.06	4.00	3.75	3.49	4.24	4.07	4.05	3.95	
06/01/25	06/30/25	Jun 2025	41.57	33.46	43.41	36.26	39.20	30.82	45.48	38.14	43.24	34.58	4.23	4.29	4.09	3.97	4.04	3.99	3.70	3.46	4.23	4.06	4.04	3.89	
07/01/25	07/31/25	Jul 2025	48.52	42.40	50.10	43.49	48.59	41.54	50.00	45.44	50.03	46.04	4.27	4.32	4.13	4.00	4.09	4.00	3.76	3.55	4.27	4.10	4.08	3.97	
08/01/25	08/31/25	Aug 2025	49.44	41.31	51.58	44.03	51.02	43.69	53.50	46.77	53.71	48.06	4.31	4.43	4.13	4.08	4.17	4.09	3.91	3.53	4.35	4.18	4.16	4.12	
09/01/25	09/30/25	Sep 2025	49.68	41.96	49.50	43.21	50.91	43.63	56.07	48.39	53.58	48.12	4.20	4.36	4.06	4.00	4.08	3.99	3.88	3.55	4.27	4.10	4.08	4.09	
10/01/25	10/31/25	Oct 2025	44.87	38.95	44.26	39.90	46.74	40.33	51.13	45.19	49.46	46.14	4.22	4.43	4.07	4.04	4.12	4.03	3.90	3.55	4.31	4.14	4.12	4.12	
11/01/25	11/30/25	Nov 2025	45.32	39.70	45.42	40.24	46.82	40.63	51.59	46.02	50.43	46.50	4.27	4.45	4.12	4.16	4.22	4.16	3.94	3.79	4.43	4.26	4.23	4.16	
12/01/25	12/31/25	Dec 2025	46.87	42.06	46.54	41.22	49.24	41.41	52.44	47.76	51.61	47.53	4.53	4.67	4.45	4.39	4.45	4.39	4.16	3.90	4.66	4.49	4.47	4.43	
01/01/26	01/31/26	Jan 2026	51.16	45.04	47.62	42.32	50.84	43.00	55.53	49.96	52.98	48.96	4.75	4.89	4.72	4.62	4.68	4.60	4.38	4.07	4.90	4.72	4.70	4.65	
02/01/26	02/28/26	Feb 2026	47.97	44.00	47.08	42.72	48.42	43.20	54.08	49.71	51.64	49.09	4.79	4.93	4.72	4.66	4.73	4.66	4.43	4.08	4.93	4.76	4.73	4.69	
03/01/26	03/31/26	Mar 2026	44.34	42.29	42.06	39.97	42.56	39.91	48.26	45.88	46.77	46.30	4.63	4.71	4.50	4.45	4.52	4.46	4.31	3.80	4.72	4.55	4.52	4.57	
04/01/26	04/30/26	Apr 2026	41.31	36.33	38.76	35.99	39.10	33.98	40.67	38.31	38.90	34.30	4.46	4.54	4.28	4.25	4.33	4.26	4.12	3.53	4.51	4.35	4.32	4.32	
05/01/26	05/31/26	May 2026	37.39	31.44	37.77	34.76	34.58	28.67	41.78	36.58	38.68	32.19	4.33	4.38	4.16	4.05	4.14	4.08	3.82	3.58	4.31	4.15			

Quote Date	Data Type: Commodity: POD:	COBHLH FPC	COBLLH FPC	Palo VerdeHL FPC	Palo VerdeLL FPC	Mid-Columbia FPC	Mid-Columbia FPC	NP 15HLH FPC	NP 15LLH FPC	SP 15HLH FPC	SP 15LLH FPC	Henry Hub Gas FPC	SOCALBOR FPC	SANJUAN FPC	Opal Gas FPC	Malin Gas FPC	Stanfield Gas FPC	SUMAS FPC	AECO FPC	GADSBY FPC	Currant Cree FPC	Lakeside FPC	Z CHEBRN* FPC	
																								COB N-S
Start	End	Peak Type:	Forward Prices		Forward Prices		Forward Prices		Forward Prices		Forward Prices		Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price
			HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	
10/12/2016	Tue, 5/31/2005																							
10/13/16	10/31/16	Oct 2016	26.25	22.05	27.50	23.00	21.50	19.15	36.25	29.00	34.75	29.00	2.95	2.86	2.74	2.71	2.80	2.68	2.65	2.00	3.07	2.85	2.88	2.83
11/01/16	11/30/16	Nov 2016	30.25	25.60	27.25	23.25	27.00	23.50	36.25	32.00	35.00	30.75	3.21	3.12	2.98	2.98	3.06	3.03	3.07	2.37	3.26	3.07	3.05	3.30
12/01/16	12/31/16	Dec 2016	36.00	30.40	33.00	27.25	33.50	28.75	41.75	36.00	41.50	35.50	3.41	3.73	3.36	3.43	3.48	3.45	3.65	2.45	3.72	3.53	3.51	3.91
01/01/17	01/31/17	Jan 2017	34.15	30.08	33.13	27.56	32.19	28.28	41.48	35.36	39.83	34.25	3.54	3.82	3.48	3.53	3.54	3.50	3.57	2.54	3.82	3.64	3.61	3.83
02/01/17	02/28/17	Feb 2017	33.15	27.50	32.19	26.25	29.87	26.26	40.29	34.34	39.02	33.25	3.54	3.78	3.51	3.51	3.53	3.50	3.45	2.55	3.80	3.61	3.59	3.70
03/01/17	03/31/17	Mar 2017	29.40	24.83	28.44	24.94	24.94	21.21	36.74	31.30	34.86	31.05	3.50	3.37	3.22	3.22	3.27	3.24	3.03	2.52	3.50	3.32	3.30	3.25
04/01/17	04/30/17	Apr 2017	25.76	17.78	26.92	21.43	20.71	13.75	32.64	27.04	29.34	26.27	3.23	3.07	2.94	2.90	2.99	2.96	2.58	2.28	3.17	3.00	2.98	2.76
05/01/17	05/31/17	May 2017	23.53	14.48	26.92	20.66	19.68	11.75	33.66	24.88	29.95	23.72	3.18	3.01	2.86	2.87	2.93	2.91	2.37	2.23	3.14	2.97	2.95	2.54
06/01/17	06/30/17	Jun 2017	24.17	13.95	29.92	23.06	20.09	9.75	35.70	26.88	31.66	25.92	3.21	3.03	2.91	2.90	2.97	2.95	2.38	2.23	3.17	2.99	2.97	2.54
07/01/17	07/31/17	Jul 2017	33.47	22.75	36.92	27.04	29.83	20.02	39.50	30.80	39.53	30.56	3.24	3.25	3.06	2.98	3.05	3.02	2.66	2.24	3.25	3.07	3.05	2.84
08/01/17	08/31/17	Aug 2017	35.88	27.78	36.46	26.52	32.60	22.98	40.69	33.34	39.91	32.45	3.24	3.27	3.08	2.98	3.06	3.03	2.74	2.25	3.25	3.08	3.06	2.93
09/01/17	09/30/17	Sep 2017	34.16	28.03	32.27	24.22	29.83	24.95	38.32	31.12	36.81	31.50	3.22	3.18	3.00	2.95	3.05	3.02	2.74	2.27	3.22	3.05	3.03	2.92
10/01/17	10/31/17	Oct 2017	30.92	26.64	28.91	24.99	27.00	23.18	39.11	31.59	35.86	30.64	3.23	3.13	2.94	2.91	3.01	3.05	3.03	2.82	3.23	3.28	3.10	3.08
11/01/17	11/30/17	Nov 2017	32.92	27.30	28.62	24.23	29.70	25.63	39.11	32.59	37.75	31.28	3.28	3.35	3.11	3.14	3.21	3.18	3.22	2.47	3.42	3.24	3.22	3.45
12/01/17	12/31/17	Dec 2017	37.46	32.27	30.98	27.29	33.15	27.95	40.29	35.58	39.64	34.83	3.41	3.65	3.35	3.35	3.36	3.33	3.54	2.59	3.64	3.46	3.43	3.79
01/01/18	01/31/18	Jan 2018	35.10	30.13	31.43	27.56	31.69	28.03	40.98	34.61	38.28	33.50	3.51	3.62	3.41	3.44	3.42	3.39	3.42	2.66	3.71	3.54	3.51	3.67
02/01/18	02/28/18	Feb 2018	33.65	28.35	31.39	26.25	29.37	26.01	39.79	33.59	37.52	32.50	3.47	3.56	3.37	3.39	3.38	3.35	3.31	2.64	3.66	3.49	3.46	3.55
03/01/18	03/31/18	Mar 2018	31.05	26.63	28.29	24.94	25.14	21.71	36.89	31.55	34.46	31.50	3.39	3.41	3.28	3.23	3.30	3.27	3.23	2.55	3.50	3.33	3.31	3.46
04/01/18	04/30/18	Apr 2018	23.32	19.63	23.32	20.83	19.63	14.85	29.84	26.19	27.69	25.92	3.29	3.40	2.60	2.65	2.61	2.59	2.15	2.12	2.91	2.74	2.73	2.30
05/01/18	05/31/18	May 2018	23.43	13.98	26.02	20.41	19.18	11.50	28.71	24.63	27.10	23.22	2.84	2.66	2.56	2.53	2.56	2.54	2.06	2.02	2.78	2.62	2.61	2.21
06/01/18	06/30/18	Jun 2018	23.77	14.20	29.17	22.91	19.64	9.65	30.70	25.43	29.56	23.97	2.85	2.70	2.55	2.58	2.56	2.05	2.02	2.80	2.64	2.62	2.29	2.19
07/01/18	07/31/18	Jul 2018	33.87	20.45	36.22	25.44	29.68	17.77	39.00	29.55	37.03	30.01	2.88	2.94	2.65	2.59	2.66	2.64	2.26	2.00	2.85	2.68	2.67	2.42
08/01/18	08/31/18	Aug 2018	36.38	28.28	35.86	26.52	32.60	22.98	40.44	32.56	36.66	32.00	2.88	2.95	2.68	2.60	2.67	2.65	2.01	2.85	2.68	2.67	2.41	2.21
09/01/18	09/30/18	Sep 2018	34.66	28.53	34.42	23.92	29.83	25.25	38.07	30.34	35.56	31.25	2.88	2.75	2.66	2.59	2.67	2.65	2.30	2.04	2.84	2.68	2.66	2.46
10/01/18	10/31/18	Oct 2018	31.42	27.39	28.41	24.99	26.50	22.68	38.61	31.09	34.36	30.14	2.91	2.70	2.64	2.63	2.70	2.67	2.33	2.07	2.88	2.72	2.70	2.49
11/01/18	11/30/18	Nov 2018	33.42	27.95	28.12	24.23	29.20	26.28	38.61	32.09	36.25	30.78	2.96	3.01	2.87	2.85	2.89	2.86	2.97	2.22	3.11	2.94	2.92	3.19
12/01/18	12/31/18	Dec 2018	36.41	30.17	30.48	27.29	32.50	26.80	39.79	35.08	38.14	34.33	3.10	3.27	3.03	3.04	3.04	3.02	3.36	2.32	3.30	3.13	3.11	3.61
01/01/19	01/31/19	Jan 2019	35.30	31.08	33.48	28.46	32.69	28.93	41.08	35.31	38.28	34.15	3.21	3.32	3.14	3.12	3.13	3.10	3.15	2.41	3.39	3.22	3.20	3.39
02/01/19	02/28/19	Feb 2019	34.65	29.70	32.54	27.15	30.37	26.91	39.89	34.29	37.52	33.15	3.17	3.25	3.11	3.09	3.09	3.07	2.93	2.38	3.36	3.19	3.16	3.15
03/01/19	03/31/19	Mar 2019	32.05	28.33	28.79	25.84	25.44	21.86	36.34	32.25	34.46	32.15	3.10	3.20	3.04	3.02	3.03	3.00	2.88	2.32	3.28	3.12	3.09	3.09
04/01/19	04/30/19	Apr 2019	27.96	21.53	25.42	17.58	21.46	15.35	27.49	27.19	27.94	24.82	2.74	2.62	2.53	2.50	2.43	2.41	2.11	2.02	2.75	2.59	2.57	2.25
05/01/19	05/31/19	May 2019	24.53	15.33	26.52	16.71	20.43	13.35	28.51	22.38	28.55	19.47	2.74	2.63	2.52	2.43	2.42	2.39	2.06	1.96	2.67	2.51	2.49	2.20
06/01/19	06/30/19	Jun 2019	24.77	16.10	29.02	19.11	20.64	11.35	30.55	23.18	30.06	19.47	2.77	2.65	2.46	2.45	2.43	2.06	1.98	2.70	2.54	2.52	2.45	2.20
07/01/19	07/31/19	Jul 2019	34.97	18.65	36.80	27.94	30.83	17.57	39.35	31.00	38.28	30.96	2.80	2.90	2.59	2.51	2.54	2.52	2.22	1.95	2.76	2.59	2.58	2.38
08/01/19	08/31/19	Aug 2019	37.38	26.48	36.44	27.42	33.60	20.53	40.54	33.54	38.66	32.85	2.81	2.92	2.63	2.52	2.57	2.55	2.25	1.97	2.77	2.61	2.59	2.40
09/01/19	09/30/19	Sep 2019	35.66	26.73	35.00	24.82	30.83	22.80	38.17	31.32	35.56	31.90	2.81	2.73	2.60	2.52	2.57	2.54	2.29	2.01	2.77	2.60	2.59	2.45
10/01/19	10/31/19	Oct 2019	32.42	28.99	30.06	27.44	27.50	23.58	38.71	32.44	34.36	30.79	2.84	2.66	2.62	2.55	2.59	2.57	2.30	2.02	2.80	2.63	2.62	2.46
11/01/19	11/30/19	Nov 2019	34.42	29.55	29.77	26.68	30.20	27.18	38.71	33.44	36.25	31.43	2.90	2.96	2.85	2.78	2.85	2.82	2.89	2.17	3.03	2.87	2.85	3.11
12/01/19	12/31/19	Dec 2019	37.41	31.77	32.13	29.74	33.50	27.70	39.89	36.43	38.14	34.98	3.04	3.16	3.02	2.98	3.00	2.98	3.28	2.29	3.24	3.07	3.05	3.52
01/01/20	01/31/20	Jan 2020	36.65	32.26	34.88	29.71	33.84	30.13	42.08	36.16	39.27	35.15	3.17	3.26	3.16	3.11	3.10	3.07	3.27	2.35	3.38	3.21	3.19	3.51
02/01/20	02/29/20	Feb 2020	36.00	30.90	33.94	28.40	31.52	28.11	40.89	35.14	38.51	34.15	3.13	3.21	3.12	3.07	3.07	3.04	3.02	2.33	3.34	3.17	3.15	3.24
03/01/20	03/31/20	Mar 2020	33.40	29.53	30.19	27.09	26.59	23.06	37.34	33.10	36.45	33.15	3.06	3.19	3.05	3.01	3.00	2.98	2.97	2.29	3.27	3.10	3.08	3.19
04/01/20	04/30/20	Apr 2020	29.71	21.53	26.42	18.53	23.21	15.35	27.54	27.04	28.59	26.12	2.75	2.64	2.58	2.54	2.53	2.51	2.15	2.04	2.79	2.63	2.61	2.32
05/01/20	05/31/20	May 2020	26.28	15.33	26.42	17.66	22.18	13.35	28.56	22.23	29.20													

	03/01/22	03/31/22	Mar 2022	36.30	30.93	32.99	29.09	29.69	25.26	39.34	35.25	37.46	35.15	3.28	3.49	3.30	3.26	3.24	3.21	3.27	2.55	3.53	3.36	3.33	3.51
	04/01/22	04/30/22	Apr 2022	32.21	23.93	31.47	25.68	25.71	17.80	35.49	33.14	31.59	32.22	2.98	3.01	2.92	2.84	2.76	2.74	2.50	2.24	3.10	2.94	2.92	2.69
	05/01/22	05/31/22	May 2022	28.78	17.73	31.47	24.81	24.68	15.80	36.51	28.33	32.20	26.87	2.98	3.02	2.90	2.77	2.75	2.72	2.45	2.19	3.02	2.86	2.84	2.64
	06/01/22	06/30/22	Jun 2022	29.02	18.50	33.97	27.21	24.89	13.80	38.55	29.13	33.71	26.87	3.01	3.06	2.94	2.80	2.79	2.76	2.46	2.19	3.06	2.89	2.87	2.65
	07/01/22	07/31/22	Jul 2022	39.22	24.75	41.02	31.19	35.08	24.32	42.95	34.00	41.28	33.96	3.05	3.31	2.98	2.86	2.87	2.85	2.66	2.22	3.12	2.95	2.93	2.86
	08/01/22	08/31/22	Aug 2022	41.63	32.58	40.66	30.67	37.85	27.28	43.54	36.54	41.66	35.85	3.08	3.34	3.05	2.89	2.93	2.90	2.66	2.22	3.16	2.99	2.97	2.86
	09/01/22	09/30/22	Sep 2022	39.91	32.83	39.22	28.07	35.08	29.55	41.17	34.32	38.56	34.90	3.09	3.16	3.04	2.90	2.94	2.91	2.72	2.28	3.16	2.99	2.97	2.93
	10/01/22	10/31/22	Oct 2022	36.67	31.69	33.21	29.14	31.75	26.98	41.71	34.79	37.36	33.79	3.12	3.09	3.05	2.94	2.92	2.94	2.76	2.32	3.20	3.03	3.01	2.96
	11/01/22	11/30/22	Nov 2022	39.45	33.65	35.71	31.54	38.10	33.04	43.16	38.28	41.84	37.57	3.53	3.69	3.44	3.46	3.51	3.44	3.46	2.86	3.73	3.56	3.54	3.71
	12/01/22	12/31/22	Dec 2022	40.93	35.75	37.42	33.76	39.98	33.62	44.16	40.47	43.07	40.02	3.73	3.89	3.70	3.68	3.70	3.63	3.79	3.04	3.95	3.78	3.76	4.05
	01/01/23	01/31/23	Jan 2023	44.68	37.88	40.66	35.38	42.13	36.01	46.85	41.81	45.17	41.15	3.92	4.13	3.92	3.87	3.90	3.84	3.88	3.23	4.14	3.97	3.95	4.14
	02/01/23	02/28/23	Feb 2023	41.99	36.72	39.91	34.87	39.34	34.96	45.69	41.34	44.05	40.63	3.91	4.09	3.87	3.83	3.87	3.78	3.77	3.23	4.11	3.94	3.91	4.03
	03/01/23	03/31/23	Mar 2023	38.31	34.48	35.31	32.36	33.90	30.40	41.26	38.44	39.74	38.10	3.74	3.89	3.68	3.64	3.66	3.61	3.61	3.05	3.91	3.74	3.72	3.87
	04/01/23	04/30/23	Apr 2023	34.21	27.54	32.29	28.18	29.77	23.45	35.48	32.69	32.32	30.32	3.45	3.51	3.33	3.29	3.29	3.24	3.06	2.64	3.56	3.39	3.37	3.26
	05/01/23	05/31/23	May 2023	31.29	22.44	32.75	27.72	27.95	20.22	37.04	30.04	33.42	27.25	3.46	3.52	3.34	3.24	3.28	3.23	2.97	2.63	3.51	3.34	3.32	3.17
	06/01/23	06/30/23	Jun 2023	33.40	24.29	36.99	30.30	30.12	20.68	40.01	31.91	36.65	29.09	3.49	3.55	3.39	3.26	3.30	3.24	2.98	2.64	3.52	3.35	3.33	3.18
	07/01/23	07/31/23	Jul 2023	42.54	32.21	43.77	35.52	39.79	30.92	44.12	37.90	43.60	37.97	3.53	3.68	3.41	3.30	3.35	3.29	3.09	2.70	3.57	3.40	3.38	3.29
	08/01/23	08/31/23	Aug 2023	43.50	35.72	43.82	35.43	42.32	33.11	45.92	39.73	45.02	39.40	3.56	3.74	3.46	3.38	3.43	3.37	3.18	2.72	3.65	3.48	3.46	3.38
	09/01/23	09/30/23	Sep 2023	42.58	35.73	42.58	34.01	41.35	34.77	45.72	39.24	44.19	39.44	3.57	3.68	3.48	3.41	3.46	3.40	3.26	2.85	3.68	3.51	3.48	3.47
	10/01/23	10/31/23	Oct 2023	39.35	34.65	37.86	33.56	38.28	32.72	44.66	39.27	42.36	38.80	3.69	3.74	3.58	3.53	3.58	3.53	3.37	2.95	3.80	3.63	3.61	3.58
	11/01/23	11/30/23	Nov 2023	41.48	36.15	39.90	35.71	43.00	36.59	45.61	41.77	45.43	41.71	3.98	4.15	3.82	3.91	3.98	3.87	3.76	3.43	4.18	4.01	3.98	4.01
	12/01/23	12/31/23	Dec 2023	41.45	38.14	40.96	37.09	43.46	37.25	46.42	43.16	46.01	43.06	4.23	4.36	4.13	4.13	4.19	4.08	4.02	3.62	4.40	4.23	4.21	4.28
	01/01/24	01/31/24	Jan 2024	49.81	42.08	43.65	39.06	47.33	39.70	49.63	45.30	49.06	45.14	4.47	4.65	4.43	4.37	4.46	4.38	4.24	3.85	4.65	4.48	4.45	4.51
	02/01/24	02/29/24	Feb 2024	45.08	41.13	43.08	39.35	44.06	39.60	48.48	45.40	47.59	45.10	4.48	4.62	4.37	4.34	4.43	4.29	4.22	3.87	4.62	4.45	4.42	4.48
	03/01/24	03/31/24	Mar 2024	40.33	38.03	37.64	36.64	38.11	35.54	43.18	41.64	42.03	41.04	4.19	4.28	4.06	4.02	4.09	4.02	3.94	3.55	4.29	4.12	4.10	4.20
	04/01/24	04/30/24	Apr 2024	36.22	31.15	33.12	30.68	33.83	29.10	35.47	32.24	33.05	28.42	3.92	4.01	3.74	3.74	3.82	3.75	3.62	3.05	4.01	3.84	3.82	3.82
	05/01/24	05/31/24	May 2024	33.81	27.16	34.04	30.63	31.22	24.63	37.58	31.75	34.63	27.64	3.94	4.02	3.77	3.72	3.80	3.74	3.49	3.08	3.98	3.81	3.79	3.69
	06/01/24	06/30/24	Jun 2024	37.78	30.08	40.02	33.40	35.35	27.57	41.47	34.70	39.59	31.32	3.98	4.04	3.83	3.72	3.80	3.73	3.50	3.09	3.98	3.81	3.79	3.70
	07/01/24	07/31/24	Jul 2024	45.87	39.68	46.51	39.85	44.51	37.52	45.89	41.81	45.92	41.98	4.01	4.06	3.84	3.74	3.83	3.74	3.52	3.19	4.01	3.84	3.82	3.72
	08/01/24	08/31/24	Aug 2024	45.38	38.87	46.98	40.20	46.79	38.94	48.30	42.93	48.37	42.96	4.03	4.14	3.87	3.87	3.93	3.84	3.69	3.23	4.13	3.97	3.94	3.90
	09/01/24	09/30/24	Sep 2024	45.26	38.63	45.93	39.95	47.61	39.98	50.28	44.19	49.82	43.97	4.06	4.19	3.92	3.92	3.98	3.89	3.80	3.42	4.19	4.02	3.99	4.01
	10/01/24	10/31/24	Oct 2024	42.03	37.61	42.50	37.99	44.82	38.46	47.61	43.76	47.36	43.81	4.26	4.39	4.11	4.13	4.18	4.12	3.99	3.59	4.40	4.23	4.21	4.20
	11/01/24	11/30/24	Nov 2024	45.62	41.00	44.53	39.94	46.44	40.27	51.37	46.87	50.45	46.74	4.55	4.78	4.47	4.51	4.45	4.29	4.07	4.74	4.57	4.55	4.54	4.54
	12/01/24	12/31/24	Dec 2024	45.25	40.84	44.10	39.68	47.32	40.12	49.81	46.07	49.34	45.88	4.57	4.67	4.48	4.42	4.48	4.42	4.19	4.01	4.69	4.52	4.50	4.45
	01/01/25	01/31/25	Jan 2025	51.96	44.43	46.51	41.40	50.17	42.05	52.23	47.74	51.22	47.45	4.66	4.80	4.62	4.62	4.53	4.41	4.09	4.85	4.67	4.65	4.68	4.68
	02/01/25	02/28/25	Feb 2025	47.53	43.27	45.54	41.54	46.63	41.61	51.47	47.86	49.69	47.19	4.70	4.83	4.59	4.58	4.63	4.56	4.47	4.11	4.86	4.69	4.66	4.73
	03/01/25	03/31/25	Mar 2025	43.56	41.29	41.01	39.16	41.39	38.88	46.95	44.94	45.47	44.95	4.54	4.62	4.44	4.36	4.44	4.38	4.30	3.90	4.64	4.47	4.44	4.56
	04/01/25	04/30/25	Apr 2025	41.41	36.49	38.41	35.26	39.04	34.24	40.11	37.82	38.33	33.74	4.39	4.49	4.24	4.22	4.29	4.23	4.08	3.46	4.49	4.32	4.40	4.46
	05/01/25	05/31/25	May 2025	37.11	31.07	36.52	33.52	34.47	28.48	40.65	35.68	37.54	31.28	4.21	4.27	4.04	3.98	4.06	4.00	3.75	3.49	4.24	4.07	4.05	3.95
	06/01/25	06/30/25	Jun 2025	41.57	33.46	43.41	36.26	39.20	30.82	45.48	38.14	43.24	34.58	4.23	4.29	4.09	3.97	4.04	3.99	3.70	3.46	4.23	4.06	4.04	3.90
	07/01/25	07/31/25	Jul 2025	48.52	42.40	50.10	43.49	48.59	41.54	50.00	45.44	50.03	46.04	4.27	4.32	4.13	4.00	4.09	4.00	3.76	3.55	4.27	4.10	4.08	3.96
	08/01/25	08/31/25	Aug 2025	49.44	41.31	51.58	44.03	51.02	43.69	53.50	46.77	53.71	48.06	4.31	4.43	4.13	4.08	4.17	4.09	3.91	3.53	4.35	4.18	4.16	4.12
	09/01/25	09/30/25	Sep 2025	49.68	41.96	49.50	43.21	50.91	43.63	56.07	48.39	53.58	48.12	4.20	4.36	4.06	4.00	4.08	3.99	3.88	3.55	4.27	4.10	4.08	4.08
	10/01/25	10/31/25	Oct 2025	44.87	38.95	44.26	39.90	46.74	40.33	51.13	45.19	49.46	46.14	4.22	4.04	4.07	4.04	4.12	4.03	3.90	3.55	4.31	4.14	4.12	4.11
	11/01/25	11/30/25	Nov 2025	45.32	39.70	45.42	40.24	46.82	40.63	51.59	46.02	50.43	46.50	4.27	4.45	4.12	4.16	4.22	4.16	3.94	3.79	4.43	4.26	4.23	4.19
	12/01/25	12/31/25	Dec 2025	46.87	42.06	46.54	41.22	49.24	41.41	52.44	47.76	51.61	47.53	4.53	4.67	4.45	4.39	4.45	4.39	4.16	3.90	4.46	4.49	4.47	4.42
	01/01/26	01/31/26	Jan 2026	51.16	45.04	47.62	42.32	50.84	43.00	55.53	49.96	52.98	48.96	4.75	4.89	4.72	4.62	4.68	4.60	4.38	4.07	4.89	4.72	4.70	4.65
	02/01/26	02/28/26	Feb 2026	47.97	44.00	47.08	42.72	48.42	43.20	54.08	49.71	51.64	49.09	4.79	4.93	4.72	4.66	4.73	4.66	4.43	4.08	4.93	4.76	4.73	4.70
	03/01/26	03/31/26	Mar 2026	44.34	42																				

46874	46904	46874	41.957	35.3119	40.52275	37.53541	39.13383	32.48948	45.31499	40.41272	41.79734	35.67508	4.6712	4.6986	4.5206	4.3973	4.5069	4.4521	4.2466	4.0548	4.6616	4.4932	4.4721	4.4453
46905	46934	46905	48.66965	38.7579	48.78303	40.65685	45.80172	35.86685	52.69165	44.18613	48.97569	40.39397	4.7123	4.726	4.5891	4.3836	4.5069	4.4384	4.274	4.0822	4.6488	4.4801	4.4587	4.4747
46935	46965	46935	53.60385	50.05066	54.8414	48.35958	53.71466	47.96481	55.82287	49.93904	55.16341	52.14246	4.7808	4.7945	4.6438	4.4521	4.5617	4.4932	4.3288	4.2055	4.7185	4.5494	4.5275	4.5319
46966	46996	46966	53.1897	45.98606	55.28506	47.64448	55.58466	47.47492	58.48312	50.68496	57.98394	52.91246	4.8219	4.9178	4.6438	4.548	4.6438	4.5617	4.5069	4.2329	4.8154	4.646	4.6238	4.7122
46997	47026	46997	52.53377	45.54515	51.74054	46.37871	54.34256	47.04387	59.10674	52.15807	56.20866	52.0766	4.7671	4.9041	4.6575	4.548	4.6301	4.548	4.5206	4.3973	4.8156	4.6461	4.6238	4.7264
47027	47057	47027	49.09339	43.51264	47.05648	43.65185	52.18463	45.16978	55.08423	49.51244	53.38468	50.73085	4.8082	4.9863	4.6986	4.6438	4.7123	4.6164	4.5891	4.4521	4.9128	4.7429	4.7106	4.7976
47058	47087	47058	51.48529	45.86753	49.76627	45.08644	54.50844	46.42111	57.95094	51.98861	56.5147	52.61279	4.9178	5.1233	4.8082	4.8082	4.9178	4.8356	4.8356	4.6438	5.0772	4.9073	4.8845	5.0834
47088	47118	47088	52.07705	48.47046	50.14183	46.1241	55.42999	47.52393	57.2858	53.60482	56.6693	52.59591	5.2055	5.3699	5.1781	5.0595	5.1507	5.0548	4.7397	5.3696	5.1982	5.1736	5.2624	
47119	47149	47119	56.24429	49.64114	51.53102	46.49169	56.62361	47.78579	59.99486	54.06123	57.89392	53.60336	5.222	5.39	5.194	5.166	5.236	5.124	5.152	4.746	5.4444	5.2714	5.2452	5.4198
47150	47177	47150	52.72486	48.14145	50.58743	46.87935	53.98272	47.92002	58.69775	53.76245	56.23289	53.92925	5.264	5.418	5.18	5.194	5.25	5.166	5.18	4.76	5.4713	5.2978	5.2728	5.4456
47178	47208	47178	48.6797	46.77671	45.32321	44.00143	46.92987	44.23191	51.02962	49.21805	49.14489	50.6114	5.096	5.18	4.97	4.984	5.054	4.956	4.956	4.48	5.2594	5.0874	5.0623	5.2175
47209	47238	47209	46.05749	40.5957	42.46083	39.01702	43.94025	38.21484	43.41804	41.25394	41.43803	36.3708	4.914	4.984	4.774	4.704	4.802	4.746	4.676	4.186	4.9866	4.8001	4.7789	4.8753
47239	47269	47239	41.70009	34.64994	41.27454	38.12559	38.82682	31.80395	44.99829	39.72877	41.66136	35.33255	4.76	4.788	4.62	4.508	4.606	4.55	4.354	4.116	4.7723	4.6039	4.5829	4.5528
47270	47299	47270	47.68262	37.99639	48.42083	40.67677	44.72121	35.08971	51.52913	43.28931	47.67683	39.13825	4.802	4.816	4.676	4.494	4.592	4.55	4.382	4.13	4.7593	4.5906	4.5692	4.5828
47300	47330	47300	54.12915	50.35065	55.65569	49.37964	54.19645	48.4465	56.21031	49.99821	54.97412	52.73262	4.844	4.872	4.69	4.508	4.62	4.522	4.396	4.172	4.7744	4.6053	4.5835	4.5991
47331	47361	47331	54.19891	46.07411	56.25394	48.63196	56.73375	48.65327	59.49723	50.85115	58.0791	53.17978	4.886	4.97	4.704	4.606	4.718	4.634	4.578	4.214	4.8735	4.704	4.6818	4.7834
47362	47391	47362	54.3832	46.69706	53.97506	48.19469	55.81084	48.48459	61.25755	53.49103	58.02806	53.08709	4.774	4.966	4.648	4.564	4.648	4.55	4.508	4.326	4.8317	4.6622	4.6399	4.7139
47392	47422	47392	50.01402	43.57189	49.58953	44.95266	52.94905	45.58769	56.26839	49.83345	54.14437	51.36609	4.802	5.012	4.676	4.648	4.732	4.634	4.606	4.368	4.9169	4.747	4.7243	4.8145
47423	47452	47423	51.00859	45.99494	49.91849	45.38407	53.76493	46.22162	58.06379	52.19535	56.35264	52.72758	4.914	5.18	4.844	4.872	4.928	4.844	4.858	4.592	5.141	4.9711	4.9483	5.1058
47453	47483	47453	51.93267	48.36463	50.22109	46.22687	55.2762	47.55856	57.62814	53.27364	56.79752	53.26976	5.18	5.334	5.166	5.11	5.18	5.082	5.096	4.704	5.3837	5.2123	5.1877	5.3539
47484	47514	47484	57.44552	50.87549	51.89603	47.20016	57.09863	48.78872	61.25773	55.41904	58.86332	54.97952	5.3083	5.4514	5.3226	5.2367	5.3083	5.2224	5.2367	4.8361	5.5151	5.2422	5.3159	5.5045
47515	47542	47515	53.69151	49.74377	50.81739	47.09428	54.19338	48.79391	59.5337	54.99794	56.99894	54.85552	5.3369	5.48	5.3226	5.2654	5.3369	5.251	5.2654	4.8933	5.5427	5.3701	5.3442	5.5309
47543	47573	47543	49.75926	47.98238	45.91753	44.84579	47.34119	45.08473	51.57738	50.13889	49.72907	51.19913	5.1938	5.294	5.0507	5.1223	5.1938	5.108	5.1223	4.6072	5.3977	5.2257	5.2005	5.3838
47574	47603	47574	47.31226	41.98315	43.39326	40.234	44.77546	39.33426	44.86724	42.73035	42.49644	38.71152	5.065	5.1366	4.879	4.8647	4.9649	4.9077	4.8361	4.4641	5.1293	4.9608	4.9397	5.0354
47604	47634	47604	44.12047	36.88901	43.82417	40.67707	41.10804	33.93753	47.5957	42.34969	44.33086	37.88718	5.0364	5.0937	4.8647	4.8075	4.9077	4.8504	4.7217	4.4498	5.0718	4.9034	4.8824	4.9204
47635	47664	47635	50.15399	40.8246	50.51614	43.34513	47.10493	37.77963	53.815	46.18115	49.79324	42.12843	5.0794	5.108	4.9363	4.7932	4.9077	4.8504	4.7503	4.507	5.0585	4.8898	4.8683	4.951
47665	47695	47665	58.12598	53.82427	58.14444	51.56711	57.06098	51.06469	59.61921	52.89807	57.75742	55.70086	5.1509	5.195	4.9649	4.8075	4.9363	4.8704	4.736	4.6358	5.0739	4.9048	4.883	4.991
47696	47726	47696	57.2225	52.27809	58.51469	51.08887	58.90984	51.26323	62.69301	54.28276	60.71776	55.74383	5.1795	5.2797	5.0078	4.9363	5.0507	4.9649	4.9077	4.6644	5.2037	5.0343	5.0121	5.113
47727	47756	47727	58.17986	51.33454	56.76413	50.69588	58.90641	51.04342	65.2177	57.56377	61.49693	56.54396	5.1366	5.3083	4.9792	5.0078	5.0794	5.0221	5.0078	4.8218	5.2755	5.106	5.0837	5.2137
47757	47787	47757	53.21693	47.48705	52.09629	47.62895	55.6744	48.24429	59.83936	53.87277	57.11269	54.64012	5.1795	5.3512	4.9355	5.0794	5.1366	5.0364	5.0794	4.8647	5.3483	5.1784	5.1556	5.2879
47788	47817	47788	54.22413	50.84267	52.56931	48.19725	56.07857	49.08387	61.24258	56.25718	59.36646	56.10252	5.294	5.5229	5.1366	5.294	5.3369	5.2797	5.0221	5.5629	5.393	5.3702	5.5274	
47818	47848	47818	55.66975	52.44709	52.62946	49.34383	58.42885	50.99734	61.43273	57.31722	60.57933	57.39756	5.5801	5.7089	5.5229	5.5086	5.5801	5.48	5.5086	5.1795	5.7823	5.6109	5.5863	5.7665
47849	47879	47849	59.16827	52.30113	52.89101	48.4723	59.09133	50.30567	62.61859	56.37625	60.84391	56.92829	5.4689	5.6298	5.4397	5.4251	5.4982	5.3958	5.4104	5.0741	5.7034	5.5305	5.5042	5.6782
47880	47907	47880	55.02939	51.09288	52.62269	48.81666	55.86266	50.28885	60.64288	55.969	58.68935	56.13982	5.5128	5.6737	5.3958	5.4689	5.542	5.4397	5.4543	5.1472	5.7462	5.5737	5.5478	5.7199
47908	47938	47908	51.30336	49.30501	47.2097	46.12175	48.85272	46.42519	52.86287	51.33636	51.32963	52.89533	5.3666	5.4982	5.2057	5.3227	5.3812	5.3227	5.3081	4.7963	5.5981	5.4261	5.4009	5.5646
47939	47968	47939	49.53538	44.51331	45.63664	42.67148	47.13203	41.86665	46.5729	44.66204	44.64708	41.59609	5.2057	5.3081	5.0449	5.0449	5.1326	5.0887	5.0156	4.6208	5.3094	5.141	5.1198	5.2149
47969	47999	47969	46.09616	39.49327	44.69273	42.06973	43.12775	36.48637	49.00629	44.24702	45.52328	40.18198	5.1619	5.2203	5.001	4.9279	5.0302	4.9718	4.8548	4.5769	5.1922	5.0238	5.0027	5.0535
48000	48029	48000	52.46029	42.13524	44.53437	49.35802	39.05986	55.48205	67.36177	51.86009	43.64217	5.2057	5.235	5.0449	4.9279	5.0302	4.9718	4.8694	4.6062	5.1932	5.0244	5.003	5.0701	
48030	48060	48030	59.7868	55.41381	59.72007	52.95642	58.82782	52.70047	60.66467	53.92317	59.18634	57.29017	5.3081	5.3373	5.1326	4.9718	5.1034	5.0449	4.884	4.6939	5.2381	5.0691	5.0472	5.0871
48061	48091	48061	58.66562	53.87239	60.07182	52.7315	63.90736	53.11817	63.90736	55.72689	62.50474	57.7192	5.3373	5.3737	5.1472	5.0887	5.1911	5.1326	5.0741	4.7378	5.3562	5.1868	5.1645	5.2795
48092	48121	48092	58.92869	51.7523	57.85386	51.39674	60.17697	51.89186	65.99397	58.22034	62.85754	57.92527	5.235	5.4251	5.0741	5.1034	5.1765	5.1034	4.8548	5.371	5.2016	5.1792	5.3092	
48122	48152	48122	54.02272	48.09037	51.8376	47.73998	56.5604	60.34219	54.48826	57.91478	55.23385	5.2642	5.4836	5.1034	5.1911	5.2642	5.1472	5.1911	4.9279	5.46	5.2901	5.2674	5.3966	
48153																								

49126	49156	49126	65.46466	60.17657	64.02905	56.99479	63.41518	57.0703	64.87936	58.19578	62.81056	61.49372	5.6818	5.7911	5.4945	5.4476	5.5881	5.5010	5.3072	5.073	5.714	5.545	5.5231	5.5103
49157	49187	49157	64.25231	58.76803	64.96409	56.66295	64.87915	56.67751	68.67506	59.72969	67.11184	62.33757	5.713	5.9315	5.4633	5.6193	5.6974	5.6037	5.5413	5.1199	5.8668	5.7174	5.6952	5.7467
49188	49217	49188	60.78207	55.05301	59.90585	54.19548	62.11239	54.52278	67.53344	60.75451	64.50499	60.92613	5.5010	5.7911	5.354	5.5101	5.5569	5.4476	5.4633	5.1511	5.7778	5.8083	5.586	5.6691
49218	49248	49218	57.1228	51.66448	54.4911	50.38794	60.22639	52.44214	63.02554	57.57819	60.84774	58.66147	5.5569	5.8223	5.3852	5.5569	5.6193	5.5257	5.5693	5.1979	5.8258	5.6559	5.6332	5.7654
49249	49278	49249	59.03944	54.94207	57.01078	52.0584	62.26558	54.2583	65.57779	60.47089	63.71362	60.82669	5.6037	5.8847	5.4633	5.6506	5.7598	5.6506	5.7598	5.2291	5.9195	5.7496	5.7268	6.0076
49279	49309	49279	61.8094	58.65321	56.73424	53.78438	65.01499	56.94503	64.91064	62.06169	65.27451	63.39686	5.9315	6.1969	5.8847	5.9171	6.1345	6.0252	6.1501	5.6193	6.2208	6.0494	6.0249	6.408
49310	49340	49310	66.35557	58.82576	57.89792	53.6021	65.20831	56.1366	68.23559	62.49907	66.34824	62.84731	6.0301	6.2535	6.0142	6.078	6.2535	6.1099	6.2854	5.727	6.3563	6.1834	6.1571	6.5531
49341	49368	49341	61.49917	57.41961	57.56237	53.33296	61.91832	56.62053	66.89483	62.17581	64.07899	61.98515	6.078	6.3013	5.9982	6.1099	6.2854	6.1577	6.2014	5.743	6.3872	6.2146	6.1887	6.5669
49369	49399	49369	57.35144	55.00242	51.81867	50.73048	54.41909	51.62758	58.43636	57.47857	56.34644	58.97337	5.8865	6.1099	5.7111	5.9185	5.9982	5.8865	5.9663	5.5834	6.1939	6.0219	5.9667	6.2278
49400	49429	49400	54.80805	50.08839	50.01782	46.90828	51.68702	46.937	50.93063	49.36018	48.86724	47.04203	5.6951	5.9025	5.4718	5.6951	5.727	5.6313	5.6792	5.2963	5.9597	5.7912	5.77	5.8784
49430	49460	49430	51.83029	44.00727	50.55813	47.72226	40.88923	54.19146	49.30184	51.12062	46.85653	5.7111	5.8865	5.5515	5.6632	5.727	5.6632	5.5834	5.2484	5.9275	5.7591	5.7381	5.7822	
49461	49490	49461	58.40736	47.31425	57.23495	49.84314	54.98547	43.91058	60.23924	52.41921	56.15042	50.021	5.743	5.8546	5.6154	5.5675	5.6951	5.6154	5.4877	5.073	5.8328	5.6641	5.6426	5.6885
49491	49521	49491	67.8727	61.59134	65.89167	58.40937	65.32388	58.36196	67.19936	59.74693	64.74497	62.83379	5.8387	5.9663	5.6951	5.6792	5.8068	5.6951	5.5834	5.1368	5.9456	5.7765	5.7546	5.7866
49522	49552	49522	66.56094	60.60912	66.62124	58.11509	66.80701	58.32404	71.39977	62.14001	68.83439	63.89606	5.8865	6.078	5.6792	5.8068	5.8865	5.7589	5.743	5.3123	6.0742	5.9048	5.8826	5.9484
49553	49582	49553	64.55505	58.02354	63.11218	56.29495	64.94671	56.73196	71.82327	64.62474	68.77229	63.34849	5.7111	5.9344	5.5515	5.727	5.7589	5.6313	5.6792	5.3282	5.9947	5.8252	5.8029	5.885
49583	49613	49583	59.91716	53.38675	57.38971	52.2585	62.01975	53.52851	66.12686	59.94005	63.13158	60.19437	5.727	5.9663	5.5675	5.743	5.8227	5.7111	5.743	5.4422	6.0119	5.842	5.8192	5.9515
49614	49643	49614	60.35952	56.53087	56.70445	52.06987	62.45985	54.72076	67.23695	62.22609	64.66499	62.00321	5.7908	6.0939	5.6951	5.8387	6.0142	5.8865	6.0142	5.3249	6.1076	5.9377	5.915	6.2619
49644	49674	49644	64.50568	59.94291	58.14291	54.4221	66.28584	57.84792	67.3584	63.68055	67.23589	64.50762	6.1099	6.3492	6.062	6.1099	6.3013	6.1897	6.3013	5.6632	6.3366	6.2122	6.1876	6.5592
49675	49705	49675	69.20329	61.41862	60.53316	56.01699	67.89931	58.64371	71.67341	65.74503	69.38367	65.68068	6.2769	6.603	6.2443	6.3584	6.603	6.4726	6.603	5.6737	6.3836	6.4629	6.4376	6.8708
49706	49734	49706	63.47897	59.24517	58.94159	54.86906	63.48167	57.25581	68.50135	63.76487	65.83945	63.92811	6.3258	6.5215	6.2443	6.3258	6.4563	6.3584	6.4563	5.9671	6.6031	6.4306	6.4047	6.7218
49735	49765	49735	59.47783	56.90092	53.45138	52.25825	56.37756	53.44948	60.92588	59.13369	58.45424	60.43064	6.1302	6.3258	5.9671	6.1465	6.228	6.1139	6.2117	5.853	6.4219	6.2499	6.2047	6.4732
49766	49795	49766	56.46708	51.70649	51.56767	48.37962	53.36118	48.49372	52.81326	51.28473	50.68555	48.95848	5.9345	6.0976	5.7389	5.9182	5.9508	5.8693	5.853	5.5106	6.1828	6.0143	5.9932	6.0523
49796	49826	49796	63.64605	46.12714	52.37022	49.60653	52.70722	46.70718	56.25918	52.87339	52.86702	49.01272	5.9508	6.0976	5.7878	5.8856	5.9345	5.853	5.8041	5.478	6.15	5.9815	5.9605	6.0028
49827	49856	49827	61.31516	50.40324	60.04984	52.34968	67.29269	46.93048	62.95184	55.2044	58.7835	52.87561	5.9834	6.0813	5.8693	5.7552	5.9182	5.8204	5.6737	5.2335	6.0205	5.8518	5.8303	5.8744
49857	49887	49857	69.77823	63.3374	67.86794	60.03265	67.23499	60.95449	69.15156	61.48063	66.73236	64.97174	6.0813	6.1628	5.9345	5.853	6.0163	5.8693	5.7389	5.2661	6.1194	5.9503	5.9285	5.942
49888	49918	49888	68.34226	62.82074	68.73923	60.31479	68.2767	60.5922	73.19513	64.33283	71.02498	65.84666	6.1302	6.3258	5.9345	6.065	6.1302	6.0161	5.9834	5.5596	6.3324	6.163	6.1408	6.1888
49919	49948	49919	66.41863	59.6185	65.24021	57.8673	60.00121	58.50529	74.11552	66.5685	70.94698	65.55373	5.9345	6.1628	5.7878	5.9019	5.9456	5.9834	5.853	5.5596	6.2022	6.0327	6.0104	6.1078
49949	49979	49949	61.92791	55.69437	58.65403	53.55107	63.78862	54.95077	68.40946	62.40647	65.03049	61.9657	5.9671	6.228	5.8041	5.9671	6.065	5.9508	5.9997	5.5759	6.2361	6.0662	6.0434	6.2083
49980	50009	49980	62.99207	59.25116	58.45719	54.31256	64.44478	56.96503	69.62865	64.44726	66.9427	64.37029	6.0324	6.3258	5.9345	6.065	6.2606	6.1302	6.2443	5.6737	6.339	6.164	6.1412	6.492
50010	50040	50010	66.55983	61.84574	59.79703	56.04055	69.02423	59.52012	69.52286	65.73964	69.25237	66.44719	6.3584	6.5541	6.3258	6.3258	6.5378	6.4073	6.5378	5.8367	6.5995	6.4281	6.4035	6.7927
50041	50071	50041	69.91975	63.47165	61.85007	57.6535	69.6156	60.67555	73.67155	67.88137	71.21848	67.94298	6.415	6.7483	6.3817	6.4817	6.7483	6.615	6.7649	5.8318	6.76	6.5871	6.5608	7.0357
50072	50099	50072	65.4977	61.41295	60.44557	56.66619	66.00702	59.49405	71.3715	66.42918	67.96806	66.07864	6.465	6.7149	6.3983	6.4483	6.7316	6.615	6.7483	5.9485	6.7256	6.5531	6.5272	7.0138
50100	50130	50100	61.46461	58.64487	54.71944	53.44372	58.22163	55.12271	61.61384	60.44167	59.8886	61.08632	6.265	6.465	6.1151	6.2817	6.3817	6.265	6.3484	5.9984	6.5571	6.3851	6.3599	6.6099
50131	50160	50131	59.24396	54.41847	53.71431	50.61815	55.99417	51.0043	54.58116	53.39164	52.34838	51.66793	6.0651	6.2484	5.8818	6.0651	6.0984	5.9651	6.0151	5.6819	6.3297	6.1612	6.14	6.2144
50161	50191	50161	57.83534	50.67500	53.82998	51.10087	54.27312	47.19532	58.4696	54.2067	54.51147	51.42054	6.0818	6.2484	5.9318	6.0484	6.0984	5.9651	5.9485	5.6652	6.3128	6.1444	6.1233	6.472
50192	50221	50192	65.25905	53.37462	62.272	54.19003	61.64282	49.86877	65.50777	67.55863	61.01794	55.52757	6.1151	6.2317	6.0484	5.9485	6.0651	5.9818	5.8318	5.4153	6.2137	6.045	6.0236	6.0326
50222	50252	50222	72.48485	65.48596	69.97362	61.98906	69.43993	62.01335	71.62461	63.61118	68.8726	67.18538	6.2151	6.3317	6.0984	6.0318	6.1651	6.0151	5.8985	5.3819	6.2982	6.1291	6.1073	6.1016
50253	50283	50253	70.87042	64.79931	61.93401	69.90887	62.04169	74.99809	66.30211	72.60597	68.00127	6.265	6.4983	6.0818	6.2317	6.2817	6.1817	6.1651	5.7985	6.4992	6.3298	6.3076	6.3704	6.476
50284	50313	50284	68.74854	61.96682	66.74767	59.56498	68.82168	60.235	76.13823	68.85993	72.92425	67.48087	6.0818	6.3484	5.9485	6.0651	6.1317	6.0151	5.6819	6.3328	6.1633	6.141	6.271	6.271
50314	50344	50314	63.63064	57.90898	54.15826	54.15826	56.20525	69.59109	63.84476	66.06925	63.31383	6.0984	6.365	5.9318	6.0984	6.1817	6.0651	6.1151	5.6985	6.3673	6.1974	6.1747	6.3236	6.3236
50345	50374	50345	64.70838	61.341	60.56861	55.9622	66.75207	58.99448	71.33112	66.41298	68.73326	65.88716	6.1651	6.465	6.0651	6.1984	6.4317	6.315	6.4483	5.8485	6.4673	6.2975	6.2747	6.6961
50375	50405	50375	69.75242	64.39718	61.18689	57.52065	71.15933	71.47134	67.71187	70.62055	67.99444	6.4983	6.7483	6.465	6.4983	6.7183								

51380	51409	51380	74.1759	68.31951	71.49143	65.09396	72.77444	65.37159	80.94099	75.18007	77.40614	74.01939	6.8255	7.1463	6.7008	6.7721	6.879	6.7543	6.7899	6.3622	7.0398	6.8703	6.848	6.9958
51410	51440	51410	71.92664	65.63166	65.30908	60.08911	71.89691	62.5852	76.78438	71.39262	72.95418	70.4343	6.8434	7.2354	6.7186	6.8255	7.1107	6.9681	7.1107	6.4157	7.0945	6.9246	6.9018	7.3192
51441	51470	51441	73.30948	69.43267	67.29539	62.44424	74.89918	66.57243	79.58002	75.1678	76.32986	74.02453	6.9325	7.3424	6.9325	6.9325	7.3602	7.2176	7.4136	6.5404	7.2014	7.0315	7.0087	7.6614
51471	51501	51471	80.8604	73.34496	68.76379	65.00233	79.8821	70.12807	80.16693	76.74396	78.84391	76.7412	7.2889	6.9988	7.3958	7.2889	7.7166	7.574	7.7879	6.8968	7.5626	7.3912	7.3668	8.0458
51502	51532	51502	81.71728	73.41725	70.42319	65.42329	78.5443	69.43794	83.42965	77.12811	80.20822	76.79651	7.3654	8.212	7.4383	7.4383	7.7847	7.6389	7.6024	6.7455	7.7166	7.5437	7.5174	8.702
51533	51560	51533	75.84421	70.80035	68.2295	64.47711	74.2037	67.43801	80.34638	76.61209	75.90862	75.22831	7.4201	7.7482	7.4018	7.4565	7.8759	7.7118	7.967	7.0555	7.7339	7.5613	7.5354	8.2326
51561	51591	51561	69.99775	66.77205	62.9336	61.10828	66.27129	62.86625	69.77338	69.95608	67.41806	71.12241	7.2013	7.4383	7.0737	7.2195	7.4018	7.2742	7.4018	6.8914	7.4949	7.3223	7.2978	7.6634
51592	51621	51592	66.96848	61.71299	61.01764	57.33291	63.11353	57.91558	62.37206	61.325	59.54035	58.90327	6.9643	7.1648	6.8002	6.9461	7.019	6.8914	6.9643	6.5997	7.2206	7.0422	7.021	7.1635
51622	51652	51622	67.1577	59.52162	62.43269	59.13445	63.24184	55.69797	66.77241	63.09665	62.46363	61.05052	6.9825	7.1831	6.8731	6.9643	7.0008	6.8731	6.8914	6.5814	7.2286	7.0602	7.0392	7.0901
51653	51682	51653	74.73401	62.39134	71.12288	62.82094	70.74152	58.51874	74.4633	66.77538	69.29825	65.18829	7.0372	7.2013	6.9643	6.8184	6.9825	6.8367	6.7638	6.2168	7.0837	6.915	6.8936	6.9645
51683	51713	51683	83.33312	74.4186	79.4875	70.51012	79.48694	70.5274	81.67477	73.12386	77.97018	75.9884	7.1466	7.3107	7.0372	6.9278	7.0919	6.9278	6.8367	6.2533	7.1942	7.0252	7.0039	7.0398
51714	51744	51714	83.52734	74.16811	82.4507	70.91299	79.88327	70.45569	86.60126	76.12663	84.44995	77.9965	7.2013	7.5295	7.0372	7.1831	7.256	7.0737	7.1284	6.6726	7.4505	7.2811	7.2599	7.3338
51745	51774	51745	75.88194	69.89086	73.13573	66.59112	74.44825	66.87514	82.80264	76.90921	79.18648	75.72183	6.9825	7.3107	6.8549	6.9278	7.0372	6.9096	6.9461	6.5085	7.1955	7.026	7.0037	7.1519
51775	51805	51775	73.58096	67.14119	66.81119	61.47116	73.55054	64.02466	78.55042	73.03465	74.63213	72.05429	7.0008	7.4018	6.8731	6.9825	7.2742	7.1284	7.2742	6.5632	7.2514	7.0816	7.0588	7.4827
51806	51835	51806	74.9956	71.02962	68.84319	63.88046	76.62186	68.1036	81.41036	76.89666	78.08545	75.7271	7.0919	7.5112	7.0919	7.5295	7.3836	7.5842	6.6908	7.3609	7.191	7.1682	7.8319	
51836	51866	51836	82.72019	75.03189	70.34536	66.49738	81.71939	71.74101	82.01077	78.50907	80.65732	78.50625	7.4565	8.0759	7.5659	7.4565	7.8941	7.7482	7.967	7.0555	7.7302	7.5588	7.5343	8.2249
51867	51897	51867	83.59678	75.10585	72.04293	66.92802	80.35082	85.34853	78.90206	82.05301	78.56283	7.5348	8.001	7.6094	7.6094	7.9637	7.8145	7.7772	7.6907	7.8877	7.7148	7.6885	8.045	
51898	51925	51898	77.58862	72.42876	69.79877	65.96008	75.91038	68.98908	82.19434	78.37417	77.65451	76.95856	7.5907	7.9264	7.5721	7.628	8.057	7.8891	8.1503	7.2177	7.9054	7.7328	7.7069	8.1358
51926	51956	51926	71.6077	62.68071	64.38107	62.51377	67.79553	64.31217	71.37817	71.56506	68.96688	72.5822	7.3669	7.6094	7.2364	7.3856	7.5721	7.4415	7.5721	7.0499	7.661	7.489	7.4638	7.8436
51957	51986	51957	68.50876	63.13239	62.42105	58.65157	64.58356	59.24763	63.80661	62.73548	60.90978	60.25805	7.1245	7.3296	6.9566	7.1058	7.1804	7.0499	7.1245	6.7515	7.3704	7.2019	7.1808	7.3237
51987	52017	51987	68.70232	60.89061	63.88664	60.49454	64.6964	66.9947	63.08117	64.54685	63.9003	62.45469	7.1431	7.3483	7.0312	7.1245	7.1618	7.0312	7.0499	6.7328	7.3888	7.2204	7.1993	7.2486
52018	52047	52018	76.45289	63.82634	72.75871	64.26582	72.36858	59.86467	76.17596	68.31122	70.89211	66.68762	7.1991	7.3669	7.1245	6.9753	7.1431	6.9939	6.9193	6.3597	7.2405	7.0718	7.0504	7.1201
52048	52078	52048	85.24978	76.13023	81.31571	72.13185	81.31513	72.14953	83.55329	74.80572	79.7635	77.1568	7.311	7.4788	7.1991	7.0872	7.255	7.0872	6.9939	6.3971	7.3536	7.1845	7.1627	7.1971
52079	52109	52079	85.44848	75.87397	84.34707	72.54399	81.72058	72.07617	88.59309	77.87754	86.3922	79.79041	7.3669	7.7026	7.1991	7.3483	7.4229	7.2364	7.2923	6.8261	7.6157	7.4463	7.4241	7.4977
52110	52139	52110	77.62723	71.49835	74.81786	68.12272	76.16056	68.41326	84.70709	78.67812	81.00777	77.46344	7.1431	7.4788	7.0126	7.0872	7.1991	7.0685	7.6262	7.3549	7.1854	7.1631	7.3177	
52140	52170	52140	75.27332	68.68543	68.34785	62.88499	75.2422	65.49723	80.35708	74.71445	76.34866	73.71154	7.1618	7.5721	7.0312	7.1431	7.4415	7.2923	7.4415	6.7142	7.412	7.2422	7.2194	7.65
52171	52200	52171	76.7205	72.6633	70.42657	65.34971	78.38416	69.66998	83.2828	78.66528	79.88141	77.46882	7.255	7.684	7.255	7.255	7.7026	7.5534	7.7586	6.8447	7.524	7.3541	7.3313	8.0063
52201	52231	52201	84.62276	76.75763	71.9633	68.02682	83.59894	73.39106	83.89702	80.31478	82.51244	80.31897	7.628	8.057	7.7399	7.628	8.0757	7.9264	8.1503	7.2177	7.9017	7.7303	7.7058	8.4081
52232	52262	52232	85.5195	76.83328	73.69992	68.46736	82.19889	72.66882	87.31155	80.7168	83.94023	80.36777	7.7081	8.1851	7.7844	7.7844	8.1469	7.9943	7.9561	7.0594	8.0627	7.8896	7.8635	8.2249
52263	52290	52263	79.37316	74.09462	71.40414	67.47716	77.65632	70.57584	84.08482	80.17677	79.44057	78.72861	7.7653	8.1088	7.7462	7.8035	8.2423	8.0706	8.3377	7.3837	8.0808	7.9082	7.8823	8.0073
52291	52321	52291	73.25468	69.87888	65.86184	63.95159	69.35483	65.9135	73.01986	73.21106	74.43166	7.5364	7.7844	7.4028	7.5555	7.7462	7.6127	7.7462	7.212	7.8309	7.6589	7.6337	8.0038	
52322	52351	52322	70.08447	64.58443	63.85673	60.00055	66.06898	60.61033	65.27416	64.1784	62.3107	61.64399	7.2883	7.4982	7.1166	7.2693	7.3456	7.212	7.2883	6.9068	7.5338	7.3653	7.3442	7.4876
52352	52382	52352	70.28248	62.2911	65.33762	61.88591	68.18442	58.29854	69.87926	66.03143	65.37	63.89114	7.3074	7.5173	7.1929	7.2883	7.3653	7.1929	7.212	8.8877	7.5527	7.3843	7.3632	7.4108
52383	52412	52383	78.2113	65.29434	74.43215	65.74393	74.03306	61.24156	77.928	69.88238	72.52262	68.22144	7.3647	7.5364	7.2883	7.1357	7.3074	7.1548	7.0785	6.5061	7.401	7.2323	7.2108	7.2792
52413	52443	52413	87.21053	77.88123	83.18597	73.79089	83.18539	73.80897	85.47502	76.52625	81.59806	79.50314	7.4791	7.6508	7.3647	7.2502	7.4219	7.2502	6.5442	7.5166	7.3475	7.3257	7.5759	
52444	52474	52444	87.41379	77.61907	86.28705	74.2125	83.60016	73.73392	80.63073	79.66872	88.37932	81.6256	7.5364	7.8798	7.3647	7.5173	7.5936	7.4028	7.4601	6.9831	7.7847	7.6153	7.5931	7.6654
52475	52504	52475	79.41266	73.14281	76.53867	69.68954	77.91225	69.98677	86.65536	80.48772	82.87095	79.24509	7.3074	7.6508	7.1739	7.2502	7.3647	7.2311	7.2693	6.8114	7.5179	7.3484	7.3261	7.4751
52505	52535	52505	77.0046	70.2652	69.91985	64.33135	76.97277	67.00366	82.20529	76.43288	78.10468	75.40691	7.3265	7.7462	7.1929	7.3074	7.6127	7.4601	7.6127	6.8686	7.5763	7.4064	7.3837	8.212
52536	52565	52536	78.48507	74.33456	72.04639	66.85275	80.187	71.27238	85.19983	80.47459	81.17868	79.2506	7.4219	7.8607	7.4219	7.8798	7.7272	7.937	7.0021	7.6908	7.521	7.4982	8.1848	
52566	52596	52566	86.56908	78.52306	73.61845	69.59144	85.52171	75.07906	85.82664	82.16202	84.41022	82.15907	7.8035	8.2423	7.918	8.0035	8.2614	8.1088	8.3377	7.3837	8.0772	7.9058	7.8812	8.5956
52597	52627	52597	87.48645	78.60045	75.39502	70.04211	84.08946	74.34201	89.31972	82.5733	85.87086	82.21828	7.8854	8.3733	7.9634	7.9634	8.3343	8.1781	8.1391	7.2218	8.2418	8.0689	8.0426	8.4069
52628	52658	52628	81.19875	75.79879	73.04644	69.02913	79.44241	72.19908	86.01877	82.02084	81.26777	80.53937	7.9439	8.2953	7.9244	7.983	8.4319	8.2562	8.5295	7.				

Quote Date	Data Type:	COBHLH	COBLH	Palo VerdeHL	Palo VerdeLL	Mid-Columbia	Mid-Columbia	NP 15HLH	NP 15LLH	SP 15HLH	SP 15LLH	Henry Hub Gas	SOCALBOR	SANJUAN	Opal Gas	Malin Gas	Stanfield Gas	SUMAS	AECO	GADSBY	Currant Cree	Lakeside	Z CHEBRN*	
																								FPC
6/30/2016	Commodity:	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	
	POD:	COB N-S	COB N-S	PV	PV	MID-C	MID-C	NP15	NP15	SP15	SP15	HENRYHUB	SOCALBOR	SANJUAN	ROCKOPAL	MALINGAS	STANFLDS	SUMAS5	AECO	GADSBY	CURRCKR	LAKESIDE	Z CHEBRN	
	Tue, 5/31/2005																							
		COB Prices		Palo Verde		Mid-Columbia		NP 15		SP 15		Henry Hub Gas	SOCALBOR	SANJUAN	Opal Gas	Malin Gas	Stanfield Gas	SUMAS	AECO	GADSBY	Currant Cree	Lakeside	Z CHEBRN*	
		Forward Prices		Forward Prices		Forward Prices		Forward Prices		Forward Prices		Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	
		HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	
Start	End	Peak Type:	HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	
07/01/16	07/31/16	Jul 2016	32.00	22.25	37.00	24.75	29.25	19.50	37.75	28.50	39.75	30.25	2.91	2.83	2.59	2.53	2.63	2.58	2.30	1.55	2.97	2.75	2.77	2.41
08/01/16	08/31/16	Aug 2016	35.80	25.50	36.75	25.75	31.50	23.50	38.25	30.50	41.00	32.00	2.92	3.01	2.82	2.73	2.83	2.82	2.44	1.91	2.98	2.82	2.80	2.61
09/01/16	09/30/16	Sep 2016	31.50	24.75	31.50	25.50	27.75	23.25	37.50	30.75	40.25	32.25	2.92	2.98	2.79	2.73	2.82	2.80	2.40	1.98	2.97	2.81	2.80	2.56
10/01/16	10/31/16	Oct 2016	30.46	25.92	28.58	24.24	26.55	22.28	39.60	30.40	37.53	31.35	2.95	2.95	2.81	2.76	2.87	2.85	2.66	2.05	3.01	2.85	2.83	2.83
11/01/16	11/30/16	Nov 2016	32.42	26.46	29.34	24.75	28.91	24.26	39.60	31.36	39.50	32.01	3.09	3.21	3.05	3.04	3.14	3.11	3.17	2.21	3.32	3.13	3.11	3.40
12/01/16	12/31/16	Dec 2016	35.37	28.82	33.28	28.77	32.45	27.72	40.80	34.24	41.48	35.64	3.32	3.66	3.37	3.42	3.46	3.43	3.64	2.45	3.71	3.51	3.49	3.91
01/01/17	01/31/17	Jan 2017	33.80	28.61	31.87	27.45	30.76	26.55	42.00	34.58	40.56	34.43	3.45	3.73	3.45	3.51	3.50	3.47	3.53	2.56	3.80	3.61	3.59	3.79
02/01/17	02/28/17	Feb 2017	33.15	27.25	31.11	26.51	29.84	25.25	40.80	33.58	39.78	32.75	3.43	3.66	3.46	3.47	3.44	3.43	3.43	2.54	3.76	3.57	3.55	3.68
03/01/17	03/31/17	Mar 2017	30.00	25.14	28.67	24.49	27.20	23.45	37.20	31.39	36.66	31.62	3.37	3.38	3.22	3.23	3.29	3.26	3.12	2.48	3.51	3.33	3.30	3.35
04/01/17	04/30/17	Apr 2017	25.74	18.69	25.15	21.78	22.20	15.51	31.44	27.19	28.13	27.28	3.07	2.98	2.87	2.79	2.89	2.87	2.40	2.20	3.06	2.87	2.86	2.56
05/01/17	05/31/17	May 2017	22.96	15.09	25.95	21.56	18.27	12.35	32.42	24.88	28.71	24.41	3.03	2.90	2.81	2.76	2.84	2.82	2.34	2.15	3.03	2.85	2.83	2.50
06/01/17	06/30/17	Jun 2017	22.80	14.83	28.89	22.91	17.58	11.05	34.39	25.93	30.16	26.46	3.06	2.94	2.85	2.79	2.88	2.85	2.34	2.13	3.05	2.87	2.86	2.50
07/01/17	07/31/17	Jul 2017	32.98	21.45	36.31	25.30	27.38	18.71	37.75	31.04	39.53	31.28	3.08	3.12	2.97	2.86	2.95	2.93	2.51	2.12	3.13	2.95	2.93	2.69
08/01/17	08/31/17	Aug 2017	35.36	28.05	35.62	27.04	32.67	24.10	38.88	33.60	39.91	33.22	3.09	3.17	2.99	2.87	2.98	2.95	2.58	2.18	3.14	2.96	2.94	2.76
09/01/17	09/30/17	Sep 2017	33.26	27.96	30.83	26.52	30.61	25.94	36.62	31.36	37.11	32.25	3.07	3.08	2.91	2.84	2.97	2.94	2.61	2.18	3.11	2.93	2.91	2.79
10/01/17	10/31/17	Oct 2017	30.31	26.01	31.88	25.75	28.74	22.73	39.60	32.14	36.10	31.51	3.10	3.03	2.87	2.90	2.98	2.95	2.74	2.28	3.17	2.99	2.97	2.93
11/01/17	11/30/17	Nov 2017	33.17	26.71	30.31	25.24	29.95	26.26	39.60	32.59	38.00	31.77	3.15	3.25	3.09	3.06	3.18	3.15	3.21	2.41	3.34	3.15	3.13	3.44
12/01/17	12/31/17	Dec 2017	36.18	28.89	31.56	26.82	32.07	26.77	40.80	35.58	39.90	35.37	3.28	3.50	3.25	3.28	3.32	3.29	3.52	2.52	3.56	3.37	3.35	3.78
01/01/18	01/31/18	Jan 2018	35.65	29.96	31.72	28.05	31.41	27.35	42.00	34.58	39.56	33.73	3.39	3.54	3.37	3.36	3.41	3.38	3.41	2.59	3.63	3.45	3.43	3.66
02/01/18	02/28/18	Feb 2018	33.35	28.60	31.11	28.21	30.34	25.75	40.80	33.63	38.78	32.75	3.35	3.48	3.32	3.31	3.37	3.34	3.29	2.56	3.58	3.40	3.38	3.53
03/01/18	03/31/18	Mar 2018	29.80	26.74	30.37	26.14	27.70	24.25	38.40	31.74	35.66	31.77	3.28	3.35	3.25	3.23	3.30	3.27	2.49	3.50	3.32	3.30	3.46	
04/01/18	04/30/18	Apr 2018	23.69	20.74	23.90	20.03	22.65	17.21	29.74	25.34	27.63	25.08	2.88	2.79	2.71	2.70	2.68	2.65	2.21	2.12	2.96	2.79	2.77	2.36
05/01/18	05/31/18	May 2018	23.01	14.79	25.25	19.31	18.57	12.35	30.72	23.88	28.21	23.51	2.84	2.77	2.67	2.60	2.65	2.63	2.12	2.03	2.85	2.68	2.67	2.27
06/01/18	06/30/18	Jun 2018	23.25	15.63	28.19	20.41	17.78	10.40	32.69	24.68	29.66	23.51	2.87	2.82	2.70	2.62	2.68	2.66	2.11	2.02	2.88	2.71	2.69	2.25
07/01/18	07/31/18	Jul 2018	33.43	19.85	37.56	26.20	28.48	18.06	38.30	31.29	39.63	31.03	2.90	3.07	2.78	2.67	2.74	2.74	2.35	2.04	2.93	2.76	2.74	2.51
08/01/18	08/31/18	Aug 2018	35.81	27.75	36.87	28.54	33.92	23.35	39.43	33.85	39.91	32.97	2.91	3.08	2.81	2.68	2.79	2.76	2.35	2.05	2.94	2.77	2.75	2.51
09/01/18	09/30/18	Sep 2018	34.11	28.01	32.08	28.02	32.11	28.64	37.17	31.61	36.81	32.00	2.88	2.86	2.77	2.66	2.76	2.74	2.37	2.06	2.91	2.74	2.73	2.54
10/01/18	10/31/18	Oct 2018	32.61	27.51	32.63	28.80	30.99	24.53	40.10	32.39	36.10	31.41	2.90	2.79	2.74	2.68	2.77	2.75	2.51	2.08	2.93	2.76	2.75	2.68
11/01/18	11/30/18	Nov 2018	34.62	28.06	31.06	28.29	32.20	28.06	40.10	33.39	38.00	32.07	2.97	3.13	2.94	2.98	2.96	3.06	2.30	3.20	3.02	3.01	2.92	3.28
12/01/18	12/31/18	Dec 2018	37.63	30.24	32.31	29.32	34.32	28.57	41.30	36.38	39.90	35.67	3.12	3.32	3.07	3.13	3.14	3.11	3.45	2.39	3.39	3.22	3.20	3.70
01/01/19	01/31/19	Jan 2019	34.15	30.76	32.47	29.15	32.16	27.30	42.65	35.23	39.76	34.38	3.24	3.46	3.20	3.21	3.23	3.20	3.23	2.51	3.48	3.30	3.28	3.47
02/01/19	02/28/19	Feb 2019	33.50	29.40	31.86	28.36	31.29	26.55	41.45	34.23	38.98	33.40	3.21	3.40	3.18	3.18	3.21	3.19	3.02	2.49	3.45	3.28	3.26	3.24
03/01/19	03/31/19	Mar 2019	30.90	28.04	29.42	26.79	28.65	25.05	37.85	32.42	34.14	32.65	3.11	3.12	3.14	3.12	3.14	3.12	2.97	2.43	3.39	3.21	3.19	3.19
04/01/19	04/30/19	Apr 2019	28.29	22.74	25.90	19.08	26.00	17.21	29.34	28.14	27.83	26.33	2.85	2.86	2.76	2.70	2.68	2.66	2.31	2.17	2.96	2.79	2.77	2.47
05/01/19	05/31/19	May 2019	24.96	16.04	26.70	18.86	20.47	13.70	30.32	23.33	28.41	20.81	2.85	2.87	2.74	2.62	2.67	2.65	2.26	2.11	2.88	2.71	2.69	2.41
06/01/19	06/30/19	Jun 2019	25.20	16.88	29.64	19.96	19.68	11.75	32.29	24.13	29.86	20.81	2.88	2.80	2.75	2.65	2.71	2.68	2.24	2.10	2.91	2.74	2.72	2.40
07/01/19	07/31/19	Jul 2019	35.53	18.15	38.31	27.05	29.43	16.46	40.05	31.94	39.73	31.68	2.91	3.14	2.82	2.71	2.80	2.78	2.42	2.09	2.97	2.80	2.78	2.58
08/01/19	08/31/19	Aug 2019	37.91	26.05	37.62	29.39	34.87	21.75	41.18	34.50	40.11	33.62	2.93	3.16	2.85	2.72	2.82	2.80	2.43	2.11	2.98	2.81	2.79	2.60
09/01/19	09/30/19	Sep 2019	36.21	26.31	32.83	28.87	33.06	27.04	38.92	32.26	37.01	32.65	2.91	2.97	2.82	2.71	2.82	2.79	2.47	2.14	2.97	2.80	2.78	2.64
10/01/19	10/31/19	Oct 2019	32.16	28.31	33.38	29.65	31.24	25.53	40.75	33.39	36.30	32.21	2.93	2.88	2.83	2.73	2.83	2.80	2.47	2.15	2.98	2.81	2.80	2.64
11/01/19	11/30/19	Nov 2019	34.17	28.86	31.81	29.14	32.45	29.06	40.75	34.39	38.20	32.87	3.00	3.20	2.99	2.96	3.04	3.01	3.04	2.35	3.22	3.05	3.03	3.27
12/01/19	12/31/19	Dec 2019	37.18	31.04	33.06	30.17	34.57	29.57	41.95	37.38	40.10	36.47	3.15	3.40	3.16	3.16	3.20	3.17	3.43	2.48	3.42	3.25	3.23	3.68
01/01/20	01/31/2																							

	12/01/21	12/31/21	Dec 2021	41.58	32.99	36.11	31.17	38.12	31.52	44.65	38.63	42.65	37.87	3.39	3.73	3.44	3.44	3.44	3.41	3.85	2.77	3.71	3.53	3.51	4.12	
	01/01/22	01/31/22	Jan 2022	40.95	33.96	37.52	32.20	36.51	30.50	46.60	38.28	43.66	37.23	3.53	3.89	3.57	3.57	3.56	3.53	3.80	2.94	3.85	3.67	3.64	4.07	
	02/01/22	02/28/22	Feb 2022	40.30	32.60	36.91	31.41	35.64	29.75	45.40	37.28	42.88	36.25	3.50	3.84	3.55	3.53	3.50	3.61	2.93	3.81	3.63	3.61	3.87		
	03/01/22	03/31/22	Mar 2022	37.70	31.24	34.47	29.84	33.00	28.25	41.80	35.29	39.76	35.27	3.44	3.77	3.48	3.47	3.47	3.44	3.57	2.89	3.74	3.57	3.54	3.83	
	04/01/22	04/30/22	Apr 2022	33.04	26.29	30.95	26.43	29.00	19.86	36.04	33.39	31.73	33.18	3.19	3.43	3.16	3.15	3.09	3.07	2.87	2.63	3.41	3.24	3.22	3.06	
	05/01/22	05/31/22	May 2022	29.71	19.59	31.75	26.21	23.47	16.35	37.02	28.58	32.31	27.66	3.19	3.44	3.16	3.08	3.09	3.06	2.83	2.58	3.34	3.17	3.15	3.04	
	06/01/22	06/30/22	Jun 2022	29.95	20.43	34.69	27.31	22.68	14.40	38.99	29.38	33.76	27.66	3.22	3.48	3.20	3.11	3.13	3.10	2.82	2.57	3.37	3.20	3.18	3.04	
	07/01/22	07/31/22	Jul 2022	40.13	25.50	43.36	30.35	33.78	22.96	42.35	34.99	43.63	34.53	3.26	3.73	3.24	3.17	3.21	3.18	3.02	2.60	3.44	3.26	3.24	3.25	
	08/01/22	08/31/22	Aug 2022	41.36	34.22	42.55	34.87	39.85	31.41	43.54	37.65	43.90	38.16	3.51	3.78	3.43	3.35	3.44	3.39	3.22	2.65	3.62	3.44	3.42	3.45	
	09/01/22	09/30/22	Sep 2022	38.37	32.93	37.88	33.33	38.18	34.02	41.22	36.31	41.26	37.32	3.46	3.66	3.38	3.32	3.41	3.35	3.24	2.74	3.59	3.42	3.40	3.46	
	10/01/22	10/31/22	Oct 2022	36.75	31.55	38.60	34.19	36.99	30.96	43.28	36.71	41.20	37.24	3.50	3.65	3.40	3.36	3.45	3.38	3.29	2.78	3.63	3.45	3.43	3.51	
	11/01/22	11/30/22	Nov 2022	37.96	32.52	34.24	31.36	36.77	32.61	43.26	37.71	41.67	37.03	3.62	3.86	3.55	3.58	3.64	3.57	3.62	3.05	3.86	3.68	3.66	3.89	
	12/01/22	12/31/22	Dec 2022	40.84	35.17	35.42	32.58	38.22	33.30	44.20	40.11	43.10	39.66	3.82	4.06	3.80	3.79	3.83	3.76	3.94	3.21	4.07	3.89	3.87	4.22	
	01/01/23	01/31/23	Jan 2023	41.10	36.19	37.27	34.06	38.33	33.58	46.68	40.85	44.59	40.21	4.01	4.28	4.02	3.98	4.02	3.97	4.03	3.41	4.27	4.09	4.06	4.32	
	02/01/23	02/28/23	Feb 2023	40.34	35.26	37.14	33.92	38.34	33.80	45.87	40.29	44.09	39.66	4.01	4.24	4.02	3.97	3.95	4.00	3.91	3.93	3.41	4.24	4.06	4.03	4.21
	03/01/23	03/31/23	Mar 2023	37.40	33.62	33.97	31.58	34.62	31.20	40.48	36.84	39.46	36.95	3.83	4.04	3.78	3.75	3.79	3.74	3.77	3.23	4.04	3.86	3.83	4.05	
	04/01/23	04/30/23	Apr 2023	32.81	27.09	30.17	27.22	29.82	22.92	34.94	31.81	31.20	29.62	3.56	3.73	3.46	3.42	3.47	3.42	3.25	2.85	3.73	3.55	3.53	3.48	
	05/01/23	05/31/23	May 2023	29.61	21.55	32.38	27.56	25.06	17.65	35.40	28.42	32.30	26.13	3.58	3.74	3.47	3.41	3.46	3.41	3.17	2.84	3.68	3.50	3.48	3.40	
	06/01/23	06/30/23	Jun 2023	31.98	24.08	36.67	30.12	26.64	19.54	38.74	30.99	35.45	28.67	3.61	3.77	3.52	3.42	3.46	3.42	3.17	2.84	3.70	3.52	3.50	3.40	
	07/01/23	07/31/23	Jul 2023	40.62	30.84	44.13	34.58	37.09	28.67	43.09	37.12	43.81	37.82	3.64	3.91	3.54	3.47	3.53	3.47	3.28	2.90	3.74	3.56	3.54	3.51	
	08/01/23	08/31/23	Aug 2023	41.95	36.30	44.42	38.30	41.97	35.82	44.85	37.89	45.14	40.84	3.88	3.99	3.72	3.69	3.78	3.69	3.56	2.93	3.96	3.79	3.77	3.78	
	09/01/23	09/30/23	Sep 2023	37.67	33.46	39.88	35.74	40.46	35.74	42.46	38.46	42.96	40.14	3.79	3.93	3.64	3.64	3.72	3.62	3.53	3.06	3.91	3.74	3.72	3.76	
	10/01/23	10/31/23	Oct 2023	36.94	32.84	40.77	37.74	39.18	34.45	43.11	38.78	43.55	40.88	3.83	3.96	3.67	3.68	3.75	3.64	3.56	3.10	3.95	3.77	3.75	3.78	
	11/01/23	11/30/23	Nov 2023	37.35	34.23	33.62	32.58	37.54	34.20	43.07	39.79	42.60	39.80	4.00	4.17	3.84	3.93	4.00	3.89	3.78	3.44	4.20	4.03	4.00	4.05	
	12/01/23	12/31/23	Dec 2023	40.11	37.36	34.72	34.00	38.32	35.08	43.75	41.59	43.61	41.45	4.25	4.38	4.15	4.15	4.21	4.10	4.04	3.64	4.43	4.25	4.23	4.32	
	01/01/24	01/31/24	Jan 2024	41.24	38.42	37.03	35.91	40.14	36.65	46.75	43.43	45.53	43.18	4.50	4.67	4.46	4.40	4.48	4.41	4.27	3.88	4.68	4.50	4.47	4.56	
	02/01/24	02/29/24	Feb 2024	40.38	37.91	37.37	36.43	41.05	37.85	46.35	43.29	45.29	43.07	4.51	4.65	4.40	4.37	4.46	4.32	4.24	3.89	4.66	4.47	4.45	4.53	
	03/01/24	03/31/24	Mar 2024	37.10	36.01	33.47	33.33	36.24	34.15	39.16	38.39	39.17	38.63	4.22	4.31	4.08	4.04	4.12	4.04	3.97	3.57	4.32	4.14	4.12	4.25	
	04/01/24	04/30/24	Apr 2024	32.58	27.90	29.39	28.01	30.64	25.98	33.84	30.23	30.68	26.06	3.94	4.03	3.76	3.76	3.84	3.78	3.64	3.07	4.04	3.86	3.84	3.86	
	05/01/24	05/31/24	May 2024	29.52	23.52	33.02	28.91	26.64	18.95	33.79	28.26	32.30	24.59	3.97	4.04	3.79	3.74	3.83	3.76	3.51	3.09	4.01	3.83	3.81	3.74	
	06/01/24	06/30/24	Jun 2024	34.01	27.73	38.66	32.93	30.59	24.68	38.49	32.61	37.13	29.68	4.00	4.07	3.65	3.74	3.83	3.75	3.52	3.11	4.01	3.84	3.81	3.75	
	07/01/24	07/31/24	Jul 2024	41.10	36.18	44.90	38.82	40.41	34.38	43.83	39.26	44.00	41.11	4.03	4.08	3.85	3.76	3.85	3.76	3.54	3.21	4.04	3.86	3.84	3.77	
	08/01/24	08/31/24	Aug 2024	44.01	37.73	46.49	39.99	44.01	37.53	46.69	40.40	46.85	42.30	4.05	4.17	3.89	3.89	3.95	3.86	3.71	3.25	4.16	3.98	3.89	3.94	
	09/01/24	09/30/24	Sep 2024	41.01	36.03	43.06	37.99	44.02	37.99	45.90	41.38	46.17	42.21	4.08	4.22	3.94	3.94	4.00	3.92	3.83	3.44	4.21	4.04	4.01	4.05	
	10/01/24	10/31/24	Oct 2024	40.44	36.62	44.03	40.39	42.72	37.16	47.01	42.98	46.98	43.51	4.28	4.42	4.13	4.16	4.21	4.14	4.02	3.61	4.43	4.25	4.23	4.24	
	11/01/24	11/30/24	Nov 2024	41.43	38.97	37.69	36.09	41.39	37.42	47.65	44.23	46.93	44.18	4.41	4.50	4.53	4.47	4.32	4.09	4.77	4.60	4.57	4.50	4.59		
	12/01/24	12/31/24	Dec 2024	42.85	39.69	37.41	36.33	40.99	37.32	47.09	44.48	46.49	44.85	4.80	4.70	4.51	4.45	4.51	4.45	4.22	4.03	4.73	4.55	4.52	4.50	
	01/01/25	01/31/25	Jan 2025	43.20	39.92	38.42	37.21	42.00	38.10	48.74	45.18	47.36	44.85	4.69	4.83	4.65	4.60	4.65	4.56	4.44	4.12	4.88	4.70	4.67	4.73	
	02/01/25	02/28/25	Feb 2025	42.31	39.68	38.97	38.00	43.16	39.73	48.47	45.16	47.24	45.30	4.72	4.85	4.62	4.61	4.66	4.58	4.49	4.13	4.89	4.71	4.69	4.78	
	03/01/25	03/31/25	Mar 2025	40.17	38.87	35.79	35.79	38.89	36.79	41.51	40.30	41.95	42.52	4.57	4.65	4.47	4.39	4.47	4.40	4.32	3.97	4.67	4.49	4.47	4.61	
	04/01/25	04/30/25	Apr 2025	37.40	33.70	33.74	32.24	35.41	31.50	39.72	36.93	36.15	32.14	4.41	4.52	4.25	4.25	4.31	4.26	4.10	3.49	4.52	4.34	4.32	4.33	
	05/01/25	05/31/25	May 2025	32.75	27.11	35.03	31.98	29.92	23.08	39.26	32.07	28.37	4.23	4.30	4.07	4.00	4.08	4.03	3.77	3.41	4.17	4.27	4.10	4.00	4.00	
	06/01/25	06/30/25	Jun 2025	37.10	30.48	41.27	35.21	33.77	27.34	41.82	35.68	40.27	32.70	4.26	4.31	4.12	3.99	4.07	4.01	3.72	3.39	4.26	4.09	4.06	3.95	
	07/01/25	07/31/25	Jul 2025	43.84	38.89	47.64	41.26	42.98	36.75	46.74	41.57	46.99	43.68	4.30	4.36	4.16	4.03	4.12	4.03	3.78	3.47	4.30	4.12	4.10	4.01	
	08/01/25	08/31/25	Aug 2025	47.06	40.19	50.16	42.98	47.43	40.61	50.54	43.35	51.00	45.83	4.34	4.45	4.16	4.10	4.20	4.12	3.94	3.50	4.37	4.20	4.18	4.16	
	09/01/25	09/30/25	Sep 2025	43.13	36.73	45.78	39.79	46.43	39.80	48.37	42.14	49.41	44.50	4.22	4.39	4.08	4.03	4.10	4.01	3.90	3.58	4.30	4.12	4.10	4.12	
	10/01/25	10/31/25	Oct 2025	41.36	36.64	44.58	40.96	43.38	37.42	48.00	43.01	48.16	45.26	4.25	4.45	4.09	4.07	4.14	4.05	3.92	3.58	4.34	4.16	4.14	4.15	
	11/01/25	11/30/25	Nov 2025	40.47	36.73	36.85	35.63	40.23	36.80	46.82	42.76	45.53	43.28	4.30	4.48	4.14	4.18	4.25	4.18	3.96	3.81	4.46	4.28	4.26	4.23	
	12/01/25	12/31/25	Dec 2025	43.33	39.98	38																				

46784	46812	46784	45.45942	44.40418	41.89441	41.38704	47.16233	44.08173	52.32225	49.36621	51.37757	50.84018	4.988	5.1258	4.9467	4.864	4.9329	4.8502	4.8502	4.4093	5.1489	4.9684	4.9424	5.136
46813	46843	46813	44.09768	42.43577	38.87306	39.04634	42.26336	39.9292	45.64303	44.44567	45.9125	47.63135	4.8502	4.9191	4.7124	4.6711	4.7538	4.6849	4.5884	4.1613	4.9541	4.7424	4.749	4.8702
46844	46873	46844	40.58617	37.05667	37.02132	35.58369	38.59361	34.53837	44.18599	40.77873	40.22093	35.95542	4.6987	4.7676	4.5058	4.492	4.5746	4.5333	4.4369	3.9546	4.7646	4.5881	4.5667	4.6634
46874	46904	46874	38.8934	32.69669	39.67659	37.32161	34.94347	28.03809	43.57313	38.63839	41.21461	35.34556	4.6987	4.7262	4.5471	4.4231	4.5333	4.4782	4.2715	3.9821	4.6956	4.5191	4.4978	4.4978
46905	46934	46905	43.42182	35.31513	47.08604	40.23857	39.76794	32.15616	49.01146	41.37172	46.93682	39.78201	4.74	4.7538	4.616	4.4093	4.5333	4.4644	4.2991	4.0097	4.6828	4.506	4.4843	4.5273
46935	46965	46935	50.40778	45.48801	52.90257	46.41309	48.76263	42.36944	53.86602	47.06845	53.58744	50.27331	4.8089	4.8227	4.6711	4.4782	4.5884	4.5195	4.3542	4.1337	4.7528	4.5766	4.5535	4.5848
46966	46996	46966	51.27708	45.96575	55.05811	47.18994	52.87104	45.41533	57.22525	48.47729	57.35302	51.64598	4.8502	4.9467	4.6711	4.5746	4.6711	4.5884	4.5333	4.1475	4.8445	4.6689	4.6485	4.7772
46997	47026	46997	46.75053	42.29423	48.94524	44.30394	50.11834	44.05593	53.03969	47.44398	53.66745	50.03665	4.7951	4.9329	4.6849	4.5746	4.6573	4.5746	4.5471	4.3266	4.8446	4.669	4.6485	4.7124
47027	47057	47027	46.99783	42.49305	49.86179	45.89353	49.87423	43.55796	54.18171	49.0774	54.29167	51.64384	4.8364	5.0156	4.7262	4.6711	4.74	4.6435	4.616	4.3817	4.9422	4.7662	4.7454	4.8426
47058	47087	47058	46.88739	43.79403	42.45889	40.76977	47.43979	42.72145	54.3069	49.92436	52.61492	49.79392	4.9467	5.1534	4.8364	4.8364	4.864	4.864	4.6298	5.1136	4.9356	4.9125	5.133	5.133
47088	47118	47088	46.46066	45.98808	43.1586	42.29282	47.91896	43.68699	54.6385	51.65955	53.62606	51.67439	5.236	5.4014	5.2085	5.1258	5.1809	5.0845	5.0983	4.7676	5.4073	5.2279	5.2032	5.3768
47119	47149	47119	49.16245	45.92476	44.09424	43.06635	48.42941	43.96248	56.18002	52.17181	53.91539	51.13849	5.2475	5.4163	5.2194	5.1912	5.2616	5.149	5.1772	4.7692	5.4769	5.2962	5.2698	5.4646
47150	47177	47150	48.75692	46.57519	44.9807	44.20706	50.03502	46.74218	56.0392	52.21629	53.92329	53.06631	5.2897	5.4445	5.2053	5.2194	5.1912	5.1912	5.2053	4.7833	5.5042	5.3238	5.2798	5.4911
47178	47208	47178	46.49878	45.88798	40.53329	41.08061	44.97281	43.24538	48.39512	47.49881	47.9578	50.54424	5.1209	5.2053	4.9943	5.0084	5.0787	4.9802	4.902	5.019	5.2913	5.1115	5.0862	5.262
47209	47238	47209	42.10644	38.41686	38.24483	36.51678	39.98209	35.80998	45.31865	42.2872	41.36893	36.67617	4.938	5.0084	4.7973	4.727	4.8255	4.7692	4.6989	4.2065	4.9997	4.8232	4.8017	4.9254
47239	47269	47239	38.14669	32.74441	40.47047	38.09076	34.91972	27.15581	43.66212	38.63247	41.55511	35.58526	4.7833	4.8114	4.6426	4.53	4.6285	4.5722	4.3753	4.1361	4.8025	4.6261	4.6047	4.6015
47270	47299	47270	42.69908	35.37034	40.47047	40.68069	39.11628	32.60775	48.49187	41.49044	46.73554	39.69369	4.8255	4.8395	4.6989	4.516	4.6144	4.5722	4.4034	4.1502	4.7894	4.6127	4.5909	4.6317
47300	47330	47300	51.34794	46.44866	54.56688	48.10911	49.80294	43.78926	55.20818	48.42007	54.67746	51.71411	4.8677	4.8958	4.7129	4.53	4.6426	4.5441	4.4175	4.1924	4.8046	4.6275	4.6053	4.6481
47331	47361	47331	52.83981	46.87564	56.93246	48.79776	54.60377	46.70603	59.10372	50.07643	58.66082	53.20496	4.9699	4.9943	4.727	4.6285	4.7411	4.6566	4.6004	4.2346	4.8983	4.7228	4.7024	4.8242
47362	47391	47362	48.96692	43.57608	51.64745	46.09477	52.09925	45.55416	55.86348	49.49234	56.17923	51.33098	4.7973	4.9802	4.6707	4.5863	4.6707	4.5722	4.53	4.3471	4.8562	4.6602	4.6402	4.7541
47392	47422	47392	48.00231	42.72086	51.60258	47.83071	50.48085	43.75296	55.36021	49.58021	54.81126	51.83973	4.8255	5.0365	4.6989	4.6707	4.7551	4.6566	4.6285	4.3893	4.9418	4.7608	4.745	4.8511
47423	47452	47423	47.16455	44.15223	42.19825	41.2719	47.1693	42.97075	54.69495	50.47787	52.26527	50.18167	4.938	5.2053	4.8677	4.8958	4.9521	4.8677	4.8817	4.6144	5.1729	4.995	4.9719	5.151
47453	47483	47453	48.83807	46.43195	43.8136	43.0781	48.19034	44.20967	55.32892	51.95523	53.67444	51.67544	5.2053	5.3601	5.1912	5.135	5.2053	5.1068	5.1209	4.727	5.4164	5.2371	5.2124	5.3955
47484	47514	47484	50.51382	46.89832	44.01388	42.94605	48.84227	44.6041	56.83047	52.86702	54.2282	51.85662	5.3342	5.478	5.3486	5.2623	5.3342	5.2479	5.2623	4.8597	5.5479	5.3672	5.341	5.5498
47515	47542	47515	50.19423	48.42253	44.61584	44.24027	44.20872	47.20684	56.92251	53.22231	54.28865	53.7903	5.363	5.5067	5.2911	5.363	5.2767	5.2911	4.9172	5.5759	5.3955	5.3695	5.5769	
47543	47573	47543	48.10451	47.07865	40.93645	41.86089	45.8834	44.12317	49.0538	48.27098	48.68638	50.94088	5.2192	5.3198	5.0754	5.1473	5.2192	5.1329	5.1473	4.6297	5.4303	5.2504	5.2251	5.429
47574	47603	47574	43.37933	39.61084	37.99383	36.9425	40.83517	36.73027	46.2997	43.45378	42.29056	38.18801	5.0989	5.1617	4.9029	4.8885	4.9891	4.9316	4.8597	4.3853	5.1612	4.9847	4.9632	5.0863
47604	47634	47604	40.13375	34.60573	42.67058	40.40948	36.72594	27.53035	45.70684	40.71321	43.60652	38.27195	5.061	5.1185	4.8885	4.831	4.9316	4.8741	4.7447	4.3709	5.1035	4.927	4.9057	4.971
47635	47664	47635	44.50917	37.39273	49.10582	43.09274	40.93165	33.86086	50.28303	43.54352	48.50252	42.32186	5.1042	5.1329	4.9604	4.8166	4.9316	4.8741	4.7735	4.4284	5.0901	4.9133	4.8916	5.0017
47665	47695	47665	55.56703	49.84665	56.84324	49.68441	53.08675	46.78891	57.54395	49.86927	57.00475	53.70353	5.1761	5.2048	4.9891	4.831	4.9604	4.9029	4.7591	4.5434	5.1056	4.9284	4.9063	4.9897
47696	47726	47696	56.45338	51.39721	58.72911	50.8244	55.98355	49.33072	61.42887	51.62622	60.56989	55.38659	5.2048	5.4305	5.0323	4.9604	5.0754	4.9891	4.9316	4.5866	5.2302	5.0546	5.0342	5.1555
47727	47756	47727	53.5421	48.83378	53.82664	48.46361	55.15964	48.28154	59.16286	52.1311	59.06353	54.17393	5.1617	5.3342	5.0035	5.0323	5.1042	5.0467	5.0323	4.7447	5.3022	5.1266	5.1062	5.2564
47757	47787	47757	51.65035	46.74883	53.88141	50.09177	53.98766	46.43301	58.68908	53.26668	57.85624	55.29187	5.2048	5.3773	5.0179	5.1042	5.1617	5.061	5.1042	4.7878	5.3075	5.1993	5.1784	5.3308
47788	47817	47788	51.09227	47.95618	44.3348	43.52971	49.72481	45.45146	58.17545	53.72279	55.15785	53.16575	5.3198	5.5499	5.1617	5.3198	5.363	5.2623	5.3055	4.9891	5.597	5.419	5.3959	5.5747
47818	47848	47818	52.60705	49.32757	45.84212	44.83854	47.91858	46.55274	56.57953	54.58948	56.57953	54.58948	5.674	5.7368	5.5499	5.5355	5.6074	5.5067	5.5355	5.2048	5.817	5.6376	5.6129	5.8141
47849	47879	47849	52.29638	48.39914	45.70633	44.34977	50.8294	46.34189	58.54391	53.91601	56.61075	54.49781	5.4956	5.6573	5.4663	5.4516	5.525	5.4222	5.4369	5.0989	5.7372	5.5658	5.5302	5.7243
47880	47907	47880	51.52417	50.14294	45.95776	46.15969	52.19709	48.99539	56.0672	54.74709	56.19851	55.96792	5.5397	5.7014	5.4222	5.4956	5.5691	5.4683	5.4809	5.1724	5.7805	5.6	5.5741	5.7668
47908	47938	47908	49.77977	50.14294	42.43782	43.15434	47.49686	45.47012	50.19967	49.28092	50.30878	52.50368	5.3928	5.525	5.2311	5.3487	5.4075	5.3487	5.334	4.8197	5.7007	5.4518	5.4266	5.6158
47939	47968	47939	45.5654	42.19228	40.3797	39.48653	43.27282	39.33433	48.26223	45.43693	44.56545	40.96984	5.2311	5.334	5.0695	5.0695	5.1577	5.1136	5.0401	4.6434	5.3422	5.1657	5.1442	5.2667
47969	47999	47969	42.24995	36.5578	43.74247	41.50146	38.82505	31.98553	47.50325	42.51687	45.13715	40.27883	5.1871	5.2458	5.0254	4.952	5.0548	4.996	4.8785	4.5993	5.2245	5.048	5.0286	5.1047
48000	48029	48000	46.75589	38.69331	50.90142	44.27245	43.24909	35.30489	52.37271	44.83367	50.61174	44.21851	5.2311	5.2605	5.0695	4.952	5.0548	4.996	4.8932	4.6287	5.2254	5.0487	5.0269	5.1214
48030	48060	48030	57.35442	51.28565	58.36241	51.03651	54.88101	48.15809	58.7924	50.76649	58.88006	55.05671	5.334	5.3634										

49035	49064	49035	50.5875	46.52434	43.3733	43.18766	47.62477	43.26077	52.50871	49.69963	48.7625	45.71811	5.6311	5.835	5.4115	5.6154	5.6625	5.5841	5.537	5.0351	5.8881	5.7116	5.6901	5.7636			
49065	49095	49065	47.08186	41.19246	47.94194	46.03965	43.63547	47.59651	52.24345	47.59651	49.80045	46.69195	5.9997	5.7252	5.3801	5.4586	5.5684	5.5056	5.3488	4.988	5.7311	5.5546	5.5332	5.575			
49096	49125	49096	52.85995	43.38255	55.74182	48.88813	49.33359	40.01697	57.51989	49.62411	55.04554	50.65231	5.6311	5.7252	5.4899	5.4115	5.5527	5.5056	5.3174	5.0194	5.685	5.5082	5.4865	5.5457			
49126	49156	49126	63.30322	56.48793	62.58573	55.40874	50.16254	53.13102	62.40511	54.74319	61.88726	58.89548	5.7095	5.8193	5.5213	5.4745	5.6154	5.537	5.3331	5.0978	5.7488	5.5717	5.5496	5.6377			
49157	49187	49157	63.37647	57.27652	64.94682	56.78409	61.85902	52.44424	66.68834	56.79034	66.6527	61.47261	5.74709	5.9605	5.4899	5.6468	5.7522	5.6311	5.5684	5.1449	5.9166	5.741	5.7207	5.7922			
49188	49217	49188	56.43844	52.76575	56.96397	52.30973	57.9258	52.13705	55.85294	62.48603	59.82782	5.537	5.8193	5.3801	5.537	5.5841	5.4743	5.4899	5.1762	5.8069	5.6313	5.6109	5.714				
49218	49248	49218	55.35256	51.93277	57.17895	53.78777	57.88969	51.39255	62.55783	58.07273	62.49123	61.09008	5.5841	5.8507	5.4115	5.5841	5.6468	5.5527	5.5841	5.2233	5.8552	5.6792	5.6583	5.8107			
49249	49278	49249	54.39167	52.29489	48.02986	47.26941	54.21891	49.89527	61.76721	57.50723	59.21254	57.84644	5.6311	5.9135	5.4899	5.6782	5.788	5.6782	5.788	5.2547	5.9553	5.773	5.7542	6.0573			
49279	49309	49279	58.28368	55.10118	49.91051	49.16705	55.894	51.91891	62.52504	59.98824	61.88787	60.83842	5.9605	6.2272	5.9135	5.9762	6.1644	6.0546	6.1801	5.6468	6.2577	6.0783	6.0536	6.4587			
49310	49340	49310	59.53156	55.82142	50.23922	48.80596	56.26044	52.40975	64.92405	60.88103	61.97103	60.0254	6.0596	6.284	6.0435	6.1077	6.284	6.0435	6.1077	6.284	6.1397	6.3161	5.755	6.3933	6.2126	6.1863	6.6035
49341	49368	49341	58.53653	57.13014	50.41783	50.06779	57.74982	54.55849	64.48781	61.36178	61.51999	61.40151	6.1077	6.3321	6.0275	6.1397	6.3161	6.1397	6.3321	5.771	6.4246	6.2441	6.2182	6.6179			
49369	49399	49369	56.0481	54.32942	47.2671	47.18102	53.05148	50.93357	56.03325	55.64189	54.94172	58.12031	5.9153	6.1397	5.739	5.9474	6.0275	5.9153	5.9955	5.6107	6.2303	6.0505	6.0252	6.2722			
49400	49429	49400	51.16154	46.69928	43.60505	42.88652	48.03297	43.4444	53.4577	50.51304	49.16828	45.47845	5.7229	5.9313	5.4985	5.7229	5.755	5.6586	5.7069	5.3222	5.9956	5.8191	5.7977	5.9335			
49430	49460	49430	47.43174	41.26237	49.04718	47.22895	43.7348	33.89547	53.27327	48.12178	50.70017	47.35696	5.739	5.9153	5.5787	5.6909	5.755	5.6909	5.6107	5.2741	5.9634	5.7869	5.7655	5.837			
49461	49490	49461	51.71912	43.34897	55.49441	49.36495	48.07654	39.42627	57.20624	49.95372	54.58484	50.78994	5.771	5.8832	5.6428	5.5947	5.7229	5.6428	5.5145	5.0977	5.8681	5.6914	5.6697	5.7428			
49491	49521	49491	65.27011	57.81346	64.30777	56.99825	61.82504	54.38187	64.83965	56.6906	63.66724	60.66148	5.8672	5.9955	5.7229	5.7069	5.8351	5.8351	5.7229	5.6107	5.1619	5.9815	5.8044	5.7822	5.8414		
49522	49552	49522	66.08118	58.70115	66.70876	58.02124	63.9835	55.78577	69.76170	58.71059	68.43693	62.78761	5.9153	6.1077	5.7069	5.8351	5.9153	5.7871	5.771	5.3382	6.105	5.9294	5.9029	5.9949			
49553	49582	49553	60.15202	55.12675	59.70361	54.07083	60.9691	54.02603	65.90384	58.2706	66.0849	60.93697	5.739	5.9634	5.5787	5.755	5.7871	5.6588	5.7069	5.3542	6.0249	5.8493	5.8289	5.931			
49583	49613	49583	57.67781	52.92533	59.35016	55.59103	58.84766	51.86208	65.17042	59.60367	63.61763	61.19708	5.755	5.9955	5.5947	5.771	5.8512	5.739	5.771	5.3703	6.0421	5.8693	5.8453	5.9976			
49614	49643	49614	56.77109	53.69737	48.69543	47.33422	54.90105	50.73308	64.12888	59.68184	60.15504	58.78394	5.8191	6.1237	5.7229	5.8672	6.0435	5.9153	6.0435	5.4504	6.1443	5.9664	5.9433	6.3128			
49644	49674	49644	60.25239	56.18713	50.77007	49.70314	67.01007	52.82726	64.27378	61.44845	62.86897	61.53091	6.1397	6.3802	6.0916	6.1397	6.3321	6.2199	6.3321	5.6909	6.4212	6.2418	6.2171	6.6107			
49675	49705	49675	62.09267	58.31065	52.71138	51.21268	58.92868	54.98147	64.02909	64.68797	62.75309	63.076	6.3532	6.2748	6.3895	6.6352	6.5042	6.6352	5.7014	6.6751	6.4944	6.4682	6.9227				
49706	49734	49706	60.52765	58.68563	52.39475	51.82183	59.73144	56.31504	66.61667	62.66305	63.52475	63.2816	6.3567	6.5533	6.2748	6.3567	6.4878	6.3895	6.4878	5.9963	6.6416	6.4611	6.4352	6.7736			
49735	49765	49735	58.14677	55.986	48.86971	48.80047	55.05028	58.3008	57.50883	57.06963	59.72935	61.601	6.3567	6.5963	6.1765	6.2584	6.1437	6.242	5.8816	6.4595	6.2936	6.2544	6.5238				
49766	49795	49766	52.96366	48.24936	45.28445	44.39064	55.34427	44.75006	65.34427	52.6563	51.27927	47.61106	5.9635	6.1274	5.7669	5.9816	5.898	5.8816	5.5376	6.2198	6.0433	6.0219	6.1082				
49796	49826	49796	48.83059	42.77381	50.85653	49.13552	44.68681	53.03066	54.70844	49.90407	52.08208	49.45409	5.9799	6.1274	5.8161	5.9144	5.9635	5.8816	5.8325	5.5048	6.1669	6.0104	5.989	6.0587			
49827	49856	49827	54.93616	45.76332	58.19607	51.69811	51.2481	42.00694	60.18116	52.42397	57.37874	53.42405	6.0127	6.111	5.898	5.7833	5.9471	5.8488	5.7024	5.259	6.0568	5.88	5.8583	5.9297			
49857	49887	49857	67.54379	59.71431	66.29398	58.46952	64.07487	56.20623	66.74017	58.11896	65.70664	62.46857	6.111	6.1929	5.9635	5.8816	6.0454	5.898	5.7669	5.2918	6.1562	5.9791	5.9569	5.9976			
49888	49918	49888	68.79997	62.22178	68.85728	60.41162	66.06633	59.10476	71.85498	60.97876	70.6674	65.08463	6.1601	6.3567	5.9635	6.0946	6.1601	6.0454	5.7669	5.5867	6.3644	6.1888	6.1684	6.2665			
49919	49948	49919	61.56669	56.76662	61.402	55.60048	49.49107	55.56388	67.86531	60.28476	68.15486	63.17457	5.9635	6.1929	5.8161	5.9635	6.0127	5.8816	5.9308	5.5867	6.2335	6.0579	6.0374	6.1549			
49949	49979	49949	60.16444	54.84785	60.94381	57.36022	60.65528	63.10242	67.67464	62.12954	65.58535	63.00098	5.9963	6.2584	5.8325	5.9963	6.0946	5.9709	6.0291	5.6031	6.2674	6.0914	6.0705	6.2527			
49980	50009	49980	60.95795	55.9943	50.63042	49.37993	56.86248	54.59142	66.34436	61.95845	62.32615	60.87114	6.0618	6.3567	5.9635	6.0946	6.2912	6.1601	6.2748	5.7014	6.3717	6.1938	6.1707	6.5441			
50010	50040	50010	61.99058	58.07019	52.32985	51.40665	58.85116	54.52963	66.43587	63.47467	64.85349	63.58008	6.3895	6.5861	6.3567	6.3567	6.5697	6.4386	6.5697	6.8652	6.6382	6.4588	6.4341	6.8483			
50041	50071	50041	64.48739	60.59789	54.42778	52.99709	61.22148	57.07268	70.27556	66.6048	66.82342	64.89555	6.4463	6.7812	6.4129	6.5133	6.7812	6.6473	6.798	5.8603	6.7989	6.8182	6.592	7.0854			
50072	50099	50072	63.64437	61.63689	54.56944	54.08392	62.56295	58.85675	70.08234	66.67052	66.30064	65.72755	6.4966	6.7477	6.4296	6.4798	6.7645	6.6473	6.7812	5.9775	6.7647	6.5842	6.5583	7.0671			
50100	50130	50100	60.66785	58.07848	50.68718	50.35477	57.17713	54.51983	59.98508	58.74775	59.13138	61.10273	6.2956	6.4966	6.145	6.3124	6.4129	6.2956	6.3794	6.0277	6.5953	6.4155	6.3902	6.6617			
50131	50160	50131	56.09483	51.06166	47.73078	47.1259	52.85932	47.56042	57.60223	55.13459	55.29317	50.61089	6.0947	6.2789	5.9105	6.0947	6.1282	5.9943	6.0445	5.7096	6.3674	6.1909	6.1694	6.2711			
50161	50191	50161	52.49713	46.01861	52.43636	50.60833	48.67656	41.38704	57.64287	52.75886	54.47368	51.91188	6.1115	6.2789	5.9608	6.078	6.1282	5.9943	5.9775	6.6929	6.3505	6.174	6.1527	6.2038			
50192	50221	50192	59.11443	48.50319	60.56012	53.72227	55.46148	44.97633	63.68365	55.31879	60.16117	56.13759	6.145	6.2622	6.078	5.9775	6.0947	6.011	5.8603	5.4417	6.251	6.0742	6.0525	6.0886			
50222	50252	50222	70.77617	63.10357	68.31575	60.5089	67.08796	59.49703	69.37543	60.93331	62.12954	65.24824	6.2454	6.3626	6.1282	6.0612	6.1952	6.0445	5.9273	6.4082	6.3358	6.1587	6.1365	6.1579			
50253	50283	50253	71.5378	65.0217	70.74629	62.29544	68.53207	61.69033	74.39442	63.56143	72.66602	67.57568	6.2956	6.5301	6.1115	6.2622	6.3124	6.2119	6.1952	5.8268	6.532	6.3564	6.336	6.418			
50284	50313	50284	65.52538	60.09853	62.99298	57.22034	65.35902	57.87203	70.70881	62.76529	70.3745	65.30274	6.111														

51288	51317	51288	66.72128	55.14205	67.75409	61.07073	62.79382	51.32053	69.94056	61.84782	66.23254	63.96805	6.9194	7.0807	6.8477	6.7043	6.8656	6.7222	6.6505	6.1127	6.9777	6.801	6.7792	6.8787
51318	51348	51318	79.11578	70.19726	75.12924	67.17528	75.1348	66.3149	76.06944	67.23725	73.88316	71.93509	7.0269	7.1883	6.9194	6.8118	6.9731	6.8118	6.7222	6.1486	7.0664	6.9093	6.8871	6.9528
51349	51379	51349	80.70744	71.99599	77.84289	68.94322	76.50374	68.0824	81.30396	69.89927	80.29738	75.06678	7.0807	7.4034	6.9194	7.0628	7.1345	6.9552	7.009	6.5609	7.3326	7.157	7.1366	7.0238
51380	51409	51380	71.36963	66.71697	67.43198	62.73102	69.50742	63.42113	74.71847	68.00382	74.55132	71.39988	6.8656	7.1883	6.7401	6.8118	6.9194	6.7939	6.8297	6.3995	7.0816	6.9061	6.8857	7.0528
51410	51440	51410	70.46354	65.23028	67.35268	64.19221	68.9855	61.58945	76.14588	70.75723	73.77728	71.43861	6.8835	7.2779	6.758	6.8656	7.1524	7.009	7.1524	6.4533	7.1367	6.9607	6.9398	7.379
51441	51470	51441	68.81008	65.47198	59.57785	57.3911	67.31684	62.0281	75.68705	70.73164	71.80676	70.21535	6.9731	7.2854	6.9731	6.9731	7.4034	7.26	7.4571	6.5788	7.2503	7.1303	7.0723	7.0492
51471	51501	51471	72.40498	68.66727	61.36389	60.26631	68.74186	64.80317	76.20211	73.96237	74.41132	73.8657	7.3317	7.744	7.4392	7.3317	7.7619	7.6185	7.8336	6.9373	7.6131	7.4338	7.4091	8.1121
51502	51532	51502	74.00945	69.84277	62.54974	61.49468	61.49468	65.88016	79.39043	74.25243	75.99948	73.89223	7.4086	7.8671	7.482	7.482	8.3004	7.6837	7.647	7.851	7.7676	7.5869	7.5606	7.9444
51533	51560	51533	73.74988	71.43774	62.61434	62.10991	71.32236	67.55113	78.96058	74.64966	74.55959	75.11272	7.4636	7.7937	7.4453	7.5003	7.9221	7.757	8.0138	7.0969	7.7852	7.6047	7.5787	8.2996
51561	51591	51561	68.51509	66.23415	58.40407	58.85189	64.69241	62.30762	67.08352	66.58714	65.94075	70.318	7.2436	7.482	7.1152	7.2619	7.4453	7.3169	7.4453	6.9318	7.5449	7.365	7.3397	7.727
51592	51621	51592	64.1125	58.07649	54.33388	53.55726	60.2072	54.23323	64.99935	61.57488	60.27619	57.53454	7.0052	7.2069	6.8401	6.9868	7.0602	6.9318	7.0052	6.6384	7.2595	7.083	7.0615	7.2317
51622	51652	51622	61.78302	53.21507	60.31627	58.43134	67.74062	48.69781	65.65678	60.45461	62.18177	61.42339	7.0235	7.2252	6.9135	7.0052	7.0418	6.9135	6.9318	6.6201	7.2777	7.1012	7.0798	7.518
51653	51682	51653	68.25587	56.41032	69.31243	62.47536	64.23808	52.5009	71.54919	63.27032	67.75589	65.43932	7.0785	7.2436	7.0052	6.8585	7.0235	6.8768	6.8034	6.2533	7.1319	6.9552	6.9334	7.0317
51683	51713	51683	80.93544	71.8118	76.85722	68.72031	76.8629	67.84014	77.81904	68.78371	75.58247	73.5896	7.1885	7.3536	7.0785	6.9685	7.1335	6.9685	6.8768	6.29	7.2431	7.0659	7.0438	7.1074
51714	51744	51714	82.56371	73.6519	79.63328	70.52892	78.4676	69.6512	83.17395	71.30235	82.14422	76.79332	7.2436	7.5736	7.0785	7.2252	7.2986	7.1152	7.1702	6.7118	7.495	7.3195	7.2991	7.3941
51745	51774	51745	73.01113	68.25146	68.96292	64.17384	71.15041	64.87981	76.437	69.56791	76.266	73.04208	7.0235	7.3536	6.8951	6.9685	7.0785	6.9501	6.9868	6.5467	7.2384	7.0628	7.0424	7.2109
51775	51805	51775	72.0842	66.73058	68.90179	65.66863	70.57217	63.00601	77.89723	72.38464	75.47416	73.0817	7.0418	7.4453	6.9135	7.0235	7.3169	7.1702	7.3169	6.6017	7.2946	7.1186	7.0978	7.5435
51806	51835	51806	70.39272	66.97784	60.94814	58.71109	68.86513	63.45475	77.42785	72.35847	73.45831	71.8303	7.1335	7.5553	7.1335	7.1335	7.5736	7.4269	6.6287	6.7301	7.4107	7.2327	7.2096	7.8979
51836	51866	51836	74.0703	70.24662	62.77526	61.65244	70.32292	66.29364	77.95476	75.66351	76.12278	75.56461	7.5003	7.9221	7.6103	7.5003	7.9404	7.7937	8.0138	7.0969	7.7818	7.6024	7.5777	8.2923
51867	51897	51867	75.71166	71.44915	63.98838	62.90906	71.89977	67.3954	81.21641	75.96024	77.74747	75.59175	7.579	8.048	7.654	7.654	8.0105	7.8604	7.8229	6.9412	7.9397	7.759	7.7327	8.1103
51898	51925	51898	75.44613	73.0808	64.05447	63.53844	72.96278	69.10481	80.77667	76.3666	76.27447	76.84032	7.6353	7.973	7.6165	7.628	8.1043	7.6584	8.1981	7.2601	7.9577	7.7772	7.7512	8.4839
51926	51956	51926	70.09093	67.75754	59.74737	60.20548	66.18033	63.7407	68.62644	68.11864	67.45739	71.93532	7.1602	7.654	7.2788	7.4289	7.6165	7.4852	7.6165	7.0912	7.7119	7.532	7.5068	7.8983
51957	51986	51957	65.58709	59.41225	55.58356	54.78908	61.59197	55.48059	66.49434	62.9911	61.66254	58.85784	7.1163	7.3726	6.9974	7.1475	7.2226	7.0912	7.1663	6.7911	7.4202	7.2437	7.2222	7.3929
51987	52017	51987	63.20403	54.43901	61.70354	59.77526	59.06665	49.81786	67.16689	61.84506	63.61195	62.83612	7.185	7.3914	7.0725	7.1663	7.2038	7.0725	7.0912	6.7723	7.4388	7.2623	7.241	7.3175
52018	52047	52018	69.82575	57.70776	70.90662	63.91229	65.71555	53.70842	73.19482	64.72554	69.31428	66.94442	7.2413	7.4102	7.1663	7.0162	7.185	7.035	6.9599	6.3971	7.2897	7.1129	7.0912	7.1882
52048	52078	52048	82.79696	73.46347	78.62493	70.30088	78.63074	69.40047	79.60887	70.36573	73.32087	75.28216	7.3539	7.5227	7.2413	7.1288	7.2976	7.1288	7.035	6.4366	7.4033	7.2262	7.2041	7.2656
52079	52109	52079	84.46268	75.34589	81.46484	72.15108	85.08695	72.94231	84.03354	78.59566	74.1027	74.7478	7.2413	7.3914	7.1288	7.3914	7.4664	7.2788	7.3351	8.8661	7.6012	7.4856	7.4653	7.559
52110	52139	52110	74.69038	69.82124	70.56952	65.64983	72.78687	66.37206	78.19505	71.16797	78.02012	74.72205	7.185	7.5227	7.0537	7.1288	7.2413	7.11	7.1475	6.6973	7.3987	7.2231	7.2027	7.7116
52140	52170	52140	73.74214	68.26538	70.48653	67.17901	72.19533	64.45515	79.68887	74.04949	77.21006	74.76258	7.2038	7.6165	7.0725	7.185	7.4852	7.3351	7.4852	6.7536	7.4562	7.2802	7.2593	7.716
52171	52200	52171	72.01174	68.51833	62.34995	60.06145	70.44030	64.91421	79.20869	74.02271	75.14786	73.4824	7.2976	7.7291	7.2976	7.2976	7.7478	7.5978	7.8041	6.8849	7.5747	7.3968	7.3737	8.0734
52201	52231	52201	75.77391	71.86229	64.21909	63.07044	71.94035	67.8184	79.74772	77.40376	77.8736	76.262	7.6728	8.1043	7.7854	7.6728	8.123	7.973	7.8191	7.2601	7.9543	7.7749	7.7502	8.4766
52232	52262	52232	77.45303	73.09248	65.46011	64.35596	73.55347	68.9455	83.08438	77.70732	79.53566	77.33036	7.7533	8.2331	7.8301	7.8301	8.1947	8.0412	8.0028	7.1008	8.1157	7.935	7.9087	8.2902
52263	52290	52263	77.18139	74.76167	65.52773	64.99982	74.64092	70.69422	82.63454	78.12303	78.02878	78.06764	7.8109	8.1563	7.7917	7.8493	8.2907	8.118	8.3866	7.4271	8.1341	7.9537	7.9277	8.6724
52291	52321	52291	71.70303	69.31596	61.12156	61.59021	67.70248	65.20673	70.20485	69.88537	69.0809	73.58983	7.5806	7.8301	7.4463	7.5998	7.7917	7.6574	7.7917	7.2543	7.8827	7.7029	7.6776	8.0734
52322	52351	52322	67.0956	60.77873	56.86198	56.04923	63.00858	56.75665	68.02371	64.4399	63.08078	60.21157	7.3311	7.542	7.3311	7.3887	7.2543	7.3311	6.9473	7.5846	7.4021	7.3866	7.577	8.5577
52352	52382	52352	64.65772	55.69111	63.12272	61.15009	60.42752	50.96367	68.71173	63.2675	65.07502	64.28136	7.3503	7.5614	7.2351	7.3311	7.3695	7.2351	7.2543	6.9281	7.6036	7.4272	7.4058	7.4806
52383	52412	52383	71.43175	59.03503	72.53748	65.38227	67.22701	54.94372	74.8783	66.21423	70.9085	68.48414	7.4079	7.5806	7.3311	7.1776	7.3503	7.1988	7.12	6.5443	7.451	7.2743	7.2525	7.4483
52413	52443	52413	84.70129	78.15313	80.4333	71.9178	80.43925	70.99667	81.43988	71.98415	79.09925	77.01365	7.523	7.6957	7.4079	7.2927	7.4645	7.2927	7.1968	6.5826	7.5673	7.3902	7.368	7.424
52444	52474	52444	86.40532	77.07885	83.33853	73.81055	82.11861	72.892	87.04395	74.61998	85.96631	80.36643	7.5806	7.926	7.4079	7.5614	7.6382	7.4463	7.5038	7.024	7.8312	7.6557	7.6353	7.7277
52475	52504	52475	76.40826	71.42713	72.19262	67.15977	72.19262	67.15977	77.89861	79.99353	72.80483	72.80483	7.3503	7.6957	7.216	7.2927	7.4079	7.2735	7.3119	6.8513	7.5612	7.3871	7.3666	7.5366
52505	52535	52505	75.43821	69.83548	72.10772	68.72413	73.85582	65.93761	81.52171	75.75263	78.98589	76.48212	7.3695	7.7917	7.2351	7.3503	7.6574	7.5038	7.6574	6.9089	7.6214	7.4454	7.4245	7.884
52536	52565	52536	73.66801	67.70776	63.784	61.44286	72.06335	66.40723	81.03049	75.72523	76.87626	75.17249	7.4654	7.9068										

07/01/21	07/31/21	Jul 2021	35.19	23.57	38.40	27.47	30.35	21.83	39.70	32.34	38.89	32.28	3.07	3.55	3.03	2.97	3.00	2.98	2.92	2.58	3.23	3.11	3.06	3.14
08/01/21	08/31/21	Aug 2021	37.31	30.78	37.80	29.67	35.12	26.60	40.76	34.64	39.24	34.02	3.10	3.57	3.09	3.01	3.06	3.03	2.91	2.57	3.27	3.14	3.09	3.13
09/01/21	09/30/21	Sep 2021	35.80	31.01	33.60	29.18	33.53	31.37	38.64	32.63	36.48	33.15	3.11	3.39	3.08	3.01	3.06	3.03	2.96	2.63	3.27	3.14	3.10	3.18
10/01/21	10/31/21	Oct 2021	34.22	29.44	33.65	29.44	32.89	27.03	41.83	34.16	37.21	33.99	3.14	3.33	3.09	3.04	3.09	3.06	2.99	2.67	3.31	3.18	3.13	3.22
11/01/21	11/30/21	Nov 2021	36.05	29.95	32.28	28.95	33.98	30.28	41.83	35.09	38.95	33.99	3.22	3.53	3.25	3.23	3.26	3.24	3.49	2.80	3.50	3.37	3.32	3.74
12/01/21	12/31/21	Dec 2021	38.79	31.97	33.37	29.94	35.89	30.75	42.94	37.85	40.69	37.32	3.38	3.72	3.44	3.44	3.43	3.40	3.89	2.94	3.72	3.59	3.53	4.17
01/01/22	01/31/22	Jan 2022	36.99	32.18	34.90	31.37	33.76	29.24	43.25	35.37	40.16	34.52	3.53	3.89	3.58	3.57	3.56	3.53	3.85	3.11	3.85	3.72	3.67	4.12
02/01/22	02/28/22	Feb 2022	36.42	30.95	34.38	30.64	33.01	28.57	42.17	34.49	39.48	33.65	3.51	3.85	3.57	3.55	3.55	3.51	3.66	3.10	3.83	3.70	3.65	3.93
03/01/22	03/31/22	Mar 2022	34.14	29.73	32.28	29.19	33.73	27.24	38.93	32.74	36.76	32.78	3.45	3.78	3.51	3.49	3.48	3.45	3.62	3.06	3.77	3.63	3.58	3.88
04/01/22	04/30/22	Apr 2022	31.33	26.14	28.02	24.21	27.85	19.99	32.07	28.87	28.81	28.63	3.17	3.43	3.13	3.16	3.05	3.03	2.89	2.81	3.43	3.30	3.25	3.11
05/01/22	05/31/22	May 2022	29.11	21.97	31.35	27.33	24.88	19.06	35.88	29.05	33.65	29.48	3.41	3.58	3.30	3.24	3.29	3.23	3.06	2.71	3.50	3.37	3.33	3.28
06/01/22	06/30/22	Jun 2022	31.92	23.56	34.45	28.36	27.10	19.30	39.08	30.47	36.20	29.92	3.43	3.61	3.34	3.24	3.31	3.24	3.06	2.71	3.51	3.38	3.33	3.28
07/01/22	07/31/22	Jul 2022	38.07	27.52	40.71	31.53	33.93	25.14	44.27	35.87	42.75	35.30	3.47	3.75	3.37	3.28	3.37	3.30	3.18	2.74	3.55	3.42	3.37	3.40
08/01/22	08/31/22	Aug 2022	41.26	32.31	41.29	32.97	38.36	28.67	46.25	37.55	44.17	36.79	3.50	3.79	3.41	3.36	3.43	3.37	3.25	2.75	3.63	3.50	3.45	3.47
09/01/22	09/30/22	Sep 2022	40.76	33.87	37.15	32.29	38.29	32.61	43.39	36.28	41.35	36.02	3.52	3.73	3.42	3.39	3.45	3.39	3.31	2.89	3.66	3.53	3.48	3.53
10/01/22	10/31/22	Oct 2022	37.79	31.88	36.72	32.49	35.43	29.11	43.88	36.95	40.82	36.18	3.55	3.71	3.44	3.42	3.48	3.42	3.33	2.94	3.69	3.56	3.52	3.56
11/01/22	11/30/22	Nov 2022	40.39	33.20	37.38	32.82	37.57	31.76	44.76	37.97	42.50	36.93	3.68	3.93	3.61	3.64	3.69	3.63	3.69	3.18	3.92	3.79	3.74	3.96
12/01/22	12/31/22	Dec 2022	42.60	35.47	38.40	34.10	39.58	33.26	45.84	40.19	43.85	39.43	3.88	4.12	3.87	3.86	3.89	3.82	4.03	3.35	4.15	4.02	3.96	4.31
01/01/23	01/31/23	Jan 2023	42.32	35.60	40.71	36.20	38.84	32.45	47.22	40.16	44.88	39.22	4.09	4.36	4.10	4.06	4.10	4.04	4.13	3.56	4.35	4.22	4.16	4.41
02/01/23	02/28/23	Feb 2023	42.88	36.00	40.74	36.09	39.36	33.13	46.76	39.83	44.82	39.06	4.09	4.33	4.06	4.04	4.08	3.99	4.02	3.56	4.32	4.19	4.13	4.31
03/01/23	03/31/23	Mar 2023	38.14	33.17	37.63	34.06	34.69	30.29	42.99	37.22	41.50	37.29	3.90	4.12	3.86	3.83	3.88	3.82	3.86	3.82	3.99	3.93	3.94	4.14
04/01/23	04/30/23	Apr 2023	35.31	30.35	34.35	30.89	31.87	25.69	38.25	33.51	36.44	34.43	3.63	3.80	3.51	3.52	3.51	3.46	3.33	2.99	3.80	3.67	3.62	3.55
05/01/23	05/31/23	May 2023	31.47	25.36	36.02	32.60	28.46	22.61	40.10	34.20	39.35	35.79	3.82	3.90	3.64	3.59	3.69	3.61	3.41	3.22	3.88	3.66	3.63	3.63
06/01/23	06/30/23	Jun 2023	36.86	27.74	39.77	33.72	33.61	24.89	44.80	36.36	43.21	36.68	3.83	3.91	3.69	3.57	3.70	3.59	3.41	2.88	3.84	3.71	3.66	3.63
07/01/23	07/31/23	Jul 2023	40.94	31.47	43.02	35.60	37.51	28.45	48.83	39.41	46.60	38.32	3.86	3.95	3.70	3.59	3.73	3.63	3.43	2.89	3.86	3.73	3.68	3.66
08/01/23	08/31/23	Aug 2023	45.21	33.85	44.79	36.27	41.80	30.73	51.74	40.46	49.11	39.55	3.90	4.01	3.73	3.72	3.80	3.72	3.58	2.93	3.99	3.86	3.81	3.81
09/01/23	09/30/23	Sep 2023	45.73	36.74	40.71	35.39	43.05	33.85	48.14	39.93	46.23	38.89	3.93	4.06	3.77	3.77	3.84	3.74	3.65	3.16	4.04	3.91	3.86	3.88
10/01/23	10/31/23	Oct 2023	41.36	34.32	39.79	35.54	37.97	31.20	45.93	39.73	44.43	38.96	3.95	4.10	3.79	3.80	3.88	3.77	3.67	3.20	4.07	3.94	3.89	3.90
11/01/23	11/30/23	Nov 2023	44.74	36.45	42.49	36.70	41.16	33.23	47.69	40.86	46.04	39.86	4.14	4.32	3.96	4.06	4.12	4.02	3.90	3.56	4.34	4.21	4.16	4.17
12/01/23	12/31/23	Dec 2023	46.41	38.98	43.43	38.27	43.27	35.77	48.74	42.54	47.01	41.55	4.38	4.58	4.30	4.26	4.35	4.23	4.17	3.77	4.57	4.44	4.38	4.45
01/01/24	01/31/24	Jan 2024	47.65	39.03	46.52	41.04	43.92	35.67	51.18	44.94	49.61	43.92	4.65	4.82	4.61	4.55	4.64	4.56	4.41	4.00	4.84	4.70	4.65	4.69
02/01/24	02/29/24	Feb 2024	49.34	41.05	47.11	41.54	45.72	37.68	51.36	45.16	50.16	44.47	4.66	4.81	4.55	4.52	4.61	4.47	4.38	4.02	4.81	4.68	4.62	4.67
03/01/24	03/31/24	Mar 2024	42.14	36.61	42.98	38.94	38.64	33.34	47.06	41.70	46.24	41.80	4.36	4.46	4.22	4.18	4.27	4.10	3.70	4.47	4.34	4.28	4.39	
04/01/24	04/30/24	Apr 2024	39.29	34.56	40.69	37.57	35.89	31.38	44.44	38.15	44.07	40.23	4.08	4.17	3.89	3.89	3.97	3.90	3.76	3.18	4.16	4.03	3.98	3.99
05/01/24	05/31/24	May 2024	33.13	26.76	38.08	34.57	30.01	23.91	41.69	35.32	41.00	37.37	4.09	4.17	3.92	3.86	3.97	3.89	3.62	3.20	4.13	4.00	3.95	3.84
06/01/24	06/30/24	Jun 2024	38.28	29.81	41.59	36.09	34.92	26.83	45.95	38.13	44.69	38.76	4.13	4.19	3.98	3.86	3.95	3.88	3.65	3.21	4.13	4.00	3.96	3.87
07/01/24	07/31/24	Jul 2024	44.55	34.24	46.49	38.19	40.92	31.07	51.84	41.67	49.74	40.78	4.17	4.22	3.99	3.89	3.98	3.89	3.66	3.32	4.16	4.03	3.98	3.89
08/01/24	08/31/24	Aug 2024	49.52	37.45	48.34	39.20	45.71	34.13	54.66	43.07	51.98	42.11	4.19	4.31	4.02	4.02	4.09	3.99	3.84	4.29	4.16	4.11	4.06	4.06
09/01/24	09/30/24	Sep 2024	50.01	40.75	46.00	38.88	47.45	37.77	51.82	42.70	49.91	41.95	4.22	4.37	4.08	4.08	4.14	4.04	3.95	3.56	4.35	4.22	4.17	4.18
10/01/24	10/31/24	Oct 2024	46.01	37.88	45.46	39.58	42.48	34.59	50.63	42.45	48.58	42.52	4.42	4.57	4.27	4.29	4.34	4.28	4.16	3.74	4.57	4.44	4.39	4.38
11/01/24	11/30/24	Nov 2024	49.68	40.25	47.92	41.27	45.91	36.85	53.14	44.65	50.86	44.20	4.74	4.90	4.56	4.65	4.69	4.62	4.47	4.23	4.93	4.80	4.74	4.74
12/01/24	12/31/24	Dec 2024	49.46	41.89	46.63	41.29	46.09	38.51	51.75	44.44	49.70	44.24	4.65	4.76	4.55	4.50	4.56	4.48	4.26	4.05	4.78	4.65	4.59	4.53
01/01/25	01/31/25	Jan 2025	50.10	41.32	48.70	43.49	46.22	37.81	53.31	45.87	51.19	45.92	4.85	5.00	4.80	4.75	4.80	4.71	4.58	4.25	5.04	4.91	4.85	4.87
02/01/25	02/28/25	Feb 2025	52.31	44.00	49.33	44.37	48.56	40.49	52.81	45.50	51.90	46.83	4.88	5.02	4.78	4.76	4.83	4.74	4.65	4.27	5.05	4.92	4.86	4.93
03/01/25	03/31/25	Mar 2025	45.39	39.55	45.72	41.96	41.73	36.12	49.55	43.05	48.27	44.18	4.72	4.81	4.61	4.54	4.62	4.54	4.47	4.05	4.83	4.70	4.64	4.75
04/01/25	04/30/25	Apr 2025	43.09	37.64	44.10	40.50	39.51	34.34	47.30	41.33	46.88	42.57	4.57	4.67	4.39	4.39	4.47	4.40	4.25	3.60	4.66	4.53	4.48	4.47
05/01/25	05/31/25	May 2025	34.80	28.51	39.87	36.45	31.57	25.55	43.11	36.63	42.26	38.74	4.38	4.44	4.21	4.14	4.22	4.16	3.90	3.52	4.41	4.28	4.23	4.12
06/01/25	06/30/25	Jun 2025	41.10	31.62	44.20	38.04	37.59	28.52	48.57	39.33	46.64	40.31	4.40	4.45	4.26	4.13	4.21	4.14	3.85	3.50	4.40	4.27	4.22	4.07
07/01/25	07/31/25	Jul 2025	47.13	36.39	48.94	40.18	43.36	33.08	53.84	42.98	51.44	42.31	4.44	4.51	4.30	4.17	4.26	4.17	3.91	3.59	4.44	4.31	4.26	4.13
08/0																								

08/01/27	08/31/27	Aug 2027	57.12	44.34	55.56	46.15	52.93	40.62	60.98	47.61	58.15	48.48	4.79	4.91	4.61	4.50	4.61	4.56	4.34	4.02	4.77	4.64	4.59	4.57
09/01/27	09/30/27	Sep 2027	56.23	46.65	52.31	45.30	54.09	43.55	56.93	46.58	55.09	47.45	4.76	4.93	4.61	4.50	4.60	4.54	4.40	4.17	4.77	4.64	4.59	4.62
10/01/27	10/31/27	Oct 2027	51.34	43.02	50.62	44.67	47.68	39.55	54.81	46.04	53.57	46.93	4.79	5.04	4.62	4.62	4.69	4.62	4.56	4.21	4.90	4.77	4.72	4.79
11/01/27	11/30/27	Nov 2027	55.13	45.77	52.81	45.88	51.22	42.10	56.56	47.52	54.74	47.74	4.95	5.23	4.76	4.83	4.93	4.87	4.73	4.54	5.10	4.97	4.92	5.00
12/01/27	12/31/27	Dec 2027	56.82	47.92	54.49	47.87	53.49	44.21	57.42	49.55	56.42	49.69	5.26	5.42	5.22	5.14	5.20	5.14	5.10	4.61	5.42	5.29	5.23	5.37
01/01/28	01/31/28	Jan 2028	53.77	44.64	53.04	46.92	49.85	41.20	56.93	48.93	55.09	48.69	5.26	5.28	5.14	5.00	5.06	4.96	4.97	4.53	5.29	5.16	5.10	5.26
02/01/28	02/29/28	Feb 2028	56.04	46.64	53.56	48.34	52.59	43.83	56.25	49.05	56.15	50.34	5.14	5.29	5.11	5.02	5.10	5.00	5.00	4.55	5.30	5.17	5.11	5.29
03/01/28	03/31/28	Mar 2028	48.71	40.66	49.89	45.39	45.47	38.86	53.77	46.72	52.56	47.25	5.00	5.07	4.86	4.82	4.91	4.84	4.74	4.29	5.11	4.98	4.92	5.02
04/01/28	04/30/28	Apr 2028	46.02	40.43	47.17	43.72	42.69	37.30	51.01	44.91	49.85	45.51	4.85	4.92	4.66	4.64	4.73	4.68	4.57	4.09	4.92	4.79	4.74	4.80
05/01/28	05/31/28	May 2028	41.04	33.11	45.54	41.24	37.41	29.83	49.68	41.44	48.03	43.18	4.85	4.88	4.70	4.57	4.67	4.63	4.41	4.11	4.84	4.71	4.66	4.63
06/01/28	06/30/28	Jun 2028	47.45	36.36	49.73	43.08	43.54	32.96	55.03	44.15	52.42	44.96	4.89	4.92	4.77	4.56	4.67	4.60	4.44	4.13	4.84	4.70	4.65	4.66
07/01/28	07/31/28	Jul 2028	52.42	42.58	54.43	46.40	48.30	38.89	59.37	47.82	56.85	48.30	4.96	4.99	4.82	4.62	4.73	4.66	4.49	4.26	4.88	4.75	4.71	4.72
08/01/28	08/31/28	Aug 2028	58.53	45.43	57.26	47.47	54.38	41.66	62.84	49.18	59.82	49.70	5.00	5.10	4.82	4.73	4.82	4.74	4.67	4.29	5.00	4.87	4.82	4.90
09/01/28	09/30/28	Sep 2028	57.16	47.76	53.13	46.54	55.76	45.03	57.64	48.65	56.07	48.91	4.95	5.08	4.84	4.73	4.81	4.71	4.68	4.46	5.00	4.87	4.82	4.91
10/01/28	10/31/28	Oct 2028	53.08	43.62	51.76	45.72	49.69	40.91	56.35	47.61	54.95	48.02	4.99	5.17	4.88	4.82	4.89	4.80	4.77	4.52	5.09	4.96	4.91	5.00
11/01/28	11/30/28	Nov 2028	56.23	45.99	53.89	46.54	52.41	42.37	58.08	49.05	55.88	48.47	5.11	5.32	5.00	4.99	5.10	5.02	5.03	4.78	5.27	5.14	5.08	5.30
12/01/28	12/31/28	Dec 2028	57.91	49.09	55.70	49.31	54.89	45.49	59.07	50.95	57.76	51.18	5.40	5.57	5.37	5.29	5.35	5.25	5.26	4.92	5.57	5.44	5.39	5.54
01/01/29	01/31/29	Jan 2029	56.97	47.01	55.75	48.96	53.11	43.30	60.18	51.70	58.05	51.01	5.42	5.59	5.39	5.36	5.42	5.30	5.33	4.92	5.65	5.52	5.46	5.62
02/01/29	02/28/29	Feb 2029	59.37	49.54	55.97	50.55	56.16	46.43	59.64	52.05	58.91	52.83	5.46	5.61	5.37	5.37	5.44	5.35	5.37	4.92	5.66	5.53	5.47	5.66
03/01/29	03/31/29	Mar 2029	52.16	43.70	52.02	47.59	48.87	41.35	56.50	49.58	55.23	49.64	5.28	5.37	5.15	5.16	5.23	5.14	5.14	4.64	5.45	5.32	5.26	5.42
04/01/29	04/30/29	Apr 2029	49.19	42.92	49.21	45.47	45.94	39.97	53.82	47.62	52.76	47.70	5.09	5.16	4.94	4.88	4.98	4.92	4.85	4.33	5.15	5.02	4.97	5.08
05/01/29	05/31/29	May 2029	42.93	35.16	46.27	42.35	39.19	31.76	51.44	43.40	49.51	44.53	4.94	4.95	4.78	4.67	4.77	4.71	4.52	4.26	4.94	4.81	4.76	4.73
06/01/29	06/30/29	Jun 2029	46.98	36.73	49.21	43.35	43.05	33.29	54.82	44.83	52.45	45.44	4.98	4.99	4.84	4.66	4.77	4.71	4.53	4.28	4.92	4.79	4.75	4.75
07/01/29	07/31/29	Jul 2029	53.12	43.05	54.80	46.88	48.92	39.30	60.28	48.60	57.46	48.91	5.02	5.05	4.85	4.67	4.80	4.70	4.54	4.32	4.94	4.81	4.76	4.77
08/01/29	08/31/29	Aug 2029	60.44	46.62	58.09	48.35	56.26	42.76	64.42	50.22	61.07	50.49	5.06	5.15	4.87	4.78	4.88	4.80	4.74	4.38	5.05	4.92	4.87	4.97
09/01/29	09/30/29	Sep 2029	58.41	48.86	54.35	47.29	56.66	45.97	60.21	50.55	57.80	50.11	4.94	5.14	4.83	4.73	4.83	4.71	4.67	4.49	5.00	4.87	4.82	4.90
10/01/29	10/31/29	Oct 2029	52.82	43.36	51.85	45.46	49.08	40.36	57.62	48.42	55.81	48.26	4.98	5.21	4.85	4.83	4.91	4.80	4.77	4.53	5.10	4.97	4.92	5.00
11/01/29	11/30/29	Nov 2029	55.21	45.80	54.20	47.00	51.08	42.05	59.12	50.17	56.60	48.99	5.09	5.37	5.01	5.05	5.11	5.02	5.04	4.76	5.33	5.20	5.15	5.30
12/01/29	12/31/29	Dec 2029	58.04	49.54	55.64	49.20	54.86	45.87	59.63	51.85	58.01	51.20	5.37	5.53	5.35	5.29	5.37	5.26	5.29	4.88	5.57	5.44	5.39	5.57
01/01/30	01/31/30	Jan 2030	56.67	45.43	55.79	49.40	53.50	43.60	60.76	52.55	58.58	51.60	5.49	5.65	5.51	5.42	5.51	5.41	5.42	5.00	5.71	5.58	5.52	5.71
02/01/30	02/28/30	Feb 2030	57.84	45.73	55.95	50.60	57.69	46.93	60.24	52.61	59.69	53.24	5.54	5.68	5.52	5.46	5.54	5.43	5.45	5.08	5.75	5.62	5.56	5.73
03/01/30	03/31/30	Mar 2030	50.51	43.65	52.82	48.61	49.70	42.77	57.67	50.06	56.11	50.72	5.38	5.48	5.23	5.29	5.38	5.28	5.29	4.77	5.58	5.45	5.39	5.57
04/01/30	04/30/30	Apr 2030	48.37	42.69	49.82	46.96	46.97	40.86	54.27	47.78	53.34	49.02	5.23	5.32	5.05	5.03	5.13	5.08	5.00	4.51	5.31	5.17	5.12	5.23
05/01/30	05/31/30	May 2030	43.48	35.38	47.00	43.54	39.70	31.93	52.42	43.88	50.49	45.71	5.22	5.28	5.05	4.97	5.08	5.03	4.89	4.50	5.24	5.11	5.06	5.11
06/01/30	06/30/30	Jun 2030	48.86	38.40	51.02	45.23	44.94	35.05	57.09	46.70	54.70	47.51	5.26	5.29	5.10	4.96	5.08	5.02	4.92	4.56	5.23	5.10	5.05	5.14
07/01/30	07/31/30	Jul 2030	55.73	44.31	56.73	48.09	51.44	40.53	62.96	50.70	60.03	50.36	5.33	5.36	5.15	4.97	5.10	5.05	4.90	4.69	5.24	5.11	5.07	5.13
08/01/30	08/31/30	Aug 2030	62.52	48.21	59.96	49.78	58.63	44.43	66.96	52.43	63.50	52.37	5.36	5.46	5.18	5.12	5.22	5.13	5.09	4.72	5.39	5.26	5.21	5.32
09/01/30	09/30/30	Sep 2030	61.07	50.02	56.74	49.22	60.43	48.65	63.25	53.28	60.93	52.79	5.32	5.49	5.15	5.19	5.26	5.19	5.19	4.89	5.46	5.33	5.28	5.42
10/01/30	10/31/30	Oct 2030	54.68	43.57	54.35	48.20	53.00	44.02	60.91	51.42	58.73	51.55	5.35	5.55	5.18	5.28	5.32	5.22	5.26	4.93	5.53	5.40	5.35	5.49
11/01/30	11/30/30	Nov 2030	58.68	47.44	56.96	49.96	55.25	44.89	62.14	53.15	59.47	52.04	5.48	5.72	5.32	5.48	5.52	5.42	5.48	5.13	5.76	5.63	5.57	5.73
12/01/30	12/31/30	Dec 2030	60.63	50.51	58.11	52.03	58.64	48.13	62.87	54.94	60.88	54.15	5.77	5.91	5.72	5.71	5.77	5.68	5.69	5.36	5.99	5.86	5.80	5.97
01/01/31	01/31/31	Jan 2031	56.84	45.65	57.95	50.99	56.48	45.87	63.16	54.26	60.90	53.29	5.66	5.83	5.63	5.61	5.69	5.58	5.60	5.25	5.90	5.77	5.71	5.88
02/01/31	02/28/31	Feb 2031	57.50	46.68	57.98	52.40	60.63	49.53	62.78	54.55	61.90	55.22	5.70	5.86	5.58	5.66	5.73	5.63	5.64	5.32	5.95	5.81	5.76	5.93
03/01/31	03/31/31	Mar 2031	50.29	44.26	54.89	50.42	51.95	44.97	59.76	51.95	58.12	52.51	5.54	5.69	5.39	5.51	5.57	5.50	5.50	4.95	5.80	5.66	5.61	5.78
04/01/31	04/30/31	Apr 2031	48.84	43.23	51.19	48.32	48.89	42.52	56.26	49.40	54.77	50.35	5.39	5.50	5.22	5.22	5.32	5.26	5.19	4.78	5.49	5.36	5.31	5.41
05/01/31	05/31/31	May 2031	44.80	36.42	48.12	44.58	40.98	32.93	54.04	45.19	51.83	46.94	5.33	5.39	5.17	5.10	5.20	5.14	5.03	4.75	5.36	5.23	5.19	5.24
06/01/31	06/30/31	Jun 2031	50.30	39.96	52.79	46.49	47.09	36.65	59.41	48.44	56.83	49.01	5.38	5.41	5.23	5.10	5.20	5.14	5.04	4.76	5.37	5.24	5.19	5.26
07/01/31	07/31/31	Jul 2031	57.26	45.43	58.60	49.62	53.38	42.14	65.35	52.47	62.22	52.08	5.48	5.53	5.32	5.14	5.28	5.22	5.05	4.85	5.41	5.28	5.23	5.28
08/01/31	08/31/31	Aug 2031	63.55	49.66	61.62	51.64	60.30	46.56	69.25	54.94	65.60	54.72	5.53	5.63	5.32	5.26	5.36	5.30	5.25	4.89	5.53	5.40	5.35	5.47

09/01/33	09/30/33	Sep 2033	61.90	50.62	59.48	51.62	63.52	51.91	67.34	55.77	64.04	55.39	5.65	5.91	5.46	5.62	5.68	5.56	5.56	5.28	5.89	5.76	5.71	5.78
10/01/33	10/31/33	Oct 2033	55.96	46.33	58.02	52.08	56.72	48.02	65.02	54.71	62.54	55.46	5.68	5.96	5.48	5.68	5.74	5.65	5.68	5.33	5.95	5.82	5.77	5.91
11/01/33	11/30/33	Nov 2033	61.79	48.56	60.85	53.16	61.09	48.95	67.15	56.48	63.48	55.38	5.80	6.09	5.65	5.85	5.94	5.83	5.92	5.43	6.13	6.00	5.94	6.19
12/01/33	12/31/33	Dec 2033	63.06	52.26	61.61	55.86	63.85	52.54	67.68	59.11	64.43	58.09	6.12	6.35	6.08	6.12	6.29	6.17	6.28	5.80	6.41	6.28	6.22	6.55
01/01/34	01/31/34	Jan 2034	62.88	51.55	63.61	56.70	62.60	51.63	70.03	60.40	66.62	59.06	6.21	6.46	6.18	6.24	6.40	6.27	6.42	5.85	6.53	6.40	6.34	6.70
02/01/34	02/28/34	Feb 2034	63.04	51.91	63.14	57.80	66.35	54.86	68.92	60.25	67.27	60.67	6.26	6.49	6.13	6.29	6.43	6.32	6.43	5.90	6.58	6.45	6.39	6.72
03/01/34	03/31/34	Mar 2034	54.75	49.45	59.36	55.11	55.66	48.75	65.00	56.88	62.64	57.33	6.02	6.23	5.82	6.05	6.12	6.01	6.05	5.44	6.34	6.21	6.15	6.33
04/01/34	04/30/34	Apr 2034	53.79	47.98	56.04	52.88	52.55	46.30	61.72	54.25	60.08	55.39	5.79	5.99	5.55	5.77	5.80	5.74	5.69	5.18	6.05	5.91	5.86	5.92
05/01/34	05/31/34	May 2034	49.71	40.62	52.62	48.90	45.47	36.76	59.72	49.92	56.86	51.67	5.74	5.88	5.54	5.60	5.71	5.65	5.49	5.13	5.87	5.74	5.69	5.71
06/01/34	06/30/34	Jun 2034	55.56	44.25	57.59	50.33	51.42	40.43	65.48	53.20	61.99	53.18	5.79	5.88	5.63	5.55	5.71	5.65	5.47	5.14	5.82	5.69	5.64	5.69
07/01/34	07/31/34	Jul 2034	61.68	49.69	62.95	53.27	57.25	45.75	70.91	57.88	67.38	56.39	5.85	5.99	5.66	5.62	5.77	5.69	5.47	5.24	5.88	5.75	5.71	5.70
08/01/34	08/31/34	Aug 2034	68.65	53.04	66.56	54.59	65.27	49.85	75.47	59.43	71.28	58.28	5.90	6.12	5.65	5.80	5.88	5.79	5.73	5.29	6.07	5.94	5.89	5.95
09/01/34	09/30/34	Sep 2034	62.96	51.41	60.37	52.34	64.76	53.15	68.55	57.21	65.11	56.46	5.69	5.98	5.52	5.69	5.74	5.62	5.65	5.32	5.96	5.83	5.79	5.87
10/01/34	10/31/34	Oct 2034	57.52	47.15	59.13	52.73	57.50	48.83	67.02	56.56	63.67	56.14	5.73	6.01	5.55	5.74	5.80	5.69	5.74	5.38	6.01	5.88	5.83	5.97
11/01/34	11/30/34	Nov 2034	62.32	48.80	61.43	53.07	60.52	48.78	68.48	57.64	64.20	55.42	5.79	6.09	5.65	5.84	5.94	5.84	5.94	5.41	6.11	5.98	5.93	6.21
12/01/34	12/31/34	Dec 2034	64.05	53.50	62.46	56.69	64.50	53.96	69.33	61.41	65.75	59.09	6.12	6.40	6.09	6.13	6.34	6.23	6.35	5.79	6.42	6.29	6.23	6.63
01/01/35	01/31/35	Jan 2035	62.50	52.54	62.72	56.41	61.62	51.30	70.47	60.90	66.25	59.07	6.22	6.46	6.20	6.27	6.44	6.30	6.48	5.90	6.56	6.43	6.37	6.66
02/01/35	02/28/35	Feb 2035	63.59	52.36	62.42	57.25	66.49	55.13	69.72	60.68	66.86	60.36	6.27	6.49	6.19	6.30	6.48	6.36	6.51	5.92	6.59	6.46	6.40	6.79
03/01/35	03/31/35	Mar 2035	55.65	50.63	59.45	55.74	56.25	49.26	66.06	57.86	63.22	58.10	6.08	6.30	5.90	6.11	6.19	6.08	6.16	5.77	6.39	6.26	6.21	6.44
04/01/35	04/30/35	Apr 2035	54.60	49.15	56.89	53.61	53.80	47.69	63.36	55.36	61.44	56.76	5.88	6.09	5.66	5.88	5.92	5.80	5.85	5.47	6.16	6.03	5.98	6.08
05/01/35	05/31/35	May 2035	51.48	42.91	53.81	50.34	47.26	38.95	61.69	51.98	58.41	53.21	5.90	6.08	5.72	5.85	5.92	5.84	5.76	5.42	6.12	5.99	5.94	5.97
06/01/35	06/30/35	Jun 2035	55.36	44.10	57.39	50.63	51.01	40.09	65.80	53.38	61.95	53.57	5.93	6.04	5.79	5.74	5.88	5.79	5.66	5.23	6.01	5.88	5.83	5.88
07/01/35	07/31/35	Jul 2035	62.86	51.60	64.26	54.56	58.21	47.37	72.70	59.78	68.95	58.13	6.03	6.16	5.87	5.87	5.84	5.88	5.76	5.31	6.14	6.01	5.96	5.98
08/01/35	08/31/35	Aug 2035	70.20	54.99	68.69	56.13	66.21	51.12	78.39	61.86	73.53	60.32	6.08	6.27	5.87	6.00	6.08	5.95	5.93	5.48	6.27	6.13	6.09	6.16
09/01/35	09/30/35	Sep 2035	65.13	53.87	63.05	54.24	65.02	54.23	72.28	60.21	67.95	58.57	5.88	6.12	5.72	5.92	5.95	5.82	5.85	5.50	6.19	6.05	6.01	6.08
10/01/35	10/31/35	Oct 2035	58.45	48.26	60.03	53.44	57.04	48.74	68.87	57.70	64.71	56.83	5.92	6.16	5.74	5.93	6.00	5.90	5.93	5.50	6.20	6.07	6.02	6.16
11/01/35	11/30/35	Nov 2035	61.45	50.17	61.82	54.51	58.48	48.83	69.73	59.34	65.10	56.95	5.98	6.28	5.88	6.03	6.20	6.08	6.20	5.59	6.31	6.17	6.12	6.47
12/01/35	12/31/35	Dec 2035	65.16	55.03	63.56	57.42	65.32	54.38	71.36	62.46	67.13	59.97	6.30	6.54	6.25	6.30	6.51	6.38	6.51	5.85	6.58	6.45	6.40	6.79
01/01/36	01/31/36	Jan 2036	65.30	55.68	65.65	59.17	63.80	53.38	74.09	64.39	69.07	61.74	6.46	6.80	6.44	6.55	6.80	6.67	6.80	5.85	6.84	6.71	6.65	7.08
02/01/36	02/29/36	Feb 2036	65.83	53.65	64.83	59.53	68.25	56.08	72.20	62.84	69.31	62.70	6.46	6.62	6.34	6.52	6.67	6.55	6.67	6.16	6.81	6.68	6.62	6.95
03/01/36	03/31/36	Mar 2036	57.70	53.10	61.41	57.69	57.55	51.10	68.34	60.08	65.41	60.31	6.31	6.52	6.16	6.34	6.42	6.31	6.41	6.03	6.63	6.49	6.44	6.69
04/01/36	04/30/36	Apr 2036	56.48	50.70	58.57	55.37	55.02	48.59	65.72	57.14	63.13	58.37	6.11	6.29	5.91	6.09	6.13	6.05	6.03	5.69	6.37	6.24	6.19	6.25
05/01/36	05/31/36	May 2036	52.61	43.35	55.45	51.93	48.19	39.28	63.27	53.09	60.09	54.82	6.13	6.29	5.96	6.06	6.13	6.03	5.98	5.65	6.33	6.20	6.15	6.20
06/01/36	06/30/36	Jun 2036	57.90	46.44	59.75	52.65	53.33	42.28	68.77	56.13	64.46	55.82	6.18	6.26	6.05	5.93	6.09	6.01	5.85	5.41	6.20	6.07	6.02	6.07
07/01/36	07/31/36	Jul 2036	65.05	52.66	66.53	55.68	60.12	48.28	75.66	61.63	71.43	59.69	6.27	6.36	6.13	6.03	6.19	6.06	5.91	5.42	6.30	6.17	6.12	6.14
08/01/36	08/31/36	Aug 2036	72.05	57.09	70.69	58.29	67.80	53.19	81.03	64.84	75.75	62.93	6.32	6.52	6.11	6.24	6.32	6.21	6.18	5.73	6.51	6.38	6.33	6.40
09/01/36	09/30/36	Sep 2036	68.12	55.19	65.72	55.56	68.00	55.85	75.35	62.05	70.82	60.20	6.13	6.36	5.96	6.13	6.18	6.03	6.09	5.73	6.40	6.27	6.22	6.32
10/01/36	10/31/36	Oct 2036	61.54	50.42	62.99	55.44	60.00	50.58	72.16	60.52	68.01	59.43	6.14	6.42	5.98	6.14	6.24	6.13	6.19	5.75	6.41	6.28	6.24	6.42
11/01/36	11/30/36	Nov 2036	65.08	52.55	64.35	56.64	62.65	51.92	72.62	62.06	68.05	59.33	6.21	6.52	6.11	6.26	6.46	6.32	6.44	5.85	6.54	6.41	6.35	6.71
12/01/36	12/31/36	Dec 2036	67.65	56.80	65.65	59.19	67.48	55.39	74.03	64.68	69.36	61.82	6.55	6.77	6.52	6.62	6.73	6.60	6.80	6.60	6.67	6.62	7.01	7.01
01/01/37	01/31/37	Jan 2037	67.09	58.64	67.04	61.06	66.39	55.54	76.19	66.64	70.86	63.72	6.61	6.97	6.58	6.66	6.95	6.81	6.97	6.01	6.95	6.82	6.76	7.25
02/01/37	02/28/37	Feb 2037	67.51	58.41	66.64	61.77	70.30	58.78	74.79	65.52	71.12	64.89	6.66	6.92	6.60	6.65	6.95	6.81	6.95	6.13	6.94	6.80	6.75	7.23
03/01/37	03/31/37	Mar 2037	59.81	55.18	63.08	59.23	58.50	52.08	70.54	61.92	67.38	61.74	6.45	6.66	6.30	6.48	6.56	6.45	6.55	6.18	6.77	6.63	6.58	6.83
04/01/37	04/30/37	Apr 2037	58.18	52.68	60.30	57.06	55.74	49.61	67.82	58.75	64.87	59.99	6.25	6.45	6.06	6.25	6.28	6.15	6.20	5.84	6.52	6.39	6.34	6.42
05/01/37	05/31/37	May 2037	54.61	45.30	57.56	53.60	50.03	41.10	65.62	55.20	62.38	56.66	6.26	6.43	6.11	6.23	6.28	6.15	6.13	5.83	6.49	6.36	6.32	6.35
06/01/37	06/30/37	Jun 2037	60.15	48.44	62.21	54.60	55.43	44.10	71.32	58.37	66.99	57.85	6.31	6.43	6.23	6.13	6.25	6.16	6.01	5.58	6.40	6.27	6.22	6.23
07/01/37	07/31/37	Jul 2037	66.56	54.28	68.20	57.32	61.47	49.69	77.79	63.62	73.28	61.46	6.41	6.53	6.28	6.21	6.35	6.20	6.08	5.54	6.48	6.35	6.30	6.30
08/01/37	08/31/37	Aug 2037	73.01	58.57	72.23	60.04	68.66	54.34	82.89	66.86	77.40	64.72	6.46	6.68	6.26	6.43	6.48	6.36	6.35	5.96	6.70	6.57	6.52	6.57
09/01/37	09/30/37	Sep 2037	68.81	56.38	67.61	57.36	68.35	56.05	77.51	64.08	72.81	62.14	6.26	6.56	6.13	6.25	6.31	6.20	6.25	5.84	6.52	6.39	6.34	6.47

10/01/39	10/31/39	Oct 2039	68.83	57.23	69.91	62.01	66.99	56.75	80.16	67.92	75.44	66.32	6.78	7.13	6.62	6.76	6.99	6.87	6.97	6.36	7.04	6.90	6.86	7.20
11/01/39	11/30/39	Nov 2039	75.17	60.32	72.69	63.50	74.92	59.75	82.70	70.53	76.77	66.37	6.85	7.31	6.78	6.89	7.25	7.11	7.27	6.47	7.16	7.03	6.98	7.54
12/01/39	12/31/39	Dec 2039	75.64	64.43	72.95	66.50	77.21	64.30	82.67	72.97	77.27	69.58	7.22	7.53	7.31	7.20	7.57	7.43	7.64	6.80	7.49	7.35	7.30	7.92
01/01/40	01/31/40	Jan 2040	75.93	68.74	75.74	69.00	74.21	64.91	86.44	75.33	80.51	72.09	7.40	7.87	7.48	7.48	7.83	7.67	7.64	6.78	7.76	7.63	7.57	7.92
02/01/40	02/29/40	Feb 2040	76.18	69.03	75.03	70.18	80.04	70.57	84.79	74.58	80.10	73.44	7.46	7.80	7.46	7.51	7.92	7.76	8.01	7.10	7.80	7.67	7.61	8.30
03/01/40	03/31/40	Mar 2040	67.94	62.35	71.51	66.39	65.45	58.52	80.12	69.88	76.54	69.14	7.24	7.49	7.12	7.26	7.44	7.31	7.44	6.94	7.55	7.41	7.36	7.72
04/01/40	04/30/40	Apr 2040	64.96	59.43	67.38	64.14	61.87	56.34	76.46	66.13	72.56	67.43	7.01	7.21	6.85	6.99	7.04	6.92	7.01	6.65	7.26	7.13	7.08	7.23
05/01/40	05/31/40	May 2040	62.95	51.56	65.55	60.07	57.83	46.92	75.10	62.54	70.89	63.57	7.03	7.22	6.92	6.99	7.04	6.92	6.92	6.61	7.26	7.13	7.08	7.14
06/01/40	06/30/40	Jun 2040	68.81	55.72	70.89	61.54	63.46	50.90	81.41	66.73	76.29	65.35	7.06	7.24	7.01	6.87	7.01	6.87	6.79	6.26	7.13	7.00	6.96	7.01
07/01/40	07/31/40	Jul 2040	74.88	62.32	77.01	65.11	69.23	57.22	87.57	72.92	82.55	70.18	7.19	7.37	7.08	6.97	7.13	6.96	6.87	6.29	7.24	7.11	7.06	7.09
08/01/40	08/31/40	Aug 2040	81.06	65.68	80.79	67.33	76.21	60.95	92.28	75.21	86.43	72.67	7.24	7.56	7.08	7.22	7.30	7.12	7.17	6.72	7.49	7.36	7.32	7.40
09/01/40	09/30/40	Sep 2040	73.99	63.53	74.11	65.39	72.58	62.63	85.05	72.34	80.11	70.42	7.01	7.35	6.88	6.97	7.08	6.94	6.99	6.54	7.24	7.11	7.06	7.22
10/01/40	10/31/40	Oct 2040	71.20	59.53	72.63	64.76	69.13	58.24	83.19	70.46	78.21	68.76	7.04	7.46	6.90	7.03	7.31	7.17	7.31	6.61	7.20	7.17	7.12	7.54
11/01/40	11/30/40	Nov 2040	77.15	64.29	75.14	65.58	76.99	62.89	85.45	72.84	79.28	68.50	7.12	7.56	7.13	7.12	7.58	7.42	7.64	6.72	7.39	7.26	7.21	7.90
12/01/40	12/31/40	Dec 2040	78.62	70.59	75.95	70.05	80.65	69.84	86.19	76.63	80.52	73.13	7.51	7.91	7.60	7.49	7.94	7.80	8.01	7.10	7.78	7.65	7.59	8.29
01/01/41	01/31/41	Jan 2041	77.67	70.32	77.48	70.59	75.91	66.40	88.43	77.06	82.36	73.75	7.57	8.05	7.65	7.65	8.01	7.85	7.81	6.93	7.94	7.80	7.75	8.10
02/01/41	02/28/41	Feb 2041	77.93	70.61	76.75	71.79	81.88	72.20	86.74	76.30	81.94	75.13	7.63	7.98	7.63	7.68	8.11	7.94	8.20	7.26	7.97	7.84	7.78	8.48
03/01/41	03/31/41	Mar 2041	69.50	63.78	73.15	67.92	66.95	59.86	81.96	71.49	78.30	70.73	7.41	7.67	7.28	7.43	7.61	7.48	7.61	7.10	7.71	7.58	7.52	7.89
04/01/41	04/30/41	Apr 2041	66.46	60.80	68.93	65.61	63.29	57.64	78.22	67.65	74.23	68.98	7.17	7.37	7.01	7.15	7.21	7.08	7.17	6.80	7.42	7.29	7.24	7.40
05/01/41	05/31/41	May 2041	64.40	52.74	67.05	61.45	59.16	48.00	76.82	63.98	72.52	65.03	7.19	7.39	7.08	7.15	7.21	7.08	7.08	6.77	7.42	7.29	7.24	7.30
06/01/41	06/30/41	Jun 2041	70.40	57.00	72.52	62.96	64.92	57.07	83.28	68.27	78.04	66.85	7.23	7.41	7.17	7.02	7.17	7.02	6.95	6.40	7.29	7.16	7.11	7.17
07/01/41	07/31/41	Jul 2041	76.60	63.76	78.78	66.61	70.82	58.53	89.58	74.60	84.45	71.79	7.35	7.54	7.24	7.13	7.30	7.12	7.02	6.44	7.40	7.27	7.22	7.25
08/01/41	08/31/41	Aug 2041	82.93	67.19	82.64	68.88	77.97	62.36	94.41	76.94	88.41	74.35	7.41	7.74	7.24	7.39	7.46	7.20	7.34	6.88	7.66	7.53	7.48	7.56
09/01/41	09/30/41	Sep 2041	75.69	64.99	75.81	66.90	74.25	64.07	87.01	74.01	81.96	72.04	7.17	7.52	7.04	7.13	7.24	7.10	7.15	6.69	7.40	7.27	7.22	7.38
10/01/41	10/31/41	Oct 2041	72.83	60.90	74.30	66.25	70.72	59.58	85.10	72.08	80.00	70.34	7.21	7.63	7.06	7.19	7.48	7.34	7.48	6.77	7.46	7.33	7.28	7.71
11/01/41	11/30/41	Nov 2041	78.92	65.77	76.87	67.08	78.76	64.34	87.41	74.51	81.11	70.07	7.28	7.74	7.30	7.28	7.76	7.59	7.81	6.88	7.56	7.43	7.37	8.08
12/01/41	12/31/41	Dec 2041	80.42	72.21	77.70	71.66	82.51	71.44	88.17	78.40	82.38	74.81	7.68	8.09	7.78	7.67	8.12	7.98	8.20	7.26	7.95	7.82	7.76	8.47
01/01/42	01/31/42	Jan 2042	79.46	71.94	79.27	72.21	77.66	67.93	90.46	78.84	84.26	75.44	7.75	8.24	7.82	7.82	8.20	8.03	7.99	7.09	8.11	7.98	7.92	8.28
02/01/42	02/28/42	Feb 2042	79.73	72.24	78.52	73.44	83.77	73.86	88.74	78.05	83.82	76.86	7.80	8.16	7.80	7.86	8.29	8.12	8.39	7.43	8.15	8.02	7.96	8.67
03/01/42	03/31/42	Mar 2042	71.10	65.25	74.84	69.48	68.49	61.24	83.85	73.13	80.10	72.36	7.58	7.84	7.45	7.60	7.79	7.65	7.79	7.26	7.78	7.75	7.70	8.07
04/01/42	04/30/42	Apr 2042	67.99	62.19	70.52	67.12	64.75	58.96	80.02	69.21	75.94	70.57	7.34	7.54	7.17	7.32	7.37	7.24	7.34	6.96	7.59	7.46	7.41	7.56
05/01/42	05/31/42	May 2042	65.88	53.96	68.59	62.86	60.52	49.11	78.59	65.45	74.19	66.52	7.35	7.56	7.24	7.32	7.37	7.24	7.24	6.92	7.58	7.45	7.41	7.46
06/01/42	06/30/42	Jun 2042	72.02	58.31	74.19	64.41	66.41	53.27	85.19	69.84	79.84	68.39	7.39	7.58	7.34	7.19	7.34	7.19	7.11	6.55	7.45	7.32	7.28	7.33
07/01/42	07/31/42	Jul 2042	78.36	65.22	80.60	68.14	72.45	59.88	91.64	76.31	86.39	73.44	7.52	7.71	7.41	7.30	7.47	7.28	7.19	6.58	7.57	7.44	7.39	7.41
08/01/42	08/31/42	Aug 2042	84.84	68.74	84.55	70.46	79.76	63.79	96.58	78.71	90.45	76.06	7.58	7.92	7.41	7.56	7.64	7.45	7.50	7.04	7.83	7.70	7.65	7.73
09/01/42	09/30/42	Sep 2042	77.43	66.49	77.55	68.43	75.96	65.54	89.01	75.71	83.84	73.07	7.34	7.69	7.20	7.30	7.41	7.26	7.32	6.85	7.57	7.44	7.39	7.54
10/01/42	10/31/42	Oct 2042	74.51	62.30	76.01	67.78	72.35	60.95	87.06	73.74	81.84	71.96	7.37	7.80	7.22	7.35	7.65	7.50	7.65	6.92	7.63	7.49	7.45	7.88
11/01/42	11/30/42	Nov 2042	80.74	67.28	78.63	68.63	80.57	65.82	89.42	76.23	82.97	71.69	7.45	7.92	7.47	7.45	7.94	7.77	7.99	7.04	7.73	7.60	7.54	8.26
12/01/42	12/31/42	Dec 2042	82.27	73.87	79.49	73.31	84.40	73.08	90.20	80.20	84.27	76.53	7.86	8.27	7.95	7.84	8.31	8.16	8.39	7.43	8.13	7.99	7.94	8.66
01/01/43	01/31/43	Jan 2043	81.29	73.59	81.09	73.87	89.45	69.49	92.54	80.65	86.20	77.18	7.93	8.43	8.00	8.00	8.39	8.21	8.18	7.25	8.29	8.16	8.10	8.46
02/01/43	02/28/43	Feb 2043	81.56	73.90	80.32	75.13	85.69	75.56	90.78	79.85	85.75	78.63	7.98	8.35	7.98	8.04	8.48	8.31	8.58	7.60	8.33	8.20	8.14	8.86
03/01/43	03/31/43	Mar 2043	72.74	66.75	76.56	71.08	70.07	62.85	85.78	74.81	81.94	74.02	7.75	8.02	7.62	7.77	7.96	7.83	7.96	7.43	8.06	7.93	7.87	8.24
04/01/43	04/30/43	Apr 2043	69.55	63.62	72.14	68.67	66.23	60.32	81.86	70.80	77.68	72.19	7.50	7.71	7.33	7.48	7.54	7.41	7.50	7.12	7.76	7.63	7.58	7.73
05/01/43	05/31/43	May 2043	67.40	55.20	70.17	64.31	61.91	50.24	80.40	66.96	75.89	68.05	7.52	7.73	7.41	7.48	7.54	7.41	7.41	7.08	7.75	7.62	7.57	7.63
06/01/43	06/30/43	Jun 2043	73.67	59.65	75.89	65.89	67.94	54.50	87.15	71.44	81.67	69.96	7.56	7.75	7.50	7.35	7.50	7.35	7.27	6.70	7.62	7.49	7.44	7.49
07/01/43	07/31/43	Jul 2043	80.16	66.72	82.45	69.71	74.12	61.25	93.75	78.07	88.38	75.13	7.70	7.89	7.58	7.47	7.64	7.45	7.35	6.74	7.73	7.60	7.56	7.57
08/01/43	08/31/43	Aug 2043	86.79	70.32	86.49	72.08	81.59	65.26	98.80	80.52	92.53	77.80	7.75	8.10	7.58	7.73	7.81	7.62	7.68	7.20	8.00	7.87	7.83	7.90
09/01/43	09/30/43	Sep 2043	79.21	68.02	79.34	70.01	77.70	67.05	91.05	77.45	85.77	75.39	7.50	7.87	7.37	7.47	7.58	7.43	7.48	7.00	7.74	7.61	7.56	7.71
10/01/43	10/31/43	Oct 2043	76.22	63.74	77.76	69.34	74.01	62.36	89.06	75.44	83.73	73.61	7.54	7.98	7.39	7.52	7.83	7.68	7.83	7.08	7.79	7.66	7.61	8.06

11/01/45	11/30/45	Nov 2045	86.44	72.03	84.19	73.47	86.26	70.46	95.74	81.61	88.83	76.75	7.97	8.48	7.99	7.97	8.50	8.31	8.56	7.53	8.25	8.12	8.07	8.82
12/01/45	12/31/45	Dec 2045	88.08	79.09	85.10	78.48	90.36	78.24	96.57	85.86	90.22	81.93	8.42	8.86	8.52	8.40	8.90	8.74	8.98	7.95	8.68	8.55	8.49	9.25
01/01/46	01/31/46	Jan 2046	87.03	78.78	86.81	79.09	85.06	74.40	99.07	86.34	92.28	82.63	8.49	9.02	8.57	8.57	8.98	8.79	8.75	7.77	8.86	8.72	8.67	9.04
02/01/46	02/28/46	Feb 2046	87.32	79.12	85.99	80.43	91.74	80.89	97.19	85.48	91.81	84.18	8.55	8.94	8.55	8.61	9.08	8.90	9.18	8.14	8.90	8.77	8.71	9.47
03/01/46	03/31/46	Mar 2046																						

Quote Date	Data Type:	COBHLH	COBLLH	Palo Verd	Palo Verd	Mid-Colum	Mid-Colum	NP 15HLH	NP 15LLH	SP 15HLH	SP 15LLH	Henry Hub Gas	SOCALBOR	SANJUAN	Opal Gas	Malin Gas	Stanfield Gas	SUMAS	AECO	GADSBY	Current Creek	Lakeside	Z CHEBRN*	
3/3/2016	Commodity:	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	
	POD:	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	
	Tue, 5/31/2005	COB N-S	COB N-S	PV	PV	MID-C	MID-C	NP15	NP15	SP15	SP15	HENRYHUB	SOCALBOR	SANJUAN	ROCKOPAL	MALINGAS	STANFLDS	SUMASS	AECO	GADSBY	CURRRCR	LAKESIDE	Z CHEBRN	
		COB		Palo Verde		Mid-Columbia		NP 15		SP 15		Henry Hub Gas	SOCALBOR	SANJUAN	Opal Gas	Malin Gas	Stanfield Gas	SUMAS	AECO	GADSBY	Current Creek	Lakeside	Z CHEBRN*	
Start	End	Forward Prices		Forward Prices		Forward Prices		Forward Prices		Forward Prices		Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	
		HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	
03/04/16	03/31/16	Mar 2016	13.25	10.20	16.00	14.00	11.75	8.75	21.75	17.00	19.75	16.50	1.71	1.63	1.52	1.49	1.59	1.57	1.41	1.28	1.60	1.41	1.42	1.33
04/01/16	04/30/16	Apr 2016	12.75	9.60	16.00	12.50	11.50	7.95	23.00	17.00	20.00	16.50	1.64	1.52	1.43	1.42	1.49	1.47	1.18	0.97	1.63	1.49	1.48	1.27
05/01/16	05/31/16	May 2016	11.50	6.75	15.75	12.50	10.25	4.75	23.00	16.50	19.75	15.50	1.77	1.60	1.51	1.48	1.55	1.53	1.11	0.98	1.70	1.56	1.55	1.20
06/01/16	06/30/16	Jun 2016	14.00	8.25	19.25	14.15	12.50	6.25	24.00	17.75	23.00	17.00	1.88	1.76	1.67	1.66	1.71	1.69	1.18	1.02	1.88	1.73	1.72	1.27
07/01/16	07/31/16	Jul 2016	21.25	15.10	25.76	18.33	19.79	12.70	29.25	23.00	29.25	23.50	1.98	2.02	1.86	1.80	1.88	1.86	1.44	1.08	2.03	1.88	1.87	1.54
08/01/16	08/31/16	Aug 2016	25.50	20.49	26.77	20.28	23.06	17.66	30.64	25.73	30.90	25.24	2.02	2.14	1.93	1.87	1.94	1.92	1.49	1.12	2.10	1.96	1.94	1.60
09/01/16	09/30/16	Sep 2016	24.25	19.00	23.23	19.89	22.40	18.81	29.25	24.01	29.50	24.50	2.04	2.13	1.93	1.89	1.96	1.94	1.53	1.15	2.12	1.97	1.96	1.64
10/01/16	10/31/16	Oct 2016	23.75	21.55	23.75	20.75	21.85	18.23	33.75	26.84	31.11	26.13	2.09	2.14	1.94	1.95	2.00	1.98	1.77	1.24	2.20	2.04	2.02	1.89
11/01/16	11/30/16	Nov 2016	25.00	22.05	23.52	20.58	23.28	20.45	33.91	27.69	32.75	26.68	2.26	2.36	2.19	2.19	2.32	2.30	2.32	1.60	2.44	2.28	2.26	2.50
12/01/16	12/31/16	Dec 2016	29.16	23.85	25.25	21.42	26.13	21.85	35.25	30.23	34.39	29.70	2.53	2.98	2.53	2.58	2.66	2.64	2.83	1.86	2.85	2.68	2.65	3.04
01/01/17	01/31/17	Jan 2017	28.60	24.15	25.74	23.92	25.46	21.58	36.23	29.90	34.06	29.10	2.67	3.07	2.68	2.73	2.72	2.70	2.66	1.91	2.99	2.82	2.80	2.86
02/01/17	02/28/17	Feb 2017	27.25	23.00	25.25	23.23	24.74	21.10	35.19	29.04	33.41	28.25	2.66	2.98	2.68	2.72	2.71	2.69	2.55	1.95	2.99	2.82	2.80	2.74
03/01/17	03/31/17	Mar 2017	24.00	21.30	23.27	21.00	22.55	19.60	32.09	27.31	30.79	27.40	2.63	2.69	2.55	2.58	2.67	2.65	2.47	1.92	2.83	2.67	2.65	2.66
04/01/17	04/30/17	Apr 2017	18.90	16.80	18.80	17.33	17.50	13.60	26.30	21.75	23.30	22.10	2.48	2.41	2.28	2.25	2.31	2.28	1.90	1.81	2.49	2.34	2.32	2.03
05/01/17	05/31/17	May 2017	18.10	11.65	19.40	17.15	15.15	9.50	26.48	19.07	23.51	18.83	2.49	2.38	2.27	2.28	2.31	2.29	1.88	1.79	2.52	2.36	2.34	2.01
06/01/17	06/30/17	Jun 2017	18.50	10.40	21.60	18.03	15.50	7.75	28.09	19.95	24.70	19.50	2.54	2.43	2.32	2.32	2.34	1.90	1.81	2.56	2.41	2.38	2.36	2.03
07/01/17	07/31/17	Jul 2017	26.75	17.25	30.21	22.09	23.10	15.02	33.40	27.10	33.50	27.16	2.58	2.73	2.45	2.34	2.45	2.43	2.10	1.85	2.59	2.43	2.41	2.24
08/01/17	08/31/17	Aug 2017	30.00	23.95	29.64	24.10	27.54	20.25	34.51	28.75	33.99	28.84	2.59	2.70	2.46	2.35	2.48	2.45	2.11	1.85	2.59	2.40	2.42	2.26
09/01/17	09/30/17	Sep 2017	27.50	24.00	24.75	23.72	25.89	22.10	32.50	27.44	31.60	28.00	2.58	2.54	2.41	2.34	2.48	2.45	2.11	1.86	2.59	2.43	2.41	2.26
10/01/17	10/31/17	Oct 2017	26.50	23.65	26.78	24.25	24.85	20.93	35.15	28.98	32.06	28.50	2.60	2.52	2.38	2.35	2.48	2.46	2.21	1.89	2.60	2.44	2.42	2.36
11/01/17	11/30/17	Nov 2017	29.21	24.75	25.46	24.01	25.99	24.18	35.15	29.89	33.75	29.10	2.67	2.89	2.66	2.64	2.73	2.71	2.75	2.06	2.90	2.73	2.71	2.29
12/01/17	12/31/17	Dec 2017	31.86	26.77	26.51	24.99	29.00	24.65	36.21	32.64	35.44	32.30	2.81	3.07	2.78	2.81	2.89	2.86	3.06	2.16	3.07	2.91	2.88	3.26
01/01/18	01/31/18	Jan 2018	29.00	25.50	27.24	24.92	27.83	23.33	36.98	31.40	34.56	30.10	2.91	3.13	2.89	2.90	2.95	2.93	2.96	2.24	3.15	3.00	2.97	3.18
02/01/18	02/28/18	Feb 2018	28.00	24.35	26.75	24.23	27.03	22.71	35.94	30.54	33.91	29.25	2.89	3.09	2.87	2.87	2.94	2.91	2.85	2.22	3.13	2.97	2.94	3.07
03/01/18	03/31/18	Mar 2018	27.00	23.20	24.77	22.85	24.65	21.46	32.84	28.81	31.29	28.40	2.83	3.04	2.80	2.80	2.88	2.85	2.79	2.15	3.06	2.90	2.87	3.00
04/01/18	04/30/18	Apr 2018	23.82	19.50	19.80	18.08	23.40	17.81	26.38	23.03	23.54	23.50	2.56	2.51	2.44	2.40	2.38	2.36	2.01	1.97	2.64	2.49	2.47	2.15
05/01/18	05/31/18	May 2018	20.76	13.26	20.40	14.72	17.94	11.05	27.21	19.30	24.01	19.25	2.55	2.53	2.43	2.33	2.38	2.36	1.95	1.90	2.56	2.42	2.40	2.08
06/01/18	06/30/18	Jun 2018	20.98	14.04	22.60	15.20	17.16	10.14	28.85	19.92	25.20	19.00	2.58	2.58	2.46	2.36	2.42	2.39	1.93	1.90	2.60	2.45	2.43	2.07
07/01/18	07/31/18	Jul 2018	29.50	16.00	32.71	23.34	25.70	14.82	34.75	28.62	34.66	28.66	2.62	2.83	2.52	2.41	2.50	2.48	2.19	1.93	2.65	2.51	2.48	2.34
08/01/18	08/31/18	Aug 2018	31.50	23.10	32.14	25.43	30.29	19.25	35.76	30.98	34.99	30.34	2.63	2.85	2.56	2.42	2.63	2.50	2.18	1.94	2.66	2.51	2.49	2.33
09/01/18	09/30/18	Sep 2018	30.00	23.50	28.15	24.97	28.76	23.68	33.75	28.91	32.35	29.50	2.62	2.64	2.53	2.41	2.52	2.49	2.22	1.96	2.65	2.50	2.48	2.37
10/01/18	10/31/18	Oct 2018	28.50	25.54	28.25	26.50	27.31	23.18	36.63	31.23	33.00	30.50	2.64	2.58	2.53	2.43	2.53	2.51	2.25	1.96	2.67	2.52	2.50	2.40
11/01/18	11/30/18	Nov 2018	30.50	26.07	26.87	26.01	28.46	26.78	36.63	32.14	34.75	31.10	2.71	2.94	2.68	2.72	2.83	2.80	2.91	2.27	2.87	2.82	2.79	3.13
12/01/18	12/31/18	Dec 2018	33.25	28.20	27.98	26.99	30.48	27.30	37.74	34.89	36.50	34.40	2.84	3.12	2.83	2.90	2.99	2.96	3.30	2.27	3.16	3.00	2.97	3.54
01/01/19	01/31/19	Jan 2019	32.00	27.85	29.09	26.22	30.08	26.00	38.18	32.25	35.81	31.35	2.94	3.24	2.92	2.93	3.03	3.00	3.14	2.37	3.19	3.03	3.01	3.38
02/01/19	02/28/19	Feb 2019	31.50	26.70	28.60	25.53	29.28	25.25	37.14	31.50	35.16	30.50	2.92	3.19	2.90	2.92	3.01	2.99	2.93	2.35	3.18	3.02	2.99	3.15
03/01/19	03/31/19	Mar 2019	29.00	25.55	26.62	24.15	26.90	24.00	34.04	30.00	32.54	29.65	2.86	3.14	2.84	2.86	2.95	2.92	2.88	2.29	3.11	2.95	2.93	3.09
04/01/19	04/30/19	Apr 2019	25.82	21.35	21.65	18.50	25.65	19.66	25.25	24.00	24.79	22.75	2.59	2.60	2.53	2.44	2.46	2.44	2.27	2.08	2.69	2.54	2.51	2.43
05/01/19	05/31/19	May 2019	22.76	15.11	22.25	15.00	20.19	12.90	26.25	20.50	25.26	20.00	2.58	2.63	2.52	2.37	2.45	2.43	2.22	2.02	2.61	2.46	2.44	2.37
06/01/19	06/30/19	Jun 2019	22.98	15.89	24.45	15.50	19.41	11.99																

06/01/21	06/30/21	Jun 2021	26.48	18.79	28.30	19.75	22.91	14.89	33.05	23.62	29.30	23.23	2.81	3.01	2.71	2.71	2.75	2.72	2.44	2.32	2.96	2.81	2.78	2.63
07/01/21	07/31/21	Jul 2021	35.72	23.20	38.41	27.89	31.45	19.57	38.95	32.32	38.76	32.31	2.84	3.26	2.75	2.77	2.83	2.81	2.66	2.36	3.03	2.87	2.84	2.86
08/01/21	08/31/21	Aug 2021	37.77	30.44	37.84	29.98	36.04	24.00	39.96	34.68	39.09	33.99	2.87	3.29	2.82	2.80	2.89	2.86	2.65	2.35	3.06	2.90	2.88	2.85
09/01/21	09/30/21	Sep 2021	36.31	30.67	33.85	29.52	34.51	28.43	37.95	32.61	36.45	33.15	2.87	3.10	2.80	2.80	2.89	2.86	2.69	2.39	3.06	2.90	2.88	2.89
10/01/21	10/31/21	Oct 2021	34.66	30.29	33.95	31.05	33.06	27.93	40.83	34.93	37.66	34.15	2.91	3.04	2.81	2.84	2.92	2.89	2.76	2.43	3.10	2.94	2.91	2.97
11/01/21	11/30/21	Nov 2021	36.54	30.82	32.57	30.56	34.21	31.53	40.83	35.84	39.35	34.75	2.99	3.45	2.91	3.08	3.18	3.15	3.22	2.59	3.34	3.18	3.15	3.46
12/01/21	12/31/21	Dec 2021	39.36	32.95	33.68	31.54	36.23	32.05	41.94	38.59	41.04	38.05	3.15	3.64	3.10	3.28	3.40	3.37	3.63	2.74	3.55	3.39	3.36	3.89
01/01/22	01/31/22	Jan 2022	37.52	31.50	34.94	30.72	35.08	29.33	42.43	36.10	40.01	34.75	3.26	3.78	3.21	3.37	3.42	3.39	3.56	2.87	3.65	3.48	3.45	3.81
02/01/22	02/28/22	Feb 2022	36.94	30.35	34.45	30.03	34.28	28.71	41.39	35.24	39.36	33.90	3.25	3.74	3.19	3.36	3.41	3.38	3.38	2.87	3.63	3.47	3.43	3.62
03/01/22	03/31/22	Mar 2022	34.59	29.20	32.47	28.65	31.90	27.46	38.29	33.51	36.74	33.05	3.18	3.67	3.13	3.29	3.34	3.31	3.33	2.82	3.56	3.40	3.37	3.57
04/01/22	04/30/22	Apr 2022	32.95	28.26	32.15	28.96	31.24	25.89	36.40	31.75	34.92	33.04	3.38	3.51	3.26	3.27	3.30	3.25	3.11	2.70	3.53	3.37	3.35	3.31
05/01/22	05/31/22	May 2022	29.15	22.02	31.27	26.31	26.34	19.53	35.98	28.96	33.90	29.81	3.38	3.53	3.25	3.23	3.30	3.24	3.03	2.70	3.49	3.33	3.30	3.23
06/01/22	06/30/22	Jun 2022	32.17	23.63	34.45	26.93	28.74	20.24	39.38	30.35	36.63	30.26	3.41	3.56	3.28	3.24	3.31	3.25	3.02	2.69	3.50	3.34	3.31	3.23
07/01/22	07/31/22	Jul 2022	38.99	27.69	41.63	31.88	35.11	24.35	44.61	36.31	43.48	35.70	3.45	3.70	3.33	3.28	3.38	3.32	3.15	2.73	3.54	3.38	3.35	3.35
08/01/22	08/31/22	Aug 2022	42.06	32.48	42.22	33.26	39.36	27.69	46.31	37.88	44.64	37.01	3.48	3.74	3.37	3.35	3.43	3.38	3.20	2.72	3.61	3.45	3.42	3.41
09/01/22	09/30/22	Sep 2022	41.08	34.03	37.95	32.56	38.89	31.49	42.90	36.43	41.18	36.17	3.48	3.66	3.35	3.37	3.44	3.38	3.25	2.86	3.63	3.47	3.44	3.46
10/01/22	10/31/22	Oct 2022	38.28	32.62	37.33	33.39	35.78	29.87	43.30	37.49	41.06	36.74	3.48	3.62	3.39	3.38	3.46	3.39	3.27	2.88	3.64	3.48	3.45	3.48
11/01/22	11/30/22	Nov 2022	40.45	33.56	37.22	33.28	37.50	32.32	44.03	38.18	42.46	37.15	3.56	3.88	3.51	3.56	3.65	3.58	3.56	3.08	3.84	3.67	3.64	3.81
12/01/22	12/31/22	Dec 2022	42.30	35.50	37.88	34.36	39.09	33.45	44.47	40.04	43.28	39.28	3.67	3.98	3.59	3.69	3.77	3.70	3.81	3.16	3.96	3.80	3.76	4.06
01/01/23	01/31/23	Jan 2023	40.87	34.13	39.21	34.33	37.84	31.41	45.07	38.92	43.25	37.81	3.75	4.10	3.65	3.75	3.81	3.77	3.78	3.24	4.03	3.87	3.83	4.05
02/01/23	02/28/23	Feb 2023	41.23	34.64	39.19	34.22	38.14	32.14	44.08	38.27	43.10	37.56	3.72	4.04	3.61	3.71	3.78	3.70	3.65	3.23	3.99	3.82	3.79	3.92
03/01/23	03/31/23	Mar 2023	37.74	32.30	37.50	33.05	34.66	29.82	41.73	36.61	41.06	36.65	3.68	3.97	3.57	3.66	3.72	3.67	3.64	3.19	3.93	3.77	3.73	3.90
04/01/23	04/30/23	Apr 2023	36.58	32.27	38.79	35.29	33.34	29.21	42.23	36.77	42.21	38.59	3.98	4.08	3.84	3.79	3.88	3.81	3.72	3.98	4.05	3.89	3.87	3.92
05/01/23	05/31/23	May 2023	32.04	26.04	36.43	33.36	29.00	33.26	40.55	34.93	39.69	36.38	3.99	4.08	3.83	3.78	3.88	3.79	3.61	3.06	4.04	3.88	3.85	3.81
06/01/23	06/30/23	Jun 2023	37.87	28.47	40.61	34.10	34.57	25.58	45.71	37.08	43.97	37.28	4.02	4.10	3.85	3.77	3.88	3.78	3.61	3.06	4.03	3.87	3.84	3.81
07/01/23	07/31/23	Jul 2023	42.26	32.18	44.86	35.87	38.77	29.13	50.27	40.30	48.19	39.10	4.05	4.13	3.90	3.78	3.92	3.83	3.63	3.09	4.04	3.88	3.85	3.84
08/01/23	08/31/23	Aug 2023	46.35	34.53	46.60	36.53	42.68	31.38	52.67	41.09	50.20	40.03	4.08	4.19	3.92	3.89	3.98	3.89	3.76	3.10	4.15	3.99	3.97	3.96
09/01/23	09/30/23	Sep 2023	45.86	37.38	42.04	35.60	43.27	34.55	47.85	40.24	45.92	39.18	4.08	4.21	3.90	3.93	3.99	3.90	3.82	3.33	4.19	4.03	4.00	4.03
10/01/23	10/31/23	Oct 2023	41.90	34.95	40.72	35.73	38.49	31.81	45.78	40.05	44.45	39.32	4.05	4.20	3.97	3.92	3.99	3.88	3.78	3.33	4.18	4.02	3.99	3.99
11/01/23	11/30/23	Nov 2023	44.37	36.31	41.86	36.01	40.80	33.10	47.23	40.52	45.57	39.54	4.14	4.30	4.10	4.05	4.13	4.02	3.90	3.57	4.32	4.16	4.13	4.15
12/01/23	12/31/23	Dec 2023	45.24	38.05	42.09	37.18	41.96	34.85	46.99	41.50	45.53	40.51	4.19	4.33	4.08	4.09	4.15	4.04	3.98	3.58	4.37	4.20	4.17	4.24
01/01/24	01/31/24	Jan 2024	44.22	36.76	43.47	37.93	40.60	33.49	47.71	41.74	46.49	40.87	4.24	4.41	4.10	4.13	4.21	4.15	4.01	3.61	4.41	4.25	4.21	4.27
02/01/24	02/29/24	Feb 2024	45.52	38.93	43.93	38.41	41.99	35.58	46.76	41.31	46.84	41.22	4.20	4.35	4.02	4.07	4.15	4.02	3.93	3.59	4.35	4.18	4.15	4.20
03/01/24	03/31/24	Mar 2024	40.90	35.40	42.53	37.44	37.43	32.17	45.17	39.71	45.38	40.25	4.18	4.27	4.01	4.02	4.10	4.02	3.94	3.55	4.30	4.13	4.10	4.21
04/01/24	04/30/24	Apr 2024	39.29	34.09	40.96	36.72	35.89	30.96	43.86	37.84	44.01	39.72	4.15	4.24	3.99	3.97	4.05	3.98	3.84	3.27	4.23	4.07	4.04	4.04
05/01/24	05/31/24	May 2024	32.76	26.70	37.78	34.56	29.64	23.85	41.20	35.28	40.69	37.28	4.15	4.22	3.97	3.92	4.02	3.94	3.69	3.27	4.18	4.02	3.99	3.89
06/01/24	06/30/24	Jun 2024	38.33	29.73	41.33	35.59	34.97	26.75	45.63	37.99	44.53	38.62	4.17	4.22	3.99	3.91	3.99	3.92	3.69	3.27	4.17	4.01	3.98	3.89
07/01/24	07/31/24	Jul 2024	44.38	33.54	46.49	36.93	40.75	30.39	51.50	41.10	49.62	40.06	4.21	4.26	4.07	3.93	4.03	3.94	3.72	3.39	4.19	4.03	4.00	3.92
08/01/24	08/31/24	Aug 2024	49.37	36.95	48.96	38.16	45.56	33.65	54.66	42.54	52.35	41.50	4.24	4.35	4.08	4.06	4.13	4.05	3.89	3.42	4.32	4.16	4.13	4.10
09/01/24	09/30/24	Sep 2024	49.62	40.31	46.22	37.96	46.92	37.41	51.42	42.09	49.68	41.27	4.25	4.39	4.08	4.11	4.17	4.07	3.98	3.60	4.37	4.21	4.18	4.19
10/01/24	10/31/24	Oct 2024	44.59	36.85	44.39	37.99	41.06	33.60	48.94	40.85	47.50	41.05	4.27	4.43	4.17	4.15	4.20	4.13	4.01	3.60	4.41	4.25	4.22	4.22
11/01/24	11/30/24	Nov 2024	46.99	38.59	45.00	38.55	43.27	35.23	50.15	41.92	48.12	41.69	4.39	4.55	4.35	4.31	4.35	4.29	4.13	3.91	4.58	4.42	4.39	4.38
12/01/24	12/31/24	Dec 2024	48.13	40.65	45.12	39.47	44.72	37.31	49.95	42.53	48.20	42.56	4.45	4.55	4.35	4.30	4.36	4.30	4.07	3.88	4.58	4.41	4.37	4.33
01/01/25	01/31/25	Jan 2025	46.83	39.06	45.69	39.73	43.08	35.66	49.63	42.36	48.49	42.46	4.51	4.65	4.41	4.42	4.47	4.38	4.26	3.94	4.70	4.53	4.50	4.53
02/01/25	02/28/25	Feb 2025	48.98	41.80	46.83	40.87	45.30	38.29	48.96	42.13	49.47	43.42	4.54	4.67	4.37	4.42	4.48	4.39	4.30	3.94	4.70	4.53	4.50	4.57
03/01/25	03/31/25	Mar 2025	43.67	37.78	44.49	39.10	40.07	34.42	47.08	40.45	47.15	41.80	4.51	4.60	4.34	4.34	4.41	4.34	4.26	3.86	4.62	4.45	4.42	4.53
04/01/25	04/30/25	Apr 2025	41.78	36.30	42.89	38.25	38.25	33.07	45.60	39.80	45.74	41.09	4.46	4.55	4.32	4.28	4.35	4.29	4.13	3.52	4.54	4.38	4.35	4.34
05/01/25	05/31/25	May 2025	34.65	28.26	39.68	36.17	31.42	25.31	42.82	36.43	42.25	38.54	4.45	4.51	4.30	4.21	4.29	4.24	3.98	3.62	4.47	4.31	4.28	4.18
06/01/25	06/30/25	Jun 2025	41.42	31.46	44.06	37.43	37.88	28.36	48.30	39.08	46.88	40.09	4.48	4.54	4.30	4.21	4.29	4.22	3.94	3.60	4.47	4.31	4.28	4.14

04/01/21	04/30/21	Apr 2021	33.74	25.35	29.35	25.30	29.73	21.35	34.92	32.15	33.45	32.28	3.15	3.33	3.05	3.14	3.10	3.08	2.77	2.75	3.39	3.24	3.21	2.98
05/01/21	05/31/21	May 2021	30.41	18.95	30.07	25.09	26.96	18.04	35.84	27.65	34.02	27.14	3.14	3.37	3.04	3.07	3.09	3.07	2.72	2.70	3.32	3.17	3.14	2.93
06/01/21	06/30/21	Jun 2021	30.65	19.75	32.74	26.12	26.57	16.20	37.69	28.40	35.43	27.14	3.17	3.40	3.08	3.10	3.13	3.10	2.73	2.71	3.35	3.20	3.17	2.93
07/01/21	07/31/21	Jul 2021	38.65	23.92	40.41	29.53	33.70	21.92	42.65	34.75	41.76	34.20	3.21	3.66	3.12	3.16	3.22	3.19	2.93	2.73	3.41	3.26	3.23	3.15
08/01/21	08/31/21	Aug 2021	40.87	31.20	39.79	31.73	38.74	26.75	43.74	37.15	42.11	36.00	3.24	3.68	3.19	3.19	3.27	3.24	2.92	2.71	3.45	3.29	3.26	3.14
09/01/21	09/30/21	Sep 2021	39.28	31.44	35.45	31.24	37.06	31.54	41.56	35.05	39.29	35.10	3.24	3.50	3.17	3.19	3.27	3.24	2.96	2.76	3.45	3.29	3.26	3.18
10/01/21	10/31/21	Oct 2021	36.91	30.79	35.85	31.50	35.60	28.80	44.03	36.31	39.79	35.05	3.28	3.43	3.18	3.23	3.30	3.27	3.00	2.80	3.49	3.33	3.30	3.22
11/01/21	11/30/21	Nov 2021	38.79	31.32	34.48	31.00	36.72	32.23	44.03	37.27	41.55	35.67	3.36	3.73	3.25	3.36	3.47	3.44	3.34	2.92	3.63	3.47	3.44	3.59
12/01/21	12/31/21	Dec 2021	41.60	33.44	35.57	32.00	38.68	32.72	45.15	40.12	43.31	39.08	3.53	3.93	3.46	3.58	3.67	3.64	3.71	3.07	3.85	3.69	3.65	3.98
01/01/22	01/31/22	Jan 2022	38.73	32.33	36.86	31.45	36.00	30.39	43.64	37.10	41.23	36.24	3.65	4.07	3.57	3.69	3.72	3.69	3.68	3.22	3.97	3.81	3.77	3.94
02/01/22	02/28/22	Feb 2022	40.12	33.54	38.39	33.52	36.90	31.22	43.76	38.12	42.39	37.49	3.84	4.12	3.72	3.81	3.87	3.80	3.68	3.13	4.09	3.92	3.89	3.95
03/01/22	03/31/22	Mar 2022	36.56	31.21	36.61	32.29	33.44	28.90	41.45	36.43	40.44	36.67	3.78	4.04	3.67	3.73	3.79	3.72	3.66	3.08	4.00	3.84	3.80	3.92
04/01/22	04/30/22	Apr 2022	35.16	28.81	34.07	30.29	31.53	25.28	38.57	34.46	37.83	35.44	3.56	3.71	3.45	3.47	3.49	3.44	3.24	2.88	3.73	3.57	3.54	3.46
05/01/22	05/31/22	May 2022	31.23	22.49	33.25	29.22	27.98	20.65	38.20	31.29	36.85	31.76	3.57	3.72	3.44	3.42	3.49	3.43	3.16	2.88	3.69	3.53	3.50	3.39
06/01/22	06/30/22	Jun 2022	34.26	24.11	36.67	30.11	30.57	20.89	41.70	32.74	39.70	32.21	3.59	3.75	3.47	3.43	3.50	3.44	3.17	2.88	3.70	3.54	3.51	3.39
07/01/22	07/31/22	Jul 2022	40.45	28.05	42.63	32.70	36.23	25.53	46.46	37.53	44.97	36.65	3.63	3.89	3.51	3.47	3.57	3.51	3.28	2.91	3.73	3.58	3.54	3.51
08/01/22	08/31/22	Aug 2022	43.61	32.87	43.20	34.13	40.71	29.06	48.20	39.12	46.15	38.01	3.66	3.93	3.55	3.54	3.62	3.57	3.34	2.91	3.81	3.65	3.62	3.56
09/01/22	09/30/22	Sep 2022	42.57	34.41	38.75	33.42	40.16	33.07	44.71	37.65	42.60	37.14	3.66	3.86	3.54	3.56	3.63	3.57	3.39	3.05	3.83	3.67	3.63	3.62
10/01/22	10/31/22	Oct 2022	39.41	32.87	38.28	33.62	37.04	30.30	44.90	38.18	42.12	37.19	3.67	3.82	3.57	3.57	3.65	3.58	3.39	3.07	3.84	3.68	3.65	3.62
11/01/22	11/30/22	Nov 2022	41.58	33.82	38.17	33.50	38.76	32.67	45.63	38.89	43.56	37.61	3.75	4.01	3.68	3.71	3.80	3.73	3.62	3.24	3.98	3.82	3.78	3.88
12/01/22	12/31/22	Dec 2022	43.42	35.74	38.83	34.59	40.32	33.79	46.07	40.81	44.42	39.79	3.86	4.13	3.77	3.83	3.91	3.84	3.85	3.33	4.11	3.95	3.91	4.11
01/01/23	01/31/23	Jan 2023	41.47	34.54	40.17	34.69	38.30	31.94	45.67	39.42	43.86	38.55	3.94	4.24	3.83	3.91	3.97	3.92	3.84	3.41	4.19	4.03	3.99	4.11
02/01/23	02/28/23	Feb 2023	43.57	37.24	42.45	37.56	40.04	33.97	46.17	41.04	45.56	40.62	4.18	4.36	4.02	4.12	4.18	4.05	3.93	3.27	4.39	4.27	4.19	4.19
03/01/23	03/31/23	Mar 2023	38.71	33.79	41.01	36.52	35.37	30.67	44.68	39.45	44.32	39.88	4.13	4.26	3.97	4.00	4.08	3.97	3.92	3.21	4.28	4.12	4.08	4.18
04/01/23	04/30/23	Apr 2023	36.58	32.27	38.79	35.29	33.34	29.21	42.23	36.77	42.21	38.59	3.98	4.08	3.84	3.79	3.88	3.81	3.72	3.00	4.06	3.90	3.87	3.94
05/01/23	05/31/23	May 2023	32.04	26.04	36.43	33.36	29.00	23.26	40.55	34.93	39.69	36.58	3.99	4.08	3.83	3.78	3.88	3.79	3.61	3.06	4.04	3.89	3.86	3.83
06/01/23	06/30/23	Jun 2023	37.87	28.47	40.61	34.10	34.57	25.58	45.71	37.08	43.97	37.28	4.02	4.10	3.85	3.77	3.88	3.78	3.61	3.06	4.03	3.88	3.84	3.83
07/01/23	07/31/23	Jul 2023	42.26	32.18	44.86	35.87	38.77	29.13	50.27	40.30	48.19	39.10	4.05	4.13	3.90	3.78	3.92	3.83	3.63	3.09	4.05	3.89	3.86	3.86
08/01/23	08/31/23	Aug 2023	46.35	34.53	46.60	36.53	42.68	31.38	52.67	41.09	50.20	40.03	4.08	4.19	3.92	3.89	3.98	3.89	3.76	3.10	4.16	4.00	3.97	3.98
09/01/23	09/30/23	Sep 2023	45.86	37.38	42.04	35.60	43.27	34.55	47.85	40.24	45.92	39.18	4.08	4.21	3.90	3.93	3.99	3.90	3.82	3.33	4.20	4.04	4.01	4.05
10/01/23	10/31/23	Oct 2023	41.90	34.95	40.72	35.73	38.49	31.81	45.78	40.05	44.45	39.52	4.05	4.20	3.97	3.92	3.99	3.88	3.78	3.33	4.19	4.03	3.99	4.01
11/01/23	11/30/23	Nov 2023	44.37	36.31	41.86	36.01	40.80	33.10	47.23	40.52	45.57	39.34	4.14	4.30	4.10	4.05	4.13	4.02	3.90	3.57	4.32	4.17	4.13	4.16
12/01/23	12/31/23	Dec 2023	45.24	38.05	42.09	37.18	41.96	34.85	46.99	41.50	45.53	40.51	4.19	4.33	4.08	4.09	4.15	4.04	3.98	3.58	4.37	4.21	4.17	4.24
01/01/24	01/31/24	Jan 2024	44.22	36.76	43.47	37.93	40.60	33.49	47.71	41.74	46.49	40.87	4.24	4.41	4.10	4.13	4.21	4.15	4.01	3.61	4.42	4.25	4.21	4.28
02/01/24	02/29/24	Feb 2024	45.52	38.93	43.93	38.41	41.99	35.58	46.76	41.31	46.84	41.22	4.20	4.35	4.02	4.07	4.15	4.02	3.93	3.59	4.35	4.18	4.15	4.19
03/01/24	03/31/24	Mar 2024	40.90	35.40	42.53	37.44	37.43	32.17	45.17	39.71	45.38	40.25	4.18	4.27	4.01	4.02	4.10	4.02	3.94	3.55	4.29	4.13	4.10	4.20
04/01/24	04/30/24	Apr 2024	39.29	34.09	40.96	36.72	35.69	30.96	43.86	37.84	44.01	39.72	4.15	4.24	3.99	3.97	4.05	3.98	3.84	3.27	4.23	4.08	4.04	4.06
05/01/24	05/31/24	May 2024	32.76	26.70	37.78	34.56	29.64	23.85	41.20	35.28	40.69	37.28	4.15	4.22	3.97	3.92	4.02	3.94	3.69	3.27	4.18	4.03	3.99	3.91
06/01/24	06/30/24	Jun 2024	38.33	29.73	41.33	35.59	34.97	26.75	45.63	37.99	44.53	38.62	4.17	4.22	3.99	3.91	3.99	3.92	3.69	3.27	4.17	4.01	3.98	3.94
07/01/24	07/31/24	Jul 2024	44.38	33.54	46.49	36.93	40.75	30.39	51.50	41.10	49.62	40.06	4.21	4.26	4.07	3.93	4.03	3.94	3.72	3.29	4.20	4.04	4.01	3.91
08/01/24	08/31/24	Aug 2024	49.37	36.95	48.96	38.16	45.56	33.65	54.66	42.54	52.35	41.50	4.24	4.35	4.08	4.06	4.13	4.05	3.89	3.42	4.32	4.17	4.13	4.12
09/01/24	09/30/24	Sep 2024	49.62	40.31	46.22	37.96	46.92	37.41	51.42	42.09	49.68	41.27	4.25	4.39	4.08	4.11	4.17	4.07	3.98	3.60	4.38	4.22	4.18	4.21
10/01/24	10/31/24	Oct 2024	44.59	36.85	44.39	37.99	41.93	33.60	48.94	40.85	47.50	41.05	4.27	4.43	4.17	4.15	4.20	4.13	4.01	3.60	4.41	4.26	4.22	4.24
11/01/24	11/30/24	Nov 2024	46.99	38.59	45.00	38.55	43.27	35.23	50.15	41.92	48.12	41.69	4.39	4.55	4.35	4.31	4.35	4.29	4.13	3.91	4.58	4.42	4.39	4.39
12/01/24	12/31/24	Dec 2024	48.13	40.65	45.12	39.47	44.72	37.31	49.95	42.53	48.20	42.56	4.45	4.55	4.35	4.30	4.36	4.30	4.07	3.88	4.58	4.41	4.38	4.34
01/01/25	01/31/25	Jan 2025	46.83	39.06	45.69	39.73	43.08	35.66	49.63	42.36	48.49	42.46	4.51	4.65	4.41	4.42	4.47	4.38	4.26	3.94	4.70	4.54	4.50	4.54
02/01/25	02/28/25	Feb 2025	48.98	41.80	46.83	40.87	45.30	38.29	48.96	42.13	49.47	43.42	4.54	4.67	4.37	4.42	4.48	4.39	4.30	3.94	4.69	4.53	4.50	4.56
03/01/25	03/31/25	Mar 2025	43.67	37.78	44.49	39.10	40.07	34.42	47.08	40.45	47.15	41.80	4.51	4.60	4.34	4.34	4.41	4.34	4.26	3.86	4.61	4.45	4.42	4.52
04/01/25	04/30/25	Apr 2025	41.78	36.30	42.89	38.25	38.25	33.07	45.60	39.80	45.74	41.09	4.46	4.55	4.32	4.28	4.35	4.29	4.13	3.52	4.54	4.38	4.35	4.35

05/01/27	05/31/27	May 2027	37.08	30.65	42.06	38.67	33.66	27.51	44.91	38.38	44.19	40.56	4.62	4.67	4.45	4.36	4.45	4.40	4.18	3.72	4.62	4.47	4.43	4.40
06/01/27	06/30/27	Jun 2027	44.68	33.50	47.16	39.56	40.92	30.24	51.21	40.29	49.50	42.04	4.64	4.68	4.48	4.35	4.44	4.40	4.11	3.75	4.61	4.45	4.42	4.34
07/01/27	07/31/27	Jul 2027	50.55	39.24	52.36	41.96	46.54	35.73	56.78	44.07	54.87	44.83	4.72	4.78	4.58	4.41	4.51	4.47	4.22	3.90	4.68	4.52	4.49	4.45
08/01/27	08/31/27	Aug 2027	56.62	43.31	55.10	43.82	52.38	39.62	59.71	45.97	58.03	46.75	4.76	4.89	4.60	4.49	4.59	4.53	4.33	3.95	4.76	4.60	4.57	4.56
09/01/27	09/30/27	Sep 2027	56.04	46.08	52.05	43.36	53.82	43.21	56.18	45.32	54.86	46.14	4.79	4.95	4.62	4.55	4.64	4.58	4.44	4.26	4.82	4.66	4.62	4.67
10/01/27	10/31/27	Oct 2027	51.79	43.27	50.92	43.04	48.03	39.68	53.86	45.10	53.40	46.53	4.85	5.09	4.81	4.68	4.76	4.70	4.62	4.32	4.95	4.79	4.76	4.85
11/01/27	11/30/27	Nov 2027	55.14	45.61	52.21	44.35	51.12	41.91	55.99	46.74	54.74	46.98	4.95	5.24	4.99	4.85	4.95	4.89	4.75	4.63	5.12	4.96	4.92	5.01
12/01/27	12/31/27	Dec 2027	54.91	46.35	51.74	44.47	51.46	42.85	54.41	46.75	54.26	46.99	5.01	5.17	4.97	4.89	4.95	4.89	4.85	4.44	5.16	5.00	4.96	5.11
01/01/28	01/31/28	Jan 2028	52.78	45.06	51.71	45.48	48.72	41.35	54.96	47.10	54.20	47.95	5.10	5.27	4.97	5.01	5.06	4.97	4.98	4.55	5.29	5.13	5.09	5.25
02/01/28	02/29/28	Feb 2028	54.96	47.21	53.18	46.70	51.07	43.43	53.78	46.77	55.35	48.86	5.09	5.23	4.90	4.97	5.04	4.95	4.97	4.51	5.24	5.08	5.04	5.23
03/01/28	03/31/28	Mar 2028	49.41	42.53	50.08	44.46	45.49	38.87	52.01	44.94	52.26	46.85	5.09	5.16	4.94	4.92	4.99	4.92	4.84	4.40	5.20	5.04	5.00	5.10
04/01/28	04/30/28	Apr 2028	46.60	41.00	47.28	42.94	42.84	37.49	49.08	43.92	49.15	45.29	5.04	5.10	4.91	4.83	4.91	4.87	4.77	4.29	5.09	4.94	4.90	4.99
05/01/28	05/31/28	May 2028	40.49	32.85	45.53	41.08	36.89	29.58	48.56	40.82	47.44	43.01	5.05	5.08	4.91	4.79	4.88	4.83	4.62	4.33	5.05	4.89	4.86	4.84
06/01/28	06/30/28	Jun 2028	48.18	36.32	50.70	42.36	44.24	32.90	54.94	43.30	52.97	44.79	5.09	5.10	4.91	4.76	4.87	4.80	4.63	4.36	5.02	4.87	4.83	4.86
07/01/28	07/31/28	Jul 2028	53.73	42.67	55.22	45.23	49.54	38.97	59.87	47.50	57.67	48.19	5.16	5.17	5.04	4.81	4.92	4.87	4.70	4.47	5.08	4.92	4.89	4.93
08/01/28	08/31/28	Aug 2028	59.43	45.75	58.01	46.10	55.10	41.93	63.01	48.56	60.93	49.10	5.17	5.27	5.08	4.91	5.01	4.92	4.87	4.48	5.18	5.02	4.99	5.10
09/01/28	09/30/28	Sep 2028	58.09	48.75	54.27	46.55	56.57	45.67	58.28	48.19	56.92	49.10	5.20	5.33	5.09	4.97	5.05	4.97	4.94	4.73	5.23	5.08	5.04	5.17
10/01/28	10/31/28	Oct 2028	54.20	45.92	53.08	46.15	50.53	42.17	56.38	47.29	55.61	48.83	5.20	5.38	5.19	5.05	5.12	5.02	4.99	4.76	5.32	5.16	5.13	5.22
11/01/28	11/30/28	Nov 2028	56.44	47.09	53.78	45.78	52.32	43.27	57.81	48.50	56.32	48.39	5.24	5.44	5.22	5.13	5.23	5.15	5.16	4.91	5.40	5.24	5.21	5.41
12/01/28	12/31/28	Dec 2028	56.65	48.99	53.97	47.08	53.26	45.20	56.21	48.83	56.52	49.63	5.30	5.45	5.22	5.17	5.24	5.15	5.16	4.83	5.45	5.29	5.25	5.42
01/01/29	01/31/29	Jan 2029	54.83	46.29	53.90	46.99	51.02	42.65	57.64	49.04	56.51	49.52	5.36	5.54	5.23	5.32	5.37	5.26	5.29	4.89	5.60	5.43	5.39	5.56
02/01/29	02/28/29	Feb 2029	57.25	48.51	55.35	48.80	54.30	45.67	58.84	49.25	57.62	51.08	5.40	5.56	5.26	5.33	5.39	5.30	5.32	4.89	5.61	5.44	5.41	5.58
03/01/29	03/31/29	Mar 2029	50.75	44.47	51.87	46.51	47.80	41.25	54.22	47.19	53.75	48.23	5.36	5.46	5.22	5.25	5.35	5.29	5.23	4.75	5.52	5.36	5.32	5.49
04/01/29	04/30/29	Apr 2029	48.80	43.58	49.52	45.32	46.08	40.46	51.14	45.75	50.79	47.39	5.32	5.39	5.17	5.10	5.20	5.15	5.08	4.58	5.37	5.21	5.18	5.30
05/01/29	05/31/29	May 2029	43.21	35.70	47.89	43.51	39.45	32.27	50.83	43.38	49.35	45.34	5.32	5.34	5.16	5.06	5.16	5.10	4.92	4.67	5.32	5.17	5.14	5.14
06/01/29	06/30/29	Jun 2029	47.56	37.09	50.74	43.56	43.60	33.60	54.90	44.32	52.75	45.75	5.29	5.32	5.12	4.98	5.09	5.03	4.86	4.61	5.24	5.09	5.05	5.09
07/01/29	07/31/29	Jul 2029	54.56	43.52	56.05	46.07	50.29	39.74	60.73	48.20	58.29	48.94	5.30	5.32	5.19	4.96	5.08	4.98	4.85	4.62	5.23	5.07	5.04	5.07
08/01/29	08/31/29	Aug 2029	61.00	47.00	59.20	47.11	56.87	43.12	64.44	49.67	62.04	50.18	5.29	5.37	5.16	5.00	5.12	5.03	4.98	4.61	5.27	5.11	5.08	5.20
09/01/29	09/30/29	Sep 2029	58.91	49.96	55.88	47.54	57.45	47.39	60.69	50.10	58.69	50.25	5.29	5.47	5.22	5.08	5.16	5.06	5.02	4.84	5.34	5.19	5.15	5.25
10/01/29	10/31/29	Oct 2029	53.63	45.38	53.58	46.45	50.10	41.96	57.57	47.72	56.25	49.23	5.25	5.46	5.22	5.09	5.17	5.06	5.03	4.81	5.36	5.20	5.17	5.26
11/01/29	11/30/29	Nov 2029	54.95	46.47	53.73	46.31	50.89	42.65	58.05	48.77	56.33	49.00	5.25	5.51	5.26	5.20	5.27	5.17	5.20	4.92	5.47	5.32	5.28	5.46
12/01/29	12/31/29	Dec 2029	56.06	49.01	53.60	47.08	53.23	45.38	57.09	48.91	56.20	49.62	5.30	5.46	5.29	5.23	5.30	5.20	5.22	4.82	5.51	5.35	5.31	5.48
01/01/30	01/31/30	Jan 2030	55.26	46.20	54.57	47.60	51.70	42.81	58.97	50.14	57.24	50.18	5.40	5.56	5.27	5.35	5.42	5.33	5.33	4.94	5.63	5.46	5.42	5.60
02/01/30	02/28/30	Feb 2030	57.17	48.26	56.20	49.63	55.38	46.57	58.14	50.32	58.56	51.94	5.48	5.61	5.29	5.40	5.48	5.38	5.39	5.03	5.68	5.52	5.48	5.65
03/01/30	03/31/30	Mar 2030	50.86	45.04	53.13	47.57	49.39	42.63	55.65	48.61	55.07	50.00	5.48	5.56	5.30	5.39	5.48	5.38	5.39	4.88	5.66	5.50	5.47	5.65
04/01/30	04/30/30	Apr 2030	48.88	43.91	50.31	46.02	46.87	40.82	52.44	46.71	51.72	48.45	5.38	5.45	5.23	5.19	5.27	5.22	5.14	4.67	5.45	5.30	5.26	5.36
05/01/30	05/31/30	May 2030	43.34	35.81	48.49	44.27	39.53	32.33	51.63	44.00	49.97	46.12	5.38	5.43	5.20	5.14	5.24	5.20	5.07	4.68	5.41	5.25	5.22	5.29
06/01/30	06/30/30	Jun 2030	49.03	38.99	52.46	45.60	44.97	35.40	56.73	46.61	54.46	47.70	5.43	5.46	5.24	5.14	5.26	5.20	5.09	4.75	5.41	5.25	5.22	5.31
07/01/30	07/31/30	Jul 2030	56.41	44.70	57.82	47.46	52.03	40.82	62.75	49.87	60.19	50.37	5.49	5.53	5.33	5.16	5.29	5.23	5.09	4.88	5.42	5.27	5.23	5.31
08/01/30	08/31/30	Aug 2030	63.39	48.91	61.78	49.44	59.34	44.91	67.11	51.90	64.62	52.44	5.55	5.64	5.36	5.30	5.40	5.32	5.27	4.91	5.57	5.41	5.38	5.50
09/01/30	09/30/30	Sep 2030	61.83	51.88	58.81	49.96	61.15	49.73	63.81	52.55	61.62	52.71	5.55	5.72	5.39	5.42	5.49	5.43	5.42	5.13	5.69	5.53	5.49	5.65
10/01/30	10/31/30	Oct 2030	56.06	47.57	56.80	49.99	53.76	45.15	60.82	51.04	59.25	52.67	5.59	5.78	5.55	5.51	5.56	5.46	5.51	5.19	5.77	5.62	5.58	5.74
11/01/30	11/30/30	Nov 2030	58.99	49.92	57.12	49.68	55.19	46.19	61.86	52.19	59.86	52.34	5.68	5.91	5.65	5.68	5.74	5.62	5.68	5.36	5.95	5.79	5.76	5.93
12/01/30	12/31/30	Dec 2030	59.27	51.96	57.16	50.30	56.95	48.43	61.06	52.47	59.93	52.95	5.75	5.90	5.65	5.69	5.75	5.66	5.69	5.36	5.97	5.81	5.77	5.96
01/01/31	01/31/31	Jan 2031	59.43	50.30	58.02	50.85	56.00	46.78	63.29	53.53	60.89	53.67	5.87	6.05	5.72	5.84	5.90	5.81	5.82	5.48	6.12	5.96	5.92	6.10
02/01/31	02/28/31	Feb 2031	61.46	52.08	59.34	52.77	60.30	50.27	62.07	53.28	61.79	55.20	5.91	6.09	5.75	5.88	5.96	5.85	5.87	5.56	6.16	6.00	5.96	6.13
03/01/31	03/31/31	Mar 2031	53.96	47.63	55.79	50.38	52.09	45.93	59.07	51.60	57.95	53.14	5.91	6.03	5.75	5.87	5.93	5.87	5.85	5.34	6.14	5.98	5.95	6.11
04/01/31	04/30/31	Apr 2031	52.40	47.09	53.30	48.62	50.43	43.82	55.85	49.52	55.11	51.44	5.81	5.91	5.66	5.65	5.74	5.69	5.62	5.22	5.91	5.75	5.72	5.84
05/01/31	05/31/31	May 2031	46.20	38.11	51.12	46.65	42.23	34.49	54.48	46.44	52.66	48.70	5.81	5.87	5.65	5.57	5.68	5.62	5.50	5.23	5.84	5.68	5.65	5.72

06/01/33	06/30/33	Jun 2033	54.45	43.52	57.42	49.64	50.02	39.60	62.76	51.03	59.86	52.02	5.91	5.96	5.68	5.65	5.76	5.71	5.57	5.36	5.91	5.76	5.73	5.80
07/01/33	07/31/33	Jul 2033	62.21	50.08	63.29	52.49	57.45	45.84	69.13	55.73	66.12	55.73	6.01	6.08	5.84	5.74	5.93	5.85	5.62	5.48	6.01	5.85	5.82	5.84
08/01/33	08/31/33	Aug 2033	68.57	53.94	67.00	53.95	64.35	49.71	73.60	57.19	70.18	57.37	6.04	6.24	5.85	5.93	6.02	5.94	5.87	5.57	6.20	6.04	6.00	6.09
09/01/33	09/30/33	Sep 2033	66.03	56.54	63.03	54.03	65.84	54.43	69.07	56.79	65.94	56.97	6.07	6.33	5.93	6.05	6.10	5.99	5.99	5.73	6.32	6.16	6.13	6.22
10/01/33	10/31/33	Oct 2033	61.78	53.05	62.14	54.59	58.92	50.28	67.25	56.23	64.74	57.45	6.13	6.39	6.08	6.13	6.19	6.10	6.13	5.77	6.40	6.24	6.21	6.36
11/01/33	11/30/33	Nov 2033	65.62	55.52	62.84	53.95	62.37	51.48	68.69	57.36	65.76	56.83	6.18	6.47	6.14	6.22	6.31	6.22	6.30	5.84	6.49	6.33	6.30	6.55
12/01/33	12/31/33	Dec 2033	64.92	57.03	62.57	54.54	63.02	53.22	67.68	57.73	65.46	57.44	6.25	6.47	6.13	6.25	6.41	6.30	6.41	5.93	6.53	6.37	6.33	6.67
01/01/34	01/31/34	Jan 2034	64.38	55.66	63.33	55.72	60.48	51.97	69.71	58.83	66.28	58.50	6.35	6.60	6.14	6.38	6.54	6.41	6.55	6.00	6.66	6.50	6.46	6.83
02/01/34	02/28/34	Feb 2034	66.18	56.99	64.18	57.11	63.91	54.34	68.23	58.62	66.83	59.78	6.36	6.60	6.14	6.40	6.54	6.44	6.54	6.03	6.67	6.51	6.47	6.80
03/01/34	03/31/34	Mar 2034	58.23	51.46	60.35	54.34	55.16	49.32	64.60	56.24	62.66	57.28	6.33	6.52	6.13	6.36	6.41	6.32	6.36	5.76	6.64	6.48	6.44	6.62
04/01/34	04/30/34	Apr 2034	56.72	51.15	57.63	52.89	53.46	47.34	60.90	54.30	59.39	55.64	6.19	6.38	6.05	6.18	6.21	6.14	6.10	5.59	6.44	6.28	6.25	6.32
05/01/34	05/31/34	May 2034	50.61	42.06	55.40	50.80	46.29	38.13	59.77	50.92	57.17	53.00	6.16	6.29	5.97	6.00	6.13	6.06	5.91	5.56	6.26	6.11	6.08	6.13
06/01/34	06/30/34	Jun 2034	57.05	45.98	60.30	51.80	52.46	41.88	65.72	53.67	62.62	54.32	6.18	6.27	5.92	5.95	6.11	6.05	5.88	5.56	6.22	6.06	6.03	6.10
07/01/34	07/31/34	Jul 2034	64.56	52.34	66.40	54.82	59.64	47.95	72.41	58.15	69.13	58.03	6.24	6.36	6.08	6.00	6.16	6.08	5.88	5.64	6.27	6.11	6.08	6.10
08/01/34	08/31/34	Aug 2034	70.55	56.10	69.72	56.25	65.99	51.74	76.40	59.50	72.85	59.67	6.25	6.48	6.08	6.16	6.24	6.14	6.08	5.65	6.23	6.27	6.24	6.31
09/01/34	09/30/34	Sep 2034	67.10	58.00	64.52	55.80	66.43	55.88	70.56	58.32	67.32	58.66	6.25	6.52	6.11	6.25	6.29	6.18	6.19	5.89	6.52	6.36	6.33	6.42
10/01/34	10/31/34	Oct 2034	62.97	54.00	63.08	55.15	59.61	50.89	68.55	57.03	65.81	58.13	6.21	6.48	6.16	6.21	6.27	6.18	6.21	5.86	6.48	6.32	6.28	6.44
11/01/34	11/30/34	Nov 2034	65.19	55.37	62.98	53.66	61.13	51.18	69.24	57.58	65.89	56.59	6.13	6.43	6.13	6.19	6.30	6.19	6.29	5.76	6.46	6.30	6.27	6.54
12/01/34	12/31/34	Dec 2034	64.76	58.00	62.83	55.22	62.45	54.12	68.13	58.66	65.71	58.02	6.18	6.44	6.11	6.19	6.40	6.29	6.40	5.86	6.47	6.31	6.27	6.66
01/01/35	01/31/35	Jan 2035	65.41	55.75	64.21	55.60	61.90	52.09	70.25	59.12	67.14	58.35	6.29	6.53	6.12	6.33	6.51	6.38	6.54	5.98	6.62	6.45	6.41	6.82
02/01/35	02/28/35	Feb 2035	67.31	57.90	64.88	57.53	66.26	55.39	69.26	59.23	67.27	60.08	6.33	6.56	6.11	6.37	6.54	6.41	6.56	5.99	6.64	6.48	6.44	6.82
03/01/35	03/31/35	Mar 2035	59.65	52.71	60.95	55.13	56.97	50.62	65.25	56.96	63.14	57.74	6.30	6.51	6.12	6.33	6.40	6.30	6.38	5.99	6.61	6.45	6.41	6.64
04/01/35	04/30/35	Apr 2035	57.67	52.42	58.92	54.28	55.42	49.01	61.65	55.05	60.10	56.53	6.19	6.40	6.06	6.19	6.22	6.12	6.17	5.78	6.45	6.30	6.26	6.39
05/01/35	05/31/35	May 2035	53.25	45.20	58.18	52.86	48.80	41.08	61.80	53.21	59.03	54.92	6.25	6.41	6.09	6.19	6.25	6.19	6.11	5.78	6.45	6.30	6.26	6.33
06/01/35	06/30/35	Jun 2035	56.76	46.32	60.65	52.93	52.14	42.16	65.55	54.34	62.31	55.18	6.29	6.38	6.08	6.09	6.22	6.14	6.01	5.59	6.36	6.20	6.17	6.23
07/01/35	07/31/35	Jul 2035	65.60	53.81	67.71	56.16	60.58	49.31	73.65	59.27	70.29	59.40	6.38	6.50	6.22	6.22	6.33	6.24	6.11	5.67	6.49	6.33	6.30	6.33
08/01/35	08/31/35	Aug 2035	74.41	58.44	73.40	58.34	69.60	53.83	80.12	61.59	76.37	61.64	6.43	6.62	6.25	6.35	6.43	6.30	6.29	5.85	6.62	6.46	6.43	6.51
09/01/35	09/30/35	Sep 2035	70.64	60.19	67.91	57.97	68.84	57.54	74.60	61.36	70.90	60.87	6.41	6.64	6.32	6.45	6.46	6.35	6.38	6.04	6.70	6.54	6.51	6.61
10/01/35	10/31/35	Oct 2035	64.21	54.72	64.90	56.27	60.22	51.42	70.95	58.83	67.75	59.30	6.37	6.61	6.33	6.38	6.46	6.35	6.38	5.98	6.65	6.49	6.46	6.61
11/01/35	11/30/35	Nov 2035	65.83	56.58	64.98	55.40	61.34	52.14	71.38	59.76	67.93	58.38	6.38	6.67	6.35	6.41	6.59	6.48	6.61	6.69	6.53	6.49	6.48	6.86
12/01/35	12/31/35	Dec 2035	67.36	59.72	65.56	57.09	65.03	55.85	71.36	60.89	68.48	59.97	6.46	6.71	6.40	6.46	6.66	6.54	6.66	6.03	6.74	6.58	6.54	6.92
01/01/36	01/31/36	Jan 2036	66.54	55.20	67.19	58.57	63.36	53.75	73.71	62.72	70.24	61.45	6.59	6.93	6.45	6.69	6.93	6.79	6.93	6.00	6.98	6.81	6.77	7.20
02/01/36	02/29/36	Feb 2036	66.28	54.49	66.49	58.99	66.33	55.47	70.85	60.45	69.10	61.68	6.55	6.74	6.36	6.56	6.69	6.58	6.69	6.20	6.84	6.68	6.64	6.96
03/01/36	03/31/36	Mar 2036	58.65	52.13	62.74	57.23	57.65	52.60	67.17	58.55	64.98	59.71	6.53	6.74	6.38	6.56	6.64	6.53	6.61	6.26	6.84	6.68	6.64	6.87
04/01/36	04/30/36	Apr 2036	57.64	52.81	60.55	55.68	56.07	49.79	63.74	56.40	61.99	58.22	6.41	6.59	6.30	6.40	6.43	6.35	6.00	6.66	6.50	6.47	6.57	
05/01/36	05/31/36	May 2036	52.93	44.93	59.04	54.08	48.47	40.78	62.66	53.97	60.00	56.16	6.40	6.55	6.25	6.33	6.38	6.30	6.25	5.93	6.59	6.44	6.41	6.47
06/01/36	06/30/36	Jun 2036	58.09	47.91	62.70	54.82	53.45	43.80	67.74	56.27	64.46	57.01	6.45	6.55	6.25	6.23	6.38	6.30	6.15	5.70	6.50	6.34	6.31	6.37
07/01/36	07/31/36	Jul 2036	66.53	54.10	69.28	57.24	61.43	49.54	75.45	60.59	72.00	60.59	6.58	6.66	6.43	6.35	6.51	6.38	6.23	5.77	6.61	6.46	6.42	6.46
08/01/36	08/31/36	Aug 2036	74.15	59.79	74.20	60.58	69.32	55.37	81.27	64.08	77.29	63.99	6.63	6.83	6.46	6.56	6.83	6.51	6.48	6.07	6.83	6.67	6.64	6.71
09/01/36	09/30/36	Sep 2036	71.46	59.32	70.16	59.08	70.50	58.26	76.83	62.30	73.03	62.00	6.58	6.81	6.48	6.58	6.84	6.50	6.56	6.21	6.85	6.69	6.65	6.79
10/01/36	10/31/36	Oct 2036	64.46	53.75	67.85	58.75	62.64	53.17	73.30	60.83	70.22	61.51	6.56	6.83	6.53	6.56	6.64	6.53	6.59	6.17	6.83	6.67	6.64	6.83
11/01/36	11/30/36	Nov 2036	68.49	58.75	67.88	58.52	65.04	55.25	74.12	62.91	70.76	61.50	6.69	6.99	6.66	6.73	6.93	6.79	6.91	6.33	7.00	6.84	6.80	7.16
12/01/36	12/31/36	Dec 2036	68.04	59.35	67.86	59.27	66.63	56.85	74.01	63.18	70.86	62.29	6.76	6.96	6.69	6.74	6.94	6.81	6.94	6.23	7.02	6.86	6.82	7.21
01/01/37	01/31/37	Jan 2037	67.71	58.01	69.39	60.87	66.36	56.01	75.94	65.16	72.45	63.89	6.85	7.20	6.70	6.92	7.19	7.07	7.20	6.27	7.20	7.03	6.99	7.48
02/01/37	02/28/37	Feb 2037	69.53	57.86	69.68	62.18	70.99	58.70	74.66	63.99	72.38	64.79	6.90	7.15	6.71	6.88	7.17	7.05	7.19	6.39	7.16	7.00	6.96	7.45
03/01/37	03/31/37	Mar 2037	60.75	55.42	65.20	59.51	59.74	54.76	69.81	60.62	67.41	61.95	6.80	7.00	6.65	6.81	6.92	6.80	6.90	6.53	7.09	6.93	6.89	7.16
04/01/37	04/30/37	Apr 2037	58.91	54.74	62.17	57.56	57.26	51.68	65.83	58.23	63.76	60.32	6.63	6.81	6.56	6.63	6.65	6.53	6.58	6.24	6.89	6.74	6.70	6.80
05/01/37	05/31/37	May 2037	54.97	47.12	61.15	56.13	50.37	42.82	64.98	56.30	62.17	58.15	6.61	6.78	6.49	6.58	6.63	6.49	6.48	6.19	6.84	6.69	6.65	6.70
06/01/37	06/30/37	Jun 2037	60.45	50.19	65.37	56.88	55.69	45.82	70.44	58.42	67.01	59.30	6.65	6.76	6.46	6.48	6.59	6.51	6.37	5.95	6.74	6.58	6.55	6.60
07/0																								

07/01/39	07/31/39	Jul 2039	72.65	60.37	77.48	64.52	67.12	55.38	83.45	68.09	79.39	67.47	7.15	7.31	7.01	6.97	7.11	6.95	6.87	6.30	7.24	7.08	7.05	7.09	
08/01/39	08/31/39	Aug 2039	80.74	64.95	82.66	66.50	75.69	60.07	89.43	70.04	84.98	69.90	7.17	7.47	7.03	7.15	7.22	7.06	7.10	6.69	7.42	7.26	7.23	7.32	
09/01/39	09/30/39	Sep 2039	74.85	63.42	77.01	65.37	73.63	62.88	83.32	68.84	79.05	68.22	7.17	7.54	7.10	7.15	7.24	7.11	7.17	6.76	7.42	7.26	7.23	7.39	
10/01/39	10/31/39	Oct 2039	69.35	60.00	74.29	64.91	67.13	58.45	79.51	67.57	75.83	67.52	7.17	7.52	7.26	7.15	7.38	7.26	7.34	6.76	7.42	7.26	7.23	7.57	
11/01/39	11/30/39	Nov 2039	76.15	64.73	75.69	64.67	73.81	61.06	83.07	69.88	78.77	67.60	7.27	7.72	7.36	7.31	7.68	7.54	7.68	6.90	7.58	7.42	7.39	7.93	
12/01/39	12/31/39	Dec 2039	73.91	64.98	74.97	65.35	73.39	63.08	81.39	70.28	77.67	68.31	7.34	7.66	7.33	7.33	7.68	7.54	7.75	6.94	7.60	7.44	7.40	8.02	
01/01/40	01/31/40	Jan 2040	74.55	64.64	76.48	67.39	71.28	61.08	84.26	72.18	79.50	70.34	7.46	7.91	7.35	7.53	7.87	7.73	7.69	6.86	7.81	7.65	7.61	7.97	
02/01/40	02/29/40	Feb 2040	74.60	62.88	76.07	67.36	74.75	63.10	81.99	70.38	78.48	70.16	7.40	7.71	7.22	7.44	7.84	7.69	7.93	7.04	7.72	7.55	7.52	8.19	
03/01/40	03/31/40	Mar 2040	66.61	60.72	71.47	65.58	64.89	59.63	76.92	67.23	73.67	68.33	7.39	7.62	7.28	7.42	7.59	7.46	7.59	7.10	7.70	7.54	7.50	7.84	
04/01/40	04/30/40	Apr 2040	64.52	60.09	69.12	63.86	62.60	57.03	73.12	64.29	70.06	66.17	7.24	7.44	7.19	7.22	7.30	7.17	7.24	6.90	7.49	7.33	7.30	7.46	
05/01/40	05/31/40	May 2040	62.47	53.25	69.65	62.28	57.35	48.52	73.40	62.78	69.56	64.42	7.24	7.42	7.13	7.20	7.24	7.13	7.13	6.84	7.47	7.31	7.28	7.35	
06/01/40	06/30/40	Jun 2040	67.57	56.42	73.09	63.16	62.22	51.56	79.18	65.67	74.48	65.62	7.28	7.44	7.11	7.06	7.22	7.08	7.01	6.48	7.32	7.17	7.14	7.23	
07/01/40	07/31/40	Jul 2040	75.77	62.54	80.82	66.58	70.05	57.40	87.19	70.50	82.77	69.69	7.40	7.57	7.28	7.31	7.20	7.35	7.19	7.10	6.54	7.47	7.31	7.28	7.32
08/01/40	08/31/40	Aug 2040	83.48	68.06	85.15	69.22	78.27	63.01	92.57	72.91	87.62	72.67	7.46	7.78	7.31	7.44	7.51	7.33	7.39	6.95	7.71	7.55	7.52	7.61	
09/01/40	09/30/40	Sep 2040	77.20	67.15	79.20	68.70	75.66	66.23	85.53	71.67	81.08	71.40	7.49	7.84	7.51	7.46	7.57	7.44	7.48	7.04	7.73	7.57	7.53	7.70	
10/01/40	10/31/40	Oct 2040	73.16	62.93	77.03	67.16	70.36	60.80	83.48	70.61	79.41	70.20	7.49	7.87	7.59	7.48	7.77	7.60	7.75	7.06	7.74	7.59	7.55	7.98	
11/01/40	11/30/40	Nov 2040	78.36	67.55	77.65	67.17	75.31	63.41	85.56	72.61	80.97	70.17	7.59	8.00	7.75	7.59	8.02	7.87	8.07	7.20	7.76	7.70	7.66	8.33	
12/01/40	12/31/40	Dec 2040	77.64	69.20	78.09	68.86	76.46	66.96	85.08	74.01	81.01	71.92	7.68	8.07	7.80	7.68	8.11	7.97	8.18	7.30	7.95	7.79	7.75	8.45	
01/01/41	01/31/41	Jan 2041	76.27	66.12	78.24	68.94	72.91	62.48	86.20	73.84	81.33	71.96	7.63	8.09	7.52	7.70	8.06	7.91	7.87	7.02	7.99	7.82	7.78	8.14	
02/01/41	02/28/41	Feb 2041	76.32	64.32	77.82	68.91	76.47	64.55	83.87	72.00	80.28	71.77	7.57	7.89	7.39	7.61	8.02	7.87	8.11	7.20	7.89	7.73	7.69	8.37	
03/01/41	03/31/41	Mar 2041	68.15	62.12	73.11	67.09	66.38	61.00	78.69	68.77	75.36	69.90	7.56	7.80	7.44	7.59	7.76	7.63	7.76	7.26	7.87	7.71	7.67	8.02	
04/01/41	04/30/41	Apr 2041	66.00	61.47	70.71	65.33	64.04	58.34	74.80	65.77	71.67	67.69	7.41	7.61	7.35	7.39	7.46	7.33	7.41	7.06	7.65	7.50	7.46	7.63	
05/01/41	05/31/41	May 2041	63.91	54.48	71.25	63.71	58.67	49.64	75.09	64.23	71.16	65.90	7.41	7.59	7.30	7.37	7.41	7.30	7.30	7.00	7.63	7.48	7.45	7.52	
06/01/41	06/30/41	Jun 2041	69.13	57.72	74.78	64.62	63.65	52.75	81.00	67.18	76.19	67.13	7.44	7.61	7.28	7.22	7.39	7.24	7.17	6.63	7.49	7.33	7.30	7.39	
07/01/41	07/31/41	Jul 2041	77.52	63.97	82.68	68.12	71.66	58.72	89.20	72.12	84.67	71.30	7.57	7.74	7.44	7.37	7.52	7.35	7.26	6.69	7.64	7.48	7.45	7.48	
08/01/41	08/31/41	Aug 2041	85.40	69.62	87.10	70.81	80.07	64.46	94.70	74.59	89.64	74.34	7.63	7.96	7.48	7.61	7.69	7.50	7.56	7.11	7.68	7.72	7.69	7.78	
09/01/41	09/30/41	Sep 2041	78.97	68.69	81.02	70.28	77.40	67.76	87.50	73.32	82.94	73.04	7.67	8.02	7.69	7.63	7.74	7.61	7.65	7.20	7.90	7.74	7.71	7.88	
10/01/41	10/31/41	Oct 2041	74.84	64.38	78.80	68.71	71.97	62.19	85.40	72.23	81.24	71.81	7.67	8.06	7.76	7.65	7.94	7.78	7.93	7.22	7.92	7.76	7.72	8.16	
11/01/41	11/30/41	Nov 2041	80.17	69.11	79.44	68.72	77.04	64.87	87.52	74.28	82.83	71.78	7.76	8.19	7.93	7.76	8.20	8.06	8.26	7.37	8.03	7.87	7.84	8.51	
12/01/41	12/31/41	Dec 2041	79.42	70.79	79.89	70.45	78.22	68.50	87.04	75.71	82.87	73.58	7.85	8.26	7.98	7.85	8.30	8.15	8.37	7.63	8.13	7.97	7.93	8.64	
01/01/42	01/31/42	Jan 2042	78.10	67.71	80.12	70.59	74.66	63.98	88.27	75.62	83.28	73.69	7.81	8.29	7.70	7.89	8.25	8.10	8.06	7.19	8.17	8.01	7.97	8.33	
02/01/42	02/28/42	Feb 2042	78.15	65.87	79.68	70.56	78.31	66.10	85.88	73.73	82.21	73.49	7.76	8.08	7.57	7.79	8.21	8.06	8.31	7.38	8.07	7.91	7.87	8.57	
03/01/42	03/31/42	Mar 2042	69.78	63.61	74.86	68.70	67.97	62.46	80.57	70.43	77.17	71.58	7.74	7.98	7.62	7.78	7.95	7.81	7.95	7.43	8.05	7.89	7.85	8.20	
04/01/42	04/30/42	Apr 2042	67.59	62.95	72.41	66.90	65.58	59.74	76.59	67.35	73.39	69.31	7.59	7.79	7.53	7.57	7.64	7.51	7.59	7.23	7.83	7.67	7.64	7.81	
05/01/42	05/31/42	May 2042	65.45	55.79	72.96	65.24	60.08	50.83	76.89	65.77	72.87	67.48	7.59	7.78	7.47	7.55	7.59	7.47	7.47	7.17	7.81	7.66	7.62	7.69	
06/01/42	06/30/42	Jun 2042	70.79	59.11	76.57	66.17	65.18	54.01	82.94	68.79	78.02	68.74	7.62	7.79	7.45	7.40	7.57	7.41	7.34	6.79	7.66	7.50	7.47	7.56	
07/01/42	07/31/42	Jul 2042	79.38	65.51	84.67	69.75	73.98	60.13	91.34	73.85	86.71	73.01	7.76	7.93	7.62	7.55	7.70	7.53	7.43	6.85	7.81	7.66	7.62	7.66	
08/01/42	08/31/42	Aug 2042	87.45	71.30	89.20	72.51	81.99	66.00	96.97	76.38	91.79	76.13	7.81	8.15	7.66	7.79	7.87	7.68	7.74	7.28	8.06	7.90	7.87	7.96	
09/01/42	09/30/42	Sep 2042	80.87	70.34	82.96	71.97	79.26	69.38	89.60	75.08	84.93	74.79	7.85	8.21	7.87	7.81	7.93	7.79	7.83	7.38	8.08	7.92	7.89	8.06	
10/01/42	10/31/42	Oct 2042	76.63	65.93	80.70	70.36	73.70	63.69	87.45	73.97	83.19	73.53	7.85	8.25	7.95	7.83	7.96	8.12	7.40	8.12	7.94	7.91	8.35		
11/01/42	11/30/42	Nov 2042	82.09	70.77	81.35	70.37	78.89	66.43	89.63	76.07	84.82	73.50	7.95	8.38	8.12	7.95	8.40	8.25	8.46	7.55	8.22	8.06	8.02	8.71	
12/01/42	12/31/42	Dec 2042	81.33	72.49	81.80	72.14	80.10	70.14	89.12	77.53	84.86	75.34	8.04	8.46	8.17	8.04	8.50	8.34	8.57	7.64	8.32	8.16	8.12	8.84	
01/01/43	01/31/43	Jan 2043	79.97	69.34	82.04	72.28	76.46	65.52	90.39	77.43	85.28	75.45	8.00	8.49	7.88	8.08	8.45	8.29	8.25	7.36	8.36	8.20	8.16	8.53	
02/01/43	02/28/43	Feb 2043	80.02	67.45	81.60	72.26	80.19	67.69	87.95	75.50	84.18	75.26	7.94	8.27	7.75	7.98	8.41	8.25	8.51	7.55	8.26	8.10	8.06	8.77	
03/01/43	03/31/43	Mar 2043	71.46	65.13	76.66	70.35	69.60	63.96	82.51	72.12	79.02	73.30	7.92	8.18	7.81	7.96	8.14	8.00	8.14	7.61	8.24	8.08	8.04	8.39	
04/01/43	04/30/43	Apr 2043	69.21	64.46	74.15	68.51	67.15	61.18	78.43	68.97	75.16	70.98	7.77	7.98	7.71	7.75	7.83	7.69	7.77	7.40	8.01	7.86	7.82	7.99	
05/01/43	05/31/43	May 2043	67.02	57.12	74.71	66.80	61.52	52.05	78.73	67.35	74.62	69.10	7.77	7.96	7.65	7.73	7.77	7.65	7.65	7.34	7.99	7.84	7.80	7.87	
06/01/43	06/30/43	Jun 2043	72.49	60.53	78.41	67.75	66.74	55.31	84.93	70.44	79.89	70.39	7.81	7.98	7.63	7.57	7.75	7.59	7.52	6.95	7.84	7.68	7.65	7.74	
07/01/43	07/31/43	Jul 2043	81.28	67.08	86.70	71.42	75.14	61.57	93.53	75.63	88.79	74.76	7.94	8.12	7.81	7.73	7.88	7.71	7.61	7.01	7.99	7.84	7.80	7.84	

08/01/45	08/31/45	Aug 2045	93.89	76.55	95.77	77.85	88.04	70.87	104.12	82.01	98.56	81.74	8.39	8.76	8.23	8.37	8.45	8.25	8.31	7.82	8.64	8.48	8.44	8.53
09/01/45	09/30/45	Sep 2045	86.83	75.53	89.08	77.28	85.11	74.50	96.20	80.61	91.19	80.31	8.43	8.82	8.45	8.39	8.51	8.37	8.41	7.92	8.66	8.50	8.47	8.64
10/01/45	10/31/45	Oct 2045	82.29	70.79	86.65	75.54	79.14	68.38	93.90	79.42	89.32	78.96	8.43	8.86	8.53	8.41	8.74	8.55	8.71	7.94	8.68	8.52	8.49	8.94
11/01/45	11/30/45	Nov 2045	88.14	75.98	87.34	75.56	84.71	71.32	96.23	81.68	91.08	78.92	8.53	9.00	8.71	8.53	9.02	8.86	9.08	8.10	8.80	8.64	8.61	9.34
12/01/45	12/31/45	Dec 2045																						

Quote Date	Data Type:	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC
11/9/2015	Commodity:	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
	POD:	COB N-S	COB N-S	PV	PV	MID-C	MID-C	NP15	NP15	SP15	SP15	HENRYHUB	SOCALBOR	SANJUAN	ROCKOPAL	MALINGAS	STANFLDS	SUMASS	AECO	GADSBY	CURRCRK	LAKESIDE	Z_CHEBRN	
	Tue, 5/31/2005																							
		COB		Palo Verde		Mid-Columbia		NP 15		SP 15		Henry Hub Gas	SOCALBOR	SANJUAN	Opal Gas	Malin Gas	Stanford Gas	SUMAS	AECO	GADSBY	Current Creek	Lakeside	Z_CHEBRN'	
Start	End	Peak Type:		Forward Prices		Forward Prices		Forward Prices		Forward Prices		Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	
		HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	
01/01/16	01/31/16	Jan 2016	27.25	23.25	23.75	21.25	25.00	22.25	32.50	27.50	31.50	27.25	2.45	2.54	2.38	2.41	2.46	2.43	2.34	1.91	2.66	2.51	2.49	2.50
02/01/16	02/29/16	Feb 2016	26.00	23.00	22.75	20.50	23.75	21.00	31.75	26.50	30.75	26.25	2.48	2.56	2.41	2.43	2.48	2.46	2.31	1.92	2.68	2.53	2.50	2.47
03/01/16	03/31/16	Mar 2016	24.25	20.75	22.00	20.50	21.50	18.50	31.00	26.25	30.00	26.00	2.48	2.46	2.32	2.33	2.45	2.43	2.13	1.91	2.57	2.43	2.40	2.27
04/01/16	04/30/16	Apr 2016	23.59	18.32	22.08	19.06	20.54	15.24	30.56	25.41	28.13	24.91	2.45	2.38	2.25	2.21	2.30	2.28	1.97	1.87	2.46	2.30	2.28	2.11
05/01/16	05/31/16	May 2016	22.70	16.75	22.08	18.87	19.75	12.85	31.19	23.28	28.71	22.56	2.48	2.43	2.28	2.25	2.35	2.32	1.84	1.87	2.49	2.34	2.32	1.97
06/01/16	06/30/16	Jun 2016	20.72	14.83	27.84	19.83	18.96	11.66	33.08	23.28	30.16	22.56	2.52	2.48	2.33	2.30	2.39	2.36	1.96	1.87	2.54	2.39	2.37	2.10
07/01/16	07/31/16	Jul 2016	30.20	22.18	33.13	22.56	27.75	18.69	36.25	27.65	36.21	28.37	2.57	2.67	2.42	2.40	2.45	2.43	1.97	1.89	2.65	2.49	2.47	2.10
08/01/16	08/31/16	Aug 2016	31.42	24.80	32.19	24.44	29.42	22.47	37.34	29.93	36.57	30.13	2.59	2.68	2.47	2.39	2.49	2.47	2.06	1.90	2.63	2.48	2.45	2.20
09/01/16	09/30/16	Sep 2016	29.89	23.85	28.13	23.97	26.64	22.05	35.16	28.22	34.08	29.25	2.59	2.61	2.44	2.35	2.49	2.47	2.02	1.91	2.59	2.44	2.42	2.15
10/01/16	10/31/16	Oct 2016	28.13	24.00	27.29	22.75	25.07	20.70	36.88	29.40	33.95	28.67	2.61	2.58	2.41	2.39	2.47	2.45	2.15	1.94	2.64	2.49	2.46	2.30
11/01/16	11/30/16	Nov 2016	29.95	24.50	25.95	22.30	26.71	23.21	36.88	29.40	35.00	28.37	2.70	2.72	2.54	2.54	2.60	2.58	2.08	2.80	2.64	2.61	2.76	2.76
12/01/16	12/31/16	Dec 2016	32.67	26.50	27.02	23.21	29.98	24.12	38.00	32.10	36.75	31.59	2.85	2.92	2.71	2.74	2.80	2.77	3.01	2.21	3.00	2.84	2.81	3.23
01/01/17	01/31/17	Jan 2017	30.94	26.41	27.30	25.22	28.35	23.92	37.01	31.72	35.10	30.90	2.96	2.97	2.84	2.82	2.87	2.84	2.86	2.28	3.08	2.92	2.89	3.07
02/01/17	02/28/17	Feb 2017	30.35	24.90	26.78	24.49	27.54	23.23	35.96	30.81	34.43	30.00	2.95	2.95	2.83	2.79	2.87	2.84	2.63	2.27	3.04	2.89	2.86	2.83
03/01/17	03/31/17	Mar 2017	27.37	23.39	25.46	23.04	25.11	21.85	34.19	28.98	32.06	29.10	2.90	2.91	2.77	2.74	2.82	2.79	2.58	2.23	2.99	2.84	2.81	2.77
04/01/17	04/30/17	Apr 2017	25.14	20.08	24.21	22.03	23.38	17.69	31.77	27.30	29.10	27.27	2.72	2.64	2.52	2.54	2.56	2.53	2.08	2.09	2.78	2.63	2.61	2.22
05/01/17	05/31/17	May 2017	23.42	15.51	24.98	21.81	20.61	13.63	32.42	24.72	29.70	23.99	2.72	2.65	2.52	2.47	2.55	2.53	2.06	2.06	2.71	2.56	2.54	2.20
06/01/17	06/30/17	Jun 2017	23.66	15.15	27.81	22.92	20.40	11.80	34.06	24.72	31.20	23.99	2.76	2.70	2.56	2.51	2.58	2.58	2.09	2.10	2.76	2.61	2.58	2.24
07/01/17	07/31/17	Jul 2017	31.77	19.16	33.39	24.90	27.79	16.97	37.25	29.34	36.47	29.34	2.81	2.97	2.63	2.59	2.69	2.67	2.28	2.13	2.84	2.69	2.66	2.44
08/01/17	08/31/17	Aug 2017	34.06	26.68	32.76	25.64	31.59	23.06	38.37	31.76	36.82	31.16	2.82	2.95	2.66	2.61	2.72	2.70	2.30	2.14	2.86	2.70	2.68	2.46
09/01/17	09/30/17	Sep 2017	32.42	26.92	28.35	25.14	28.37	26.75	36.13	29.65	33.96	30.25	2.82	2.78	2.65	2.60	2.73	2.71	2.31	2.16	2.85	2.70	2.68	2.47
10/01/17	10/31/17	Oct 2017	29.99	24.48	28.82	26.10	27.55	21.15	37.87	29.93	34.20	29.21	2.84	2.78	2.64	2.62	2.74	2.71	2.37	2.18	2.87	2.71	2.69	2.54
11/01/17	11/30/17	Nov 2017	31.93	24.99	27.40	25.58	28.71	24.44	37.87	30.87	36.00	29.83	2.92	2.98	2.78	2.84	2.87	2.85	2.90	2.36	3.10	2.94	2.91	3.12
12/01/17	12/31/17	Dec 2017	34.83	27.03	28.53	26.62	30.74	24.91	39.02	33.71	37.80	33.21	3.07	3.14	2.96	3.01	3.03	3.01	3.22	2.06	3.28	3.12	3.09	3.46
01/01/18	01/31/18	Jan 2018	32.79	27.76	28.80	26.47	30.60	25.67	38.01	33.72	36.10	32.70	3.16	3.23	3.03	3.06	3.11	3.08	3.17	2.54	3.31	3.16	3.13	3.41
02/01/18	02/28/18	Feb 2018	32.20	26.25	28.28	25.74	29.79	24.98	36.96	32.81	35.43	31.75	3.15	3.20	3.01	3.05	3.10	3.07	2.96	2.52	3.30	3.15	3.12	3.18
03/01/18	03/31/18	Mar 2018	29.22	24.74	26.96	24.29	27.36	23.60	35.19	30.98	33.06	30.80	3.09	3.16	2.96	2.99	3.04	3.01	2.90	2.46	3.24	3.09	3.06	3.12
04/01/18	04/30/18	Apr 2018	26.64	21.43	25.21	21.03	24.63	18.69	32.27	28.65	29.85	28.57	2.81	2.84	2.66	2.66	2.68	2.66	2.22	2.29	2.90	2.76	2.73	2.38
05/01/18	05/31/18	May 2018	24.92	16.86	25.98	20.81	21.86	14.63	32.92	26.07	30.45	25.29	2.80	2.86	2.64	2.58	2.68	2.66	2.17	2.23	2.82	2.68	2.66	2.32
06/01/18	06/30/18	Jun 2018	25.16	16.50	28.81	21.92	21.65	12.60	34.56	26.07	31.95	25.29	2.83	2.91	2.68	2.62	2.72	2.69	2.16	2.24	2.85	2.71	2.69	2.31
07/01/18	07/31/18	Jul 2018	33.62	19.41	35.39	26.40	30.04	17.46	38.75	30.69	37.72	30.64	2.87	3.16	2.73	2.67	2.81	2.78	2.41	2.25	2.91	2.77	2.75	2.57
08/01/18	08/31/18	Aug 2018	35.91	26.93	34.76	27.14	33.84	23.55	39.87	33.11	38.07	32.46	2.88	3.18	2.78	2.69	2.83	2.81	2.40	2.26	2.93	2.78	2.76	2.57
09/01/18	09/30/18	Sep 2018	34.27	27.17	30.35	26.64	30.62	27.24	37.63	31.00	35.21	31.55	2.88	2.98	2.75	2.68	2.83	2.80	2.44	2.29	2.92	2.78	2.75	2.61
10/01/18	10/31/18	Oct 2018	31.34	25.83	29.82	27.85	30.30	23.15	38.37	31.28	35.20	30.51	2.90	2.92	2.76	2.71	2.85	2.82	2.45	2.30	2.95	2.80	2.78	2.62
11/01/18	11/30/18	Nov 2018	33.28	26.34	28.40	27.33	31.46	26.44	38.37	32.22	37.00	31.13	2.98	3.12	2.89	2.91	3.01	2.99	3.12	2.47	3.16	3.01	2.98	3.35
12/01/18	12/31/18	Dec 2018	36.18	28.38	29.53	28.37	33.49	26.91	39.52	35.06	38.80	34.51	3.14	3.27	3.07	3.11	3.20	3.17	3.49	2.59	3.37	3.22	3.19	3.74
01/01/19	01/31/19	Jan 2019	34.59	30.00	30.40	27.87	32.40	27.50	39.36	35.07	37.35	33.25	3.25	3.42	3.17	3.18	3.22	3.21	3.38	2.70	3.44	3.28	3.25	3.63
02/01/19	02/28/19	Feb 2019	34.00	28.50	29.88	27.14	31.59	27.00	38.31	34.16	36.68	32.25	3.23	3.39	3.16	3.17	3.22	3.20	3.19	2.68	3.43	3.27	3.24	3.42
03/01/19	03/31/19	Mar 2019	31.02	26.75	28.56	25.69	29.16	25.50	36.54	32.33	34.31	31.25	3.18	3.35	3.10	3.11	3.16	3.13	3.13	2.62	3.37	3.21	3.18	3.36
04/01/19	04/30/19	Apr 2019	28.44	22.85	26.81	22.43	26.43	19.75	33.62	29.00	31.60	30.00	2.90	3.06	2.79	2.76	2.87	2.84	2.52	2.42	3.00	2.86	2.83	2.69
05/01/19	05/31/19	May 2019	26.72	18.35	27.58	22.21	23.66	16.10	34.27	24.75	32.50	24.50	2.89	3.09	2.78	2.69	2.86	2.83	2.48	2.37	2.93	2.78	2.76	2.65
06/01/19	06/30/19	Jun 2019	26.96	18.00	30.41	23.32	23.45	14.00	35.91	24.75	33.75	24.25	2.92	3.12	2.82	2.72	2.90	2.87	2.47	2.36	2.96	2.82	2.79	2.64
07/01/19	07/31/19	Jul 2019	35.42	19.75	36.99	27.80	31.84	18.00	40.10	31.00	38.97	31.94	2.92	3.37	2.86	2.77	2.99	2.96	2.65	2.36	3.02	2.87	2.84	2.83
08/01/19	08/31/19	Aug 2019	37.71	27.00	36.36	28.54	35.64	22.75	41.22	33.00	39.32	33.76	2.97	3.38	2.90	2.79	3.01	2.99	2.67	2.37	3.03	2		

04/01/21	04/30/21	Apr 2021	31.34	25.38	30.21	25.18	29.33	22.64	36.07	32.00	33.55	31.87	3.16	3.44	3.07	3.14	3.20	3.17	2.74	2.80	3.39	3.24	3.21	2.95
05/01/21	05/31/21	May 2021	29.62	20.81	30.98	24.96	26.56	18.58	36.72	29.42	34.15	28.59	3.15	3.47	3.06	3.07	3.19	3.16	2.70	2.74	3.32	3.17	3.14	2.90
06/01/21	06/30/21	Jun 2021	29.86	20.45	33.81	26.07	26.35	16.55	38.36	29.42	35.65	28.59	3.18	3.51	3.09	3.10	3.22	3.19	2.70	2.75	3.35	3.20	3.17	2.90
07/01/21	07/31/21	Jul 2021	38.32	23.36	40.39	30.55	34.74	21.41	42.55	34.04	41.42	33.94	3.22	3.76	3.13	3.15	3.31	3.28	2.90	2.77	3.41	3.26	3.23	3.12
08/01/21	08/31/21	Aug 2021	40.61	30.88	39.76	31.29	38.54	27.50	43.67	36.46	41.77	35.76	3.25	3.78	3.20	3.18	3.36	3.33	2.89	2.75	3.44	3.29	3.26	3.11
09/01/21	09/30/21	Sep 2021	38.97	31.12	35.35	30.79	35.32	31.19	41.43	34.35	38.91	34.85	3.24	3.60	3.18	3.18	3.36	3.33	2.93	2.79	3.44	3.29	3.26	3.15
10/01/21	10/31/21	Oct 2021	36.04	29.78	34.82	32.00	35.00	27.10	42.17	34.63	38.90	33.81	3.28	3.53	3.19	3.22	3.39	3.36	2.97	2.84	3.48	3.32	3.29	3.19
11/01/21	11/30/21	Nov 2021	37.98	30.29	33.40	31.48	36.16	30.39	42.17	35.57	40.70	34.43	3.36	3.68	3.26	3.37	3.46	3.43	3.33	2.97	3.63	3.47	3.44	3.57
12/01/21	12/31/21	Dec 2021	40.30	33.11	36.78	33.86	37.26	30.81	43.62	38.22	42.95	38.26	3.72	3.95	3.66	3.65	3.75	3.68	3.69	3.06	3.92	3.76	3.73	3.94
01/01/22	01/31/22	Jan 2022	39.65	33.58	38.23	34.43	36.83	30.95	44.02	39.06	42.84	38.56	3.82	4.08	3.77	3.79	3.85	3.78	3.73	3.12	4.07	3.91	3.87	3.99
02/01/22	02/28/22	Feb 2022	40.51	33.85	38.60	34.54	37.56	31.59	43.75	38.62	42.87	38.49	3.83	4.09	3.78	3.80	3.86	3.79	3.67	3.15	4.08	3.92	3.88	3.93
03/01/22	03/31/22	Mar 2022	36.58	31.34	37.35	33.22	33.98	29.21	42.05	36.94	40.92	37.48	3.77	4.01	3.70	3.72	3.78	3.70	3.64	3.10	3.99	3.83	3.80	3.90
04/01/22	04/30/22	Apr 2022	34.65	29.09	35.36	31.04	32.01	26.24	39.51	34.45	38.56	35.83	3.56	3.75	3.47	3.46	3.53	3.45	3.22	2.89	3.72	3.57	3.54	3.44
05/01/22	05/31/22	May 2022	31.54	23.73	34.69	30.06	28.47	21.21	39.28	32.45	37.89	33.11	3.57	3.77	3.46	3.42	3.53	3.43	3.14	2.90	3.68	3.53	3.49	3.36
06/01/22	06/30/22	Jun 2022	34.04	24.65	37.78	30.80	30.63	21.26	42.08	33.39	40.33	33.45	3.59	3.80	3.49	3.42	3.55	3.44	3.14	2.90	3.69	3.53	3.50	3.37
07/01/22	07/31/22	Jul 2022	40.35	27.97	42.92	33.90	36.82	25.47	46.35	37.17	45.08	37.05	3.63	3.94	3.53	3.46	3.61	3.49	3.26	2.92	3.73	3.57	3.54	3.49
08/01/22	08/31/22	Aug 2022	42.98	32.83	43.14	34.45	40.13	29.57	47.94	38.76	46.16	38.36	3.66	3.98	3.60	3.53	3.66	3.57	3.32	2.93	3.80	3.64	3.61	3.55
09/01/22	09/30/22	Sep 2022	42.10	34.34	39.11	33.83	38.79	32.94	44.80	37.29	42.99	37.54	3.66	3.90	3.59	3.54	3.67	3.60	3.36	3.06	3.81	3.65	3.62	3.59
10/01/22	10/31/22	Oct 2022	39.19	32.51	38.25	34.47	36.98	29.60	44.33	37.40	42.44	37.12	3.66	3.86	3.59	3.56	3.68	3.61	3.37	3.08	3.83	3.67	3.64	3.60
11/01/22	11/30/22	Nov 2022	40.73	33.16	38.26	34.42	38.06	31.61	44.74	38.09	43.69	37.53	3.74	3.99	3.69	3.70	3.79	3.73	3.61	3.27	3.98	3.82	3.78	3.87
12/01/22	12/31/22	Dec 2022	41.22	35.04	40.94	36.45	37.82	31.91	45.27	39.04	44.74	39.70	4.06	4.18	3.98	3.90	3.98	3.88	3.71	3.22	4.17	4.01	3.98	3.96
01/01/23	01/31/23	Jan 2023	41.82	35.46	42.66	38.23	38.35	32.29	46.23	41.04	45.87	41.13	4.14	4.31	4.10	4.07	4.13	4.02	3.85	3.21	4.34	4.18	4.14	4.11
02/01/23	02/28/23	Feb 2023	44.13	37.51	43.93	39.19	40.63	34.26	46.74	41.09	46.62	41.93	4.17	4.35	4.14	4.10	4.17	4.05	3.92	3.27	4.38	4.22	4.18	4.18
03/01/23	03/31/23	Mar 2023	39.25	33.98	42.75	38.01	35.91	30.87	45.10	39.56	45.06	40.86	4.12	4.25	4.04	3.99	4.07	3.94	3.91	3.21	4.27	4.11	4.07	4.17
04/01/23	04/30/23	Apr 2023	37.95	32.81	40.52	36.90	34.70	29.84	42.96	36.91	43.57	39.79	3.97	4.07	3.87	3.78	3.87	3.74	3.70	2.99	4.05	3.89	3.86	3.92
05/01/23	05/31/23	May 2023	33.46	26.64	38.40	35.16	30.37	23.85	41.84	35.47	41.62	37.63	3.98	4.07	3.87	3.77	3.87	3.70	3.59	3.06	4.04	3.88	3.85	3.81
06/01/23	06/30/23	Jun 2023	38.22	28.85	41.76	35.53	34.91	25.96	45.80	37.35	45.02	38.31	4.01	4.09	3.88	3.75	3.87	3.69	3.59	3.06	4.01	3.86	3.82	3.81
07/01/23	07/31/23	Jul 2023	42.38	32.58	45.44	37.25	38.90	29.53	50.15	40.30	48.74	40.17	4.04	4.12	3.92	3.77	3.91	3.71	3.62	3.07	4.04	3.88	3.85	3.85
08/01/23	08/31/23	Aug 2023	45.34	34.79	46.53	37.60	41.73	31.64	52.22	41.06	50.55	40.96	4.07	4.18	3.99	3.88	3.97	3.82	3.75	3.10	4.15	3.99	3.96	3.97
09/01/23	09/30/23	Sep 2023	45.22	37.57	42.87	36.86	42.25	34.68	48.17	40.23	47.08	40.22	4.07	4.20	3.99	3.91	3.98	3.87	3.80	3.33	4.17	4.02	3.98	4.02
10/01/23	10/31/23	Oct 2023	42.34	35.25	41.69	36.94	38.96	32.10	46.50	40.18	45.99	40.43	4.04	4.19	3.99	3.91	3.98	3.87	3.77	3.32	4.18	4.02	3.98	4.00
11/01/23	11/30/23	Nov 2023	43.49	36.04	43.11	37.36	39.95	32.83	47.32	40.61	46.68	40.64	4.13	4.30	4.12	4.04	4.12	4.03	3.89	3.56	4.31	4.15	4.12	4.15
12/01/23	12/31/23	Dec 2023	43.21	36.84	43.03	38.45	39.71	33.60	46.83	41.29	46.22	41.37	4.18	4.31	4.13	4.08	4.14	4.05	3.97	3.58	4.35	4.19	4.16	4.22
01/01/24	01/31/24	Jan 2024	44.03	37.04	44.52	39.76	40.45	33.77	47.51	41.87	47.09	42.14	4.22	4.39	4.19	4.12	4.20	4.08	3.98	3.59	4.40	4.24	4.20	4.25
02/01/24	02/29/24	Feb 2024	46.27	39.13	45.05	40.21	42.83	35.84	47.19	41.49	46.93	42.31	4.19	4.34	4.11	4.06	4.14	4.01	3.92	3.57	4.34	4.17	4.14	4.18
03/01/24	03/31/24	Mar 2024	41.64	35.62	44.26	39.23	38.19	32.46	45.64	39.80	45.47	41.24	4.17	4.26	4.05	4.00	4.08	3.93	3.93	3.57	4.27	4.11	4.07	4.19
04/01/24	04/30/24	Apr 2024	40.87	34.88	42.62	38.36	37.59	31.87	44.65	38.01	45.24	40.88	4.14	4.22	4.01	3.95	4.03	3.87	3.83	3.27	4.21	4.06	4.02	4.05
05/01/24	05/31/24	May 2024	34.13	27.37	39.63	36.43	30.97	24.51	42.49	35.88	42.27	38.55	4.14	4.21	4.00	3.91	4.00	3.80	3.68	3.27	4.17	4.02	3.98	3.90
06/01/24	06/30/24	Jun 2024	38.67	29.97	42.24	36.88	35.31	26.99	45.77	38.13	45.04	39.52	4.15	4.21	4.00	3.90	3.98	3.78	3.68	3.26	4.16	4.01	3.97	3.91
07/01/24	07/31/24	Jul 2024	44.58	34.08	47.07	38.09	40.96	30.92	51.50	41.13	49.82	41.06	4.20	4.25	4.03	3.92	4.01	3.81	3.70	3.38	4.19	4.03	4.00	3.92
08/01/24	08/31/24	Aug 2024	47.98	37.36	48.49	39.19	44.22	34.06	53.89	42.52	52.16	42.48	4.22	4.34	4.14	4.05	4.12	3.96	3.88	3.42	4.31	4.16	4.12	4.11
09/01/24	09/30/24	Sep 2024	48.46	40.38	46.33	39.31	45.38	37.38	51.04	42.20	49.82	42.31	4.24	4.37	4.17	4.10	4.15	4.03	3.97	3.58	4.36	4.21	4.17	4.20
10/01/24	10/31/24	Oct 2024	45.16	37.22	46.37	39.60	41.70	33.97	50.01	40.90	48.75	42.13	4.26	4.40	4.21	4.14	4.19	4.08	4.00	3.59	4.40	4.25	4.21	4.23
11/01/24	11/30/24	Nov 2024	45.76	38.30	46.22	40.15	42.08	34.96	50.37	41.89	48.89	42.82	4.37	4.54	4.35	4.30	4.34	4.25	4.12	3.90	4.57	4.41	4.38	4.38
12/01/24	12/31/24	Dec 2024	45.88	39.17	45.62	40.74	42.22	35.79	49.83	42.43	48.43	43.40	4.44	4.54	4.35	4.29	4.35	4.24	4.06	3.87	4.56	4.40	4.36	4.31
01/01/25	01/31/25	Jan 2025	46.87	39.34	46.67	41.56	43.15	35.94	49.74	42.41	48.95	43.78	4.50	4.64	4.43	4.41	4.46	4.35	4.24	3.92	4.68	4.52	4.48	4.50
02/01/25	02/28/25	Feb 2025	49.46	41.87	47.67	42.53	45.98	38.45	49.17	42.22	49.24	44.40	4.52	4.65	4.44	4.41	4.46	4.35	4.29	3.93	4.68	4.52	4.48	4.55
03/01/25	03/31/25	Mar 2025	44.29	37.97	45.89	40.94	40.74	34.66	47.22	40.64	47.49	43.23	4.50	4.57	4.37	4.32	4.39	4.26	4.25	3.84	4.59	4.43	4.39	4.51
04/01/25	04/30/25	Apr 2025	42.99	37.03	44.20	39.99	39.60	33.86	45.89	40.03	46.54	42.35	4.43	4.53	4.34	4.26	4.34	4.19	4.12	3.51	4.53	4.37	4.34	4.34

Quote Date		Data Type:	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC
11/2/2015		Commodity:	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
		POD:	COB N-S	COB N-S	PV	PV	MID-C	MID-C	NP15	NP15	SP15	SP15	HENRYHUB	SOCALBOR	SANJUAN	ROCKOPAL	MALINGAS	STANFLDS	SUMASS	AECO	GADSBY	CURRCRK	LAKESIDE	Z_CHEBRN
		Tue, 5/31/2005																						
			COB		Palo Verde		Mid-Columbia		NP 15		SP 15		Henry Hub Gas	SOCALBOR	SANJUAN	Opal Gas	Malin Gas	Stanford Gas	SUMAS	AECO	GADSBY	Current Creek	Lakeside	Z_CHEBRN'
Start	End	Peak Type:	Forward Prices	Forward Prices	Forward Prices	Forward Prices	Forward Prices	Forward Prices	Forward Prices	Forward Prices	Forward Prices	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price
			HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH
01/01/16	01/31/16	Jan 2016	28.00	23.75	23.25	20.25	25.75	22.25	32.00	26.50	31.00	26.25	2.45	2.56	2.40	2.43	2.49	2.47	2.36	1.98	2.68	2.53	2.51	2.52
02/01/16	02/29/16	Feb 2016	28.00	23.00	22.25	20.50	24.75	21.00	31.25	26.25	30.25	26.00	2.47	2.57	2.43	2.45	2.53	2.51	2.35	2.00	2.70	2.55	2.53	2.51
03/01/16	03/31/16	Mar 2016	25.75	20.50	21.50	19.75	22.25	18.25	30.50	25.25	29.50	25.00	2.47	2.46	2.30	2.33	2.43	2.40	2.15	1.98	2.57	2.43	2.40	2.30
04/01/16	04/30/16	Apr 2016	25.44	19.75	21.85	19.31	21.58	16.39	30.24	25.00	28.13	24.75	2.43	2.38	2.25	2.22	2.30	2.28	2.02	1.92	2.46	2.30	2.28	2.16
05/01/16	05/31/16	May 2016	24.48	17.75	22.33	19.11	20.75	13.82	31.19	22.75	28.71	22.50	2.46	2.42	2.29	2.25	2.34	2.32	1.87	1.91	2.49	2.33	2.31	2.00
06/01/16	06/30/16	Jun 2016	22.08	16.47	27.55	20.09	19.92	12.54	33.08	22.80	30.16	22.50	2.51	2.46	2.33	2.29	2.39	2.36	1.99	1.91	2.54	2.38	2.36	2.13
07/01/16	07/31/16	Jul 2016	30.94	22.45	33.13	22.56	27.72	19.36	36.25	28.13	36.21	28.86	2.56	2.65	2.42	2.40	2.45	2.43	2.00	2.06	2.55	2.49	2.47	2.14
08/01/16	08/31/16	Aug 2016	32.19	25.25	32.19	24.96	29.40	23.06	37.34	30.45	36.57	30.64	2.57	2.67	2.46	2.38	2.49	2.47	2.09	1.94	2.63	2.47	2.45	2.24
09/01/16	09/30/16	Sep 2016	30.63	23.60	28.44	24.30	27.16	22.84	35.16	28.42	34.00	29.75	2.57	2.61	2.44	2.34	2.48	2.46	2.04	1.94	2.59	2.43	2.41	2.18
10/01/16	10/31/16	Oct 2016	29.06	24.48	27.54	23.25	25.76	21.16	36.88	28.98	33.80	28.30	2.60	2.58	2.41	2.39	2.46	2.44	2.18	1.97	2.64	2.48	2.46	2.33
11/01/16	11/30/16	Nov 2016	30.00	24.99	26.19	22.79	27.44	23.25	36.88	29.89	35.00	28.86	2.69	2.71	2.53	2.54	2.62	2.59	2.62	2.11	2.80	2.64	2.61	2.82
12/01/16	12/31/16	Dec 2016	33.75	27.03	27.27	23.72	30.80	25.34	38.00	32.64	36.75	32.13	2.84	2.91	2.70	2.73	2.81	2.78	3.06	2.26	2.99	2.83	2.80	3.28
01/01/17	01/31/17	Jan 2017	31.46	26.25	27.04	24.70	28.09	23.66	37.54	31.46	34.84	30.39	2.94	2.95	2.80	2.81	2.87	2.85	2.89	2.32	3.06	2.91	2.88	3.11
02/01/17	02/28/17	Feb 2017	30.86	25.00	26.52	23.99	27.29	22.98	36.47	30.55	34.17	29.50	2.94	2.94	2.79	2.78	2.87	2.85	2.68	2.33	3.03	2.88	2.85	2.88
03/01/17	03/31/17	Mar 2017	28.44	23.75	25.74	22.56	24.88	21.61	34.00	28.74	32.10	28.62	2.88	2.90	2.73	2.73	2.82	2.80	2.62	2.30	2.98	2.82	2.80	2.82
04/01/17	04/30/17	Apr 2017	25.75	20.95	23.97	21.78	24.14	18.60	31.50	26.75	29.05	26.70	2.70	2.62	2.50	2.52	2.54	2.51	2.10	2.12	2.76	2.61	2.59	2.25
05/01/17	05/31/17	May 2017	23.99	15.50	24.74	21.56	21.32	14.10	31.68	24.18	29.45	23.72	2.70	2.64	2.50	2.45	2.53	2.51	2.09	2.10	2.69	2.54	2.52	2.24
06/01/17	06/30/17	Jun 2017	24.24	15.93	27.54	22.50	20.66	12.15	33.60	24.96	30.94	23.72	2.74	2.69	2.55	2.49	2.58	2.56	2.12	2.13	2.73	2.58	2.56	2.27
07/01/17	07/31/17	Jul 2017	32.11	19.75	33.66	23.60	28.12	17.33	37.25	29.83	36.25	29.83	2.79	2.95	2.62	2.57	2.67	2.65	2.31	2.16	2.81	2.66	2.64	2.47
08/01/17	08/31/17	Aug 2017	34.42	27.50	33.02	25.74	31.97	23.63	38.37	31.50	37.08	31.67	2.80	2.93	2.65	2.59	2.70	2.68	2.33	2.17	2.83	2.68	2.66	2.49
09/01/17	09/30/17	Sep 2017	32.77	27.75	28.58	25.25	28.71	27.23	36.13	30.14	34.20	30.75	2.79	2.76	2.63	2.58	2.71	2.68	2.33	2.18	2.83	2.67	2.65	2.49
10/01/17	10/31/17	Oct 2017	30.23	24.72	28.56	25.50	27.79	21.38	37.62	30.16	33.96	29.45	2.82	2.76	2.62	2.59	2.72	2.69	2.37	2.21	2.84	2.69	2.66	2.54
11/01/17	11/30/17	Nov 2017	32.18	25.24	27.16	24.99	28.96	24.70	37.62	31.12	35.75	30.07	2.90	2.97	2.76	2.83	2.87	2.84	2.94	2.38	3.08	2.93	2.90	3.16
12/01/17	12/31/17	Dec 2017	35.10	27.30	28.28	26.01	31.01	25.18	38.76	33.97	37.54	33.48	3.05	3.13	2.95	3.01	3.03	3.01	3.24	2.48	3.27	3.11	3.08	3.48
01/01/18	01/31/18	Jan 2018	33.31	27.60	28.54	25.95	30.34	25.66	38.29	32.81	35.59	31.89	3.14	3.22	3.02	3.05	3.10	3.07	3.19	2.56	3.30	3.15	3.12	3.43
02/01/18	02/28/18	Feb 2018	32.71	26.35	28.02	25.24	29.54	24.98	37.22	31.90	34.92	31.00	3.13	3.19	3.00	3.04	3.09	3.06	2.98	2.54	3.29	3.14	3.11	3.20
03/01/18	03/31/18	Mar 2018	30.29	25.10	27.24	23.81	27.13	23.61	34.00	30.09	32.24	30.12	3.07	3.14	2.94	2.98	3.03	3.00	2.91	2.48	3.23	3.08	3.05	3.13
04/01/18	04/30/18	Apr 2018	28.75	23.54	24.97	20.78	25.14	19.60	31.47	29.61	29.82	2.78	2.82	2.64	2.64	2.66	2.63	2.21	2.28	2.88	2.73	2.71	2.36	
05/01/18	05/31/18	May 2018	25.25	16.44	25.74	20.56	22.32	15.10	32.43	24.93	30.20	24.47	2.78	2.84	2.63	2.56	2.66	2.63	2.16	2.22	2.80	2.66	2.63	2.31
06/01/18	06/30/18	Jun 2018	25.50	17.33	28.54	21.66	21.66	13.15	34.35	25.71	31.69	24.47	2.81	2.89	2.66	2.60	2.70	2.67	2.15	2.23	2.83	2.69	2.67	2.30
07/01/18	07/31/18	Jul 2018	33.96	20.00	35.66	25.01	30.37	17.75	38.25	31.18	37.47	31.13	2.85	3.15	2.71	2.65	2.78	2.76	2.40	2.24	2.89	2.75	2.72	2.56
08/01/18	08/31/18	Aug 2018	36.27	27.00	35.02	27.24	34.22	24.05	39.37	33.64	37.83	32.97	2.86	3.17	2.76	2.67	2.81	2.78	2.89	2.25	2.91	2.76	2.74	2.56
09/01/18	09/30/18	Sep 2018	34.62	27.50	30.58	26.75	30.96	27.65	37.13	31.49	34.95	32.05	2.85	2.98	2.73	2.66	2.80	2.78	2.43	2.27	2.90	2.76	2.73	2.60
10/01/18	10/31/18	Oct 2018	32.08	26.07	29.31	27.25	30.54	22.73	37.62	31.51	34.71	30.75	2.88	2.90	2.74	2.69	2.82	2.80	2.44	2.29	2.93	2.78	2.76	2.61
11/01/18	11/30/18	Nov 2018	34.03	26.59	27.91	26.74	31.71	26.95	37.62	32.47	36.50	31.37	2.96	3.11	2.86	2.90	3.01	2.98	3.13	2.48	3.15	3.00	2.98	3.36
12/01/18	12/31/18	Dec 2018	36.95	28.65	29.03	27.76	33.76	26.53	38.76	35.32	38.29	34.78	3.11	3.26	3.04	3.11	3.19	3.16	3.50	2.60	3.36	3.21	3.18	3.75
01/01/19	01/31/19	Jan 2019	34.81	30.10	30.04	27.30	31.84	28.25	39.44	33.91	36.74	32.50	3.22	3.41	3.14	3.19	3.22	3.20	3.39	2.70	3.45	3.29	3.26	3.64
02/01/19	02/28/19	Feb 2019	34.21	28.85	29.52	26.59	31.04	27.25	38.37	33.00	36.07	31.50	3.21	3.37	3.13	3.18	3.22	3.19	3.19	2.69	3.44	3.28	3.25	3.43
03/01/19	03/31/19	Mar 2019	31.79	27.65	28.74	25.16	28.63	25.75	35.15	31.19	33.39	30.75	3.15	3.33	3.07	3.12	3.15	3.13	3.13	2.63	3.37	3.22	3.19	3.37
04/01/19	04/30/19	Apr 2019	29.87	24.50	26.50	22.13	26.64	20.25	32.62	28.50	31.50	29.00	2.86	3.03	2.77	2.74	2.83	2.81	2.51	2.41	2.99	2.84	2.82	2.68
05/01/19	05/31/19	May 2019	26.25	17.25	27.24	21.91	23.82	16.25	33.58	24.00	32.25	24.00	2.86	3.06	2.75	2.67	2.83	2.80	2.47	2.36	2.91	2.77	2.74	2.64
06/01/19	06/30/19	Jun 2019	26.50	18.25	30.10	23.01	23.16	14.00	35.50	24.81	32.50	23.75	2.89	3.09	2.79	2.70	2.86	2.84	2.46	2.35	2.94	2.80	2.77	2.63
07/01/19	07/31/19	Jul 2019	35.46	20.00	37.16	26.36	31.87	18.00	39.40	32.00	38.62	32.23	2.93	3.34	2.83	2.76	2.96	2.93	2.64	2.35	3.00	2.86	2.83	2.82
08/01/19	08/31/19	Aug 2019	37.77	27.00	36.52	28.59	35.72	23.25	40.52	32.25	38.98	34.07	2.94	3.35	2.88	2.78								

04/01/21	04/30/21	Apr 2021	33.67	28.54	29.87	24.73	29.44	24.60	34.92	32.71	33.06	32.92	3.14	3.43	3.06	3.13	3.18	3.15	2.75	2.81	3.39	3.24	3.21	2.96
05/01/21	05/31/21	May 2021	30.14	21.44	30.64	24.51	26.62	20.10	35.88	28.03	33.65	27.57	3.14	3.46	3.05	3.06	3.17	3.14	2.70	2.75	3.31	3.16	3.13	2.91
06/01/21	06/30/21	Jun 2021	30.39	22.33	33.44	25.61	25.96	18.15	37.80	28.81	35.14	27.57	3.17	3.50	3.09	3.09	3.21	3.18	2.71	2.76	3.35	3.20	3.16	2.91
07/01/21	07/31/21	Jul 2021	38.26	26.10	40.56	28.96	34.67	22.83	41.70	34.28	40.92	34.23	3.20	3.75	3.13	3.15	3.29	3.26	2.91	2.78	3.41	3.26	3.22	3.13
08/01/21	08/31/21	Aug 2021	40.57	33.85	39.92	31.19	38.52	29.13	42.82	36.74	41.28	36.07	3.23	3.77	3.19	3.18	3.34	3.31	2.90	2.76	3.44	3.29	3.25	3.12
09/01/21	09/30/21	Sep 2021	38.92	34.10	35.48	30.70	35.26	32.73	40.58	34.59	38.40	35.15	3.23	3.59	3.17	3.18	3.34	3.31	2.94	2.80	3.44	3.28	3.25	3.16
10/01/21	10/31/21	Oct 2021	36.38	31.07	34.21	31.20	34.84	27.73	41.07	34.61	38.16	33.85	3.27	3.52	3.18	3.21	3.37	3.35	2.98	2.84	3.47	3.32	3.29	3.20
11/01/21	11/30/21	Nov 2021	38.33	31.59	32.81	30.69	36.01	31.05	41.07	35.57	39.95	34.47	3.35	3.67	3.25	3.37	3.47	3.44	3.35	2.99	3.63	3.48	3.44	3.59
12/01/21	12/31/21	Dec 2021	40.41	33.39	36.48	33.69	37.11	30.77	43.17	38.23	42.66	38.29	3.71	3.94	3.65	3.65	3.75	3.68	3.69	3.07	3.92	3.76	3.73	3.95
01/01/22	01/31/22	Jan 2022	39.71	34.03	38.05	34.07	36.50	31.47	43.98	38.48	42.46	38.06	3.82	4.08	3.77	3.79	3.85	3.78	3.74	3.13	4.07	3.91	3.87	4.00
02/01/22	02/28/22	Feb 2022	40.57	34.43	38.42	34.19	37.23	32.12	43.70	38.05	42.50	38.01	3.82	4.08	3.78	3.80	3.86	3.79	3.68	3.16	4.08	3.92	3.88	3.94
03/01/22	03/31/22	Mar 2022	36.92	32.04	37.44	32.88	33.67	29.74	41.27	36.37	40.38	37.04	3.77	4.00	3.70	3.72	3.78	3.70	3.65	3.11	3.99	3.83	3.80	3.91
04/01/22	04/30/22	Apr 2022	35.81	30.67	35.20	30.81	32.07	27.22	38.94	34.81	38.31	36.36	3.55	3.75	3.47	3.46	3.53	3.44	3.22	2.90	3.72	3.57	3.53	3.45
05/01/22	05/31/22	May 2022	31.80	24.04	34.52	29.84	28.49	21.97	38.86	31.75	37.64	32.60	3.56	3.76	3.46	3.42	3.52	3.42	3.15	2.91	3.68	3.52	3.49	3.37
06/01/22	06/30/22	Jun 2022	34.30	25.59	37.60	30.57	30.44	22.06	41.80	33.08	40.08	32.94	3.59	3.79	3.48	3.42	3.54	3.43	3.15	2.91	3.68	3.53	3.49	3.37
07/01/22	07/31/22	Jul 2022	40.32	29.34	43.00	33.10	36.78	26.18	45.92	37.29	44.83	37.20	3.62	3.93	3.52	3.46	3.60	3.49	3.27	2.93	3.73	3.57	3.54	3.49
08/01/22	08/31/22	Aug 2022	42.96	34.32	43.22	34.40	40.12	30.38	47.52	38.90	45.92	38.52	3.65	3.97	3.59	3.53	3.66	3.57	3.32	2.93	3.80	3.64	3.61	3.55
09/01/22	09/30/22	Sep 2022	42.07	35.84	39.17	33.78	38.76	33.70	44.38	37.41	42.74	37.69	3.65	3.89	3.58	3.54	3.66	3.59	3.37	3.07	3.81	3.65	3.62	3.59
10/01/22	10/31/22	Oct 2022	39.36	33.16	37.95	34.07	36.90	29.91	43.79	37.40	42.08	37.14	3.65	3.85	3.59	3.56	3.68	3.61	3.37	3.08	3.83	3.67	3.64	3.60
11/01/22	11/30/22	Nov 2022	40.91	33.81	37.96	34.02	37.98	31.94	44.19	38.09	43.32	37.55	3.74	3.99	3.68	3.70	3.79	3.73	3.62	3.28	3.98	3.82	3.78	3.87
12/01/22	12/31/22	Dec 2022	41.22	35.04	40.94	36.45	37.82	31.91	45.27	39.04	44.74	39.70	4.06	4.18	3.98	3.90	3.98	3.88	3.71	3.22	4.17	4.01	3.98	3.96
01/01/23	01/31/23	Jan 2023	41.82	35.46	42.66	38.23	38.35	32.29	46.23	41.04	45.87	41.13	4.14	4.31	4.10	4.07	4.13	4.02	3.85	3.21	4.34	4.18	4.14	4.11
02/01/23	02/28/23	Feb 2023	44.13	37.51	43.93	39.19	40.63	34.26	46.74	41.09	46.62	41.93	4.17	4.35	4.14	4.10	4.17	4.05	3.92	3.27	4.38	4.22	4.18	4.18
03/01/23	03/31/23	Mar 2023	39.25	33.98	42.75	38.01	35.91	30.87	45.10	39.56	45.08	40.86	4.12	4.25	4.04	3.99	4.07	3.94	3.91	3.21	4.27	4.11	4.07	4.17
04/01/23	04/30/23	Apr 2023	37.95	32.81	40.52	36.90	34.70	29.84	42.96	36.91	43.57	39.79	3.97	4.07	3.87	3.78	3.87	3.74	3.70	2.99	4.05	3.89	3.86	3.92
05/01/23	05/31/23	May 2023	33.46	26.64	38.40	35.16	30.37	23.85	41.84	35.47	41.62	37.63	3.98	4.07	3.87	3.77	3.87	3.70	3.59	3.06	4.04	3.88	3.85	3.81
06/01/23	06/30/23	Jun 2023	38.22	28.85	41.76	35.53	34.91	25.96	45.80	37.35	45.02	38.31	4.01	4.09	3.88	3.75	3.87	3.69	3.59	3.06	4.01	3.86	3.82	3.81
07/01/23	07/31/23	Jul 2023	42.38	32.58	45.44	37.25	38.90	29.53	50.15	40.30	48.74	40.17	4.04	4.12	3.92	3.77	3.91	3.71	3.62	3.07	4.04	3.88	3.85	3.85
08/01/23	08/31/23	Aug 2023	45.34	34.79	46.53	37.60	41.73	31.64	52.22	41.06	50.55	40.96	4.07	4.18	3.99	3.88	3.97	3.82	3.75	3.10	4.15	3.99	3.96	3.98
09/01/23	09/30/23	Sep 2023	45.22	37.57	42.87	36.86	42.25	34.68	48.17	40.23	47.08	40.22	4.07	4.20	3.99	3.91	3.98	3.87	3.80	3.33	4.17	4.02	3.98	4.02
10/01/23	10/31/23	Oct 2023	42.34	35.25	41.69	36.94	38.96	32.10	46.50	40.18	45.99	40.43	4.04	4.19	3.99	3.91	3.98	3.87	3.77	3.32	4.18	4.02	3.98	4.00
11/01/23	11/30/23	Nov 2023	43.49	36.04	43.11	37.36	39.95	32.83	47.32	40.61	46.68	40.64	4.13	4.30	4.12	4.04	4.12	4.03	3.89	3.56	4.31	4.16	4.12	4.14
12/01/23	12/31/23	Dec 2023	43.21	36.84	43.03	38.45	39.71	33.60	46.83	41.29	46.22	41.37	4.18	4.31	4.13	4.08	4.14	4.05	3.97	3.58	4.35	4.19	4.16	4.22
01/01/24	01/31/24	Jan 2024	44.03	37.04	44.52	39.76	40.45	33.77	47.51	41.87	47.09	42.14	4.22	4.39	4.19	4.12	4.20	4.08	3.98	3.59	4.40	4.24	4.20	4.25
02/01/24	02/29/24	Feb 2024	46.27	39.13	45.05	40.21	42.83	35.84	47.19	41.49	46.93	42.31	4.19	4.34	4.11	4.06	4.14	4.01	3.92	3.57	4.34	4.17	4.14	4.19
03/01/24	03/31/24	Mar 2024	41.64	35.62	44.26	39.23	42.19	32.46	45.64	39.80	45.47	41.24	4.17	4.26	4.05	4.00	4.08	3.93	3.93	3.57	4.27	4.11	4.07	4.19
04/01/24	04/30/24	Apr 2024	40.87	34.88	42.62	38.36	37.59	31.87	44.65	38.01	45.24	40.88	4.14	4.22	4.01	3.95	4.03	3.87	3.83	3.27	4.21	4.06	4.02	4.06
05/01/24	05/31/24	May 2024	34.13	27.37	39.63	36.43	30.97	24.51	42.49	35.88	42.27	38.55	4.14	4.21	4.00	3.91	4.00	3.80	3.68	3.27	4.17	4.02	3.98	3.90
06/01/24	06/30/24	Jun 2024	38.67	29.97	42.24	36.88	35.31	26.99	45.77	38.13	45.04	39.52	4.15	4.21	4.00	3.90	3.98	3.78	3.68	3.26	4.16	4.01	3.97	3.91
07/01/24	07/31/24	Jul 2024	44.58	34.08	47.07	38.09	40.96	30.92	51.50	41.13	49.82	41.06	4.20	4.25	4.03	3.92	4.01	3.81	3.70	3.38	4.19	4.03	4.00	3.92
08/01/24	08/31/24	Aug 2024	47.98	37.36	48.49	39.19	44.22	34.06	53.89	42.52	52.16	42.48	4.22	4.34	4.14	4.05	4.12	3.96	3.88	3.42	4.31	4.16	4.12	4.11
09/01/24	09/30/24	Sep 2024	48.46	40.38	46.33	39.31	45.38	37.38	51.04	42.20	49.82	42.31	4.24	4.37	4.17	4.10	4.15	4.03	3.97	3.58	4.36	4.21	4.17	4.20
10/01/24	10/31/24	Oct 2024	45.16	37.22	46.37	39.60	41.70	33.97	50.01	40.90	48.75	42.13	4.26	4.40	4.21	4.14	4.19	4.08	4.00	3.59	4.40	4.25	4.21	4.23
11/01/24	11/30/24	Nov 2024	45.76	38.30	46.22	40.15	42.08	34.96	50.37	41.89	48.89	42.82	4.37	4.54	4.35	4.30	4.34	4.25	4.12	3.90	4.57	4.41	4.38	4.37
12/01/24	12/31/24	Dec 2024	45.88	39.17	45.62	40.74	42.22	35.79	49.83	42.43	48.43	43.40	4.44	4.54	4.35	4.29	4.35	4.24	4.06	3.87	4.56	4.40	4.36	4.32
01/01/25	01/31/25	Jan 2025	46.87	39.34	46.67	41.56	43.15	35.94	49.74	42.41	48.95	43.78	4.50	4.64	4.43	4.41	4.46	4.35	4.24	3.92	4.68	4.52	4.48	4.50
02/01/25	02/28/25	Feb 2025	49.46	41.87	47.67	42.53	45.98	38.45	49.17	42.22	49.24	44.40	4.52	4.65	4.44	4.41	4.46	4.35	4.29	3.93	4.68	4.52	4.48	4.55
03/01/25	03/31/25	Mar 2025	44.29	37.97	45.89	40.94	40.74	34.66	47.22	40.64	47.49	43.23	4.50	4.57	4.37	4.32	4.39	4.26	4.25	3.84	4.59	4.43	4.39	4.51
04/01/25	04/30/25	Apr 2025	42.99	37.03	44.20	39.99	39.60	33.86	45.89	40.03	46.54	42.35	4.43	4.53	4.34	4.26	4.34	4.19	4.12	3.51	4.53	4.37	4.34	4.35

01/01/21	01/31/21	Jan 2021	37.49	32.29	36.47	31.69	37.44	31.69	44.58	36.37	42.12	36.17	3.55	3.89	3.49	3.56	3.60	3.57	3.63	3.09	3.83	3.67	3.64	3.89
02/01/21	02/28/21	Feb 2021	36.92	31.05	35.91	30.95	36.06	31.22	43.45	35.46	41.41	35.25	3.53	3.86	3.48	3.55	3.58	3.55	3.44	3.08	3.82	3.66	3.63	3.69
03/01/21	03/31/21	Mar 2021	34.63	29.82	33.67	29.46	33.00	29.34	40.08	33.63	38.57	34.33	3.47	3.80	3.42	3.49	3.52	3.49	3.40	3.04	3.76	3.60	3.57	3.65
04/01/21	04/30/21	Apr 2021	33.91	28.23	32.53	29.16	31.18	24.16	36.40	32.68	35.27	33.29	3.19	3.45	3.11	3.22	3.18	3.15	2.78	2.84	3.48	3.33	3.30	2.99
05/01/21	05/31/21	May 2021	30.55	21.23	33.32	24.70	28.51	19.82	37.38	28.13	35.89	27.98	3.18	3.49	3.10	3.15	3.17	3.15	2.74	2.78	3.41	3.26	3.23	2.94
06/01/21	06/30/21	Jun 2021	30.79	22.10	35.71	25.34	28.51	17.96	39.33	28.89	37.44	27.98	3.21	3.52	3.13	3.18	3.21	3.18	2.71	2.79	3.44	3.29	3.26	2.95
07/01/21	07/31/21	Jul 2021	39.28	25.86	41.80	29.70	35.20	22.12	43.45	34.24	42.94	34.57	3.25	3.78	3.18	3.24	3.29	3.26	2.95	2.81	3.50	3.35	3.32	3.17
08/01/21	08/31/21	Aug 2021	41.55	33.52	41.15	31.95	40.69	26.90	44.60	36.68	43.31	36.43	3.28	3.80	3.24	3.27	3.34	3.31	2.93	2.80	3.53	3.38	3.35	3.15
09/01/21	09/30/21	Sep 2021	39.93	33.77	36.60	31.45	38.86	31.69	42.30	34.54	40.35	35.50	3.28	3.62	3.22	3.27	3.35	3.32	2.97	2.84	3.53	3.38	3.35	3.19
10/01/21	10/31/21	Oct 2021	37.74	31.79	35.92	28.00	36.01	29.15	43.32	35.29	39.64	35.38	3.32	3.55	3.24	3.31	3.38	3.35	3.02	2.89	3.57	3.42	3.39	3.24
11/01/21	11/30/21	Nov 2021	39.39	32.62	36.88	30.91	36.45	31.75	43.77	37.05	42.49	37.14	3.62	3.85	3.57	3.56	3.65	3.58	3.51	2.99	3.83	3.67	3.64	3.75
12/01/21	12/31/21	Dec 2021	40.90	33.99	37.29	31.74	37.55	32.29	44.00	38.60	43.13	39.15	3.74	3.96	3.68	3.67	3.76	3.69	3.69	3.08	3.94	3.78	3.74	3.95
01/01/22	01/31/22	Jan 2022	39.66	33.87	39.56	34.96	37.90	31.99	45.40	38.71	44.00	38.65	3.84	4.10	3.80	3.81	3.86	3.79	3.74	3.15	4.09	3.93	3.89	4.00
02/01/22	02/28/22	Feb 2022	40.52	34.28	39.92	35.07	38.34	32.74	45.09	38.27	44.02	38.59	3.85	4.10	3.81	3.83	3.87	3.80	3.68	3.17	4.10	3.94	3.90	3.94
03/01/22	03/31/22	Mar 2022	36.94	31.90	38.21	33.73	34.45	30.10	42.59	36.59	41.82	37.59	3.80	4.03	3.73	3.74	3.80	3.72	3.65	3.13	4.02	3.86	3.82	3.92
04/01/22	04/30/22	Apr 2022	35.93	30.52	36.52	33.03	32.94	27.00	39.68	34.79	39.42	36.54	3.58	3.76	3.49	3.50	3.53	3.44	3.24	2.91	3.77	3.61	3.58	3.47
05/01/22	05/31/22	May 2022	32.01	23.93	35.86	29.93	29.44	21.83	39.61	31.80	38.76	32.80	3.58	3.78	3.48	3.46	3.52	3.42	3.16	2.92	3.73	3.57	3.54	3.39
06/01/22	06/30/22	Jun 2022	34.50	25.48	38.73	30.43	31.71	21.96	42.56	33.12	41.23	33.14	3.61	3.81	3.51	3.46	3.54	3.43	3.16	2.93	3.73	3.58	3.54	3.39
07/01/22	07/31/22	Jul 2022	40.83	29.22	43.62	33.47	37.05	25.82	46.80	37.27	45.84	37.37	3.65	3.95	3.55	3.51	3.60	3.49	3.29	2.94	3.78	3.62	3.58	3.51
08/01/22	08/31/22	Aug 2022	43.45	34.15	43.84	34.78	41.21	29.27	48.41	38.87	46.93	38.70	3.67	3.99	3.62	3.58	3.66	3.57	3.34	2.95	3.85	3.69	3.65	3.57
09/01/22	09/30/22	Sep 2022	42.57	35.67	39.73	34.16	40.55	33.18	45.24	37.38	43.71	37.86	3.67	3.91	3.61	3.59	3.66	3.59	3.38	3.08	3.86	3.70	3.67	3.62
10/01/22	10/31/22	Oct 2022	40.04	33.52	38.80	32.47	37.49	30.63	44.91	37.74	42.81	37.90	3.68	3.87	3.61	3.61	3.68	3.61	3.40	3.10	3.88	3.72	3.69	3.63
11/01/22	11/30/22	Nov 2022	41.10	34.43	41.27	35.83	37.71	31.33	45.98	38.85	45.28	39.26	4.00	4.18	3.98	3.90	3.97	3.86	3.73	3.19	4.17	4.01	3.98	3.98
12/01/22	12/31/22	Dec 2022	41.22	35.04	40.94	36.45	37.82	31.91	45.27	39.04	44.74	39.70	4.06	4.18	3.98	3.90	3.98	3.88	3.71	3.22	4.17	4.01	3.98	3.96
01/01/23	01/31/23	Jan 2023	41.82	35.46	42.66	38.23	38.35	32.29	46.23	41.04	45.87	41.13	4.14	4.31	4.10	4.07	4.13	4.02	3.85	3.21	4.35	4.18	4.14	4.11
02/01/23	02/28/23	Feb 2023	44.13	37.51	43.93	39.19	40.63	34.26	46.74	41.09	46.62	41.93	4.17	4.35	4.14	4.10	4.17	4.05	3.92	3.27	4.38	4.22	4.18	4.18
03/01/23	03/31/23	Mar 2023	39.25	33.98	42.75	38.01	35.91	30.87	45.10	39.56	45.08	40.86	4.12	4.25	4.04	3.99	4.07	3.94	3.91	3.21	4.27	4.11	4.07	4.17
04/01/23	04/30/23	Apr 2023	37.95	32.81	40.52	36.90	34.70	29.84	42.96	36.91	43.57	39.79	3.97	4.07	3.87	3.78	3.86	3.91	3.70	2.99	4.05	3.89	3.86	3.92
05/01/23	05/31/23	May 2023	33.46	26.64	38.40	35.16	30.37	23.85	41.84	35.47	41.62	37.63	3.98	4.07	3.87	3.77	3.87	3.70	3.59	3.06	4.04	3.88	3.85	3.81
06/01/23	06/30/23	Jun 2023	38.22	28.85	41.76	35.53	34.91	25.96	45.80	37.35	45.02	38.31	4.01	4.09	3.88	3.75	3.87	3.69	3.59	3.06	4.02	3.86	3.82	3.81
07/01/23	07/31/23	Jul 2023	42.38	32.58	45.44	37.25	38.90	29.53	50.15	40.30	48.74	40.17	4.04	4.12	3.92	3.77	3.91	3.71	3.62	3.07	4.04	3.88	3.85	3.85
08/01/23	08/31/23	Aug 2023	45.34	34.79	46.53	37.60	41.73	31.64	52.22	41.06	50.55	40.96	4.07	4.18	3.99	3.88	3.97	3.82	3.75	3.10	4.15	3.99	3.96	3.98
09/01/23	09/30/23	Sep 2023	45.22	37.57	42.87	36.86	42.25	34.68	48.17	40.23	47.08	40.22	4.07	4.20	3.99	3.91	3.98	3.87	3.80	3.33	4.18	4.02	3.98	4.03
10/01/23	10/31/23	Oct 2023	42.34	35.25	41.69	36.94	38.96	32.10	46.50	40.18	45.99	40.43	4.04	4.19	3.99	3.91	3.98	3.87	3.77	3.32	4.18	4.02	3.98	4.01
11/01/23	11/30/23	Nov 2023	43.49	36.04	43.11	37.36	39.95	32.83	47.32	40.61	46.68	40.64	4.13	4.30	4.12	4.04	4.12	4.03	3.89	3.56	4.31	4.15	4.12	4.14
12/01/23	12/31/23	Dec 2023	43.21	36.84	43.03	38.45	39.71	33.60	46.83	41.29	46.22	41.37	4.18	4.31	4.13	4.08	4.14	4.05	3.97	3.58	4.35	4.19	4.16	4.23
01/01/24	01/31/24	Jan 2024	44.03	37.04	44.52	39.76	40.45	33.77	47.51	41.87	47.09	42.14	4.22	4.39	4.19	4.12	4.20	4.08	3.98	3.59	4.40	4.24	4.20	4.25
02/01/24	02/29/24	Feb 2024	46.27	39.13	45.05	40.21	42.83	35.84	47.19	41.49	46.93	42.31	4.19	4.34	4.11	4.06	4.14	4.01	3.92	3.57	4.34	4.18	4.14	4.19
03/01/24	03/31/24	Mar 2024	41.64	35.62	44.26	39.23	38.19	32.46	45.64	39.80	45.47	41.24	4.17	4.26	4.05	4.00	4.08	3.93	3.93	3.53	4.27	4.11	4.07	4.19
04/01/24	04/30/24	Apr 2024	40.87	34.88	42.62	38.36	37.59	31.87	44.65	38.01	45.24	40.84	4.14	4.22	4.01	3.95	4.03	3.87	3.83	3.27	4.21	4.06	4.02	4.06
05/01/24	05/31/24	May 2024	34.13	27.37	39.63	36.43	30.97	24.51	42.49	35.88	42.27	38.55	4.14	4.21	4.00	3.91	4.00	3.80	3.68	3.27	4.18	4.02	3.99	3.91
06/01/24	06/30/24	Jun 2024	38.67	29.97	42.24	36.88	35.31	26.99	45.77	38.13	45.04	39.52	4.15	4.21	4.00	3.90	3.98	3.78	3.68	3.26	4.16	4.01	3.97	3.91
07/01/24	07/31/24	Jul 2024	44.58	34.08	47.07	38.09	40.90	30.92	51.50	41.13	49.82	41.06	4.20	4.25	4.03	3.92	4.01	3.81	3.70	3.38	4.19	4.03	4.00	3.92
08/01/24	08/31/24	Aug 2024	47.98	37.36	48.49	39.19	44.22	34.06	53.89	42.52	52.16	42.48	4.22	4.34	4.14	4.05	4.12	3.96	3.88	3.42	4.32	4.16	4.12	4.11
09/01/24	09/30/24	Sep 2024	48.46	40.38	46.33	39.31	45.38	37.38	51.04	42.20	49.82	42.31	4.24	4.37	4.17	4.10	4.15	4.03	3.97	3.58	4.37	4.21	4.17	4.20
10/01/24	10/31/24	Oct 2024	45.16	37.22	46.37	39.60	41.70	33.97	50.01	40.90	48.75	42.13	4.26	4.40	4.21	4.14	4.19	4.08	4.00	3.59	4.41	4.25	4.21	4.23
11/01/24	11/30/24	Nov 2024	45.76	38.30	46.22	40.15	42.08	34.96	50.37	41.89	48.89	42.82	4.37	4.54	4.35	4.30	4.34	4.25	4.12	3.90	4.57	4.41	4.37	4.37
12/01/24	12/31/24	Dec 2024	45.88	39.17	45.62	40.74	42.22	35.79	49.83	42.43	48.43	43.40	4.44	4.54	4.35	4.29	4.35	4.24	4.06	3.87	4.56	4.40	4.36	4.32
01/01/25	01/31/25	Jan 2025	46.87	39.34	46.67	41.56	43.15	35.94	49.74	42.41	48.95	43.78	4.50	4.64	4.43	4.41	4.46	4.35	4.24	3.92	4.68	4.52	4.48	4.50

02/01/27	02/28/27	Feb 2027	51.78	42.35	52.68	46.07	48.67	40.38	50.82	44.76	52.24	46.98	4.76	4.91	4.68	4.64	4.71	4.58	4.40	3.90	4.92	4.76	4.72	4.67	
03/01/27	03/31/27	Mar 2027	46.33	38.43	50.23	44.03	43.63	36.61	49.03	43.13	49.71	45.05	4.72	4.82	4.60	4.53	4.63	4.48	4.43	3.84	4.81	4.65	4.61	4.69	
04/01/27	04/30/27	Apr 2027	44.22	38.45	47.69	42.65	41.81	35.79	46.97	41.77	47.80	43.94	4.62	4.70	4.48	4.40	4.48	4.32	4.25	3.68	4.67	4.51	4.48	4.48	
05/01/27	05/31/27	May 2027	38.39	31.11	44.67	40.49	34.93	27.97	46.26	38.77	44.92	41.51	4.62	4.66	4.45	4.35	4.44	4.25	4.17	3.72	4.61	4.46	4.42	4.40	
06/01/27	06/30/27	Jun 2027	44.47	33.82	48.55	41.21	40.74	30.57	51.13	40.65	49.17	43.15	4.64	4.67	4.45	4.33	4.44	4.21	4.12	3.74	4.60	4.44	4.41	4.35	
07/01/27	07/31/27	Jul 2027	49.71	39.39	52.81	43.39	45.75	35.88	56.10	43.91	53.86	45.84	4.72	4.78	4.53	4.40	4.51	4.29	4.23	3.89	4.67	4.51	4.48	4.45	
08/01/27	08/31/27	Aug 2027	52.99	42.56	54.29	44.78	48.92	38.92	58.08	45.52	56.25	47.42	4.76	4.87	4.60	4.48	4.59	4.40	4.32	3.94	4.75	4.59	4.56	4.55	
09/01/27	09/30/27	Sep 2027	53.37	45.04	52.52	44.83	50.87	42.36	55.36	45.18	53.93	47.08	4.79	4.95	4.66	4.55	4.64	4.47	4.43	4.27	4.82	4.66	4.63	4.66	
10/01/27	10/31/27	Oct 2027	51.30	41.97	53.35	46.00	48.19	39.43	55.46	45.68	54.20	47.83	4.84	5.09	4.76	4.68	4.75	4.63	4.62	4.32	4.95	4.80	4.76	4.85	
11/01/27	11/30/27	Nov 2027	53.48	43.87	53.76	45.93	49.65	40.44	56.62	46.87	54.79	47.83	4.95	5.22	4.94	4.84	4.94	4.84	4.75	4.62	5.11	4.95	4.92	5.00	
12/01/27	12/31/27	Dec 2027	52.14	43.14	52.93	46.54	48.68	40.05	54.71	46.89	53.77	48.12	4.99	5.17	4.94	4.87	4.95	4.83	4.83	4.43	5.14	4.98	4.95	5.09	
01/01/28	01/31/28	Jan 2028	53.08	44.64	53.57	47.63	49.52	41.43	55.21	47.44	54.19	49.12	5.10	5.27	5.03	5.00	5.06	4.94	4.98	4.55	5.28	5.12	5.08	5.24	
02/01/28	02/29/28	Feb 2028	55.82	45.92	55.00	48.93	53.17	44.21	53.60	47.15	54.45	49.57	5.09	5.24	5.00	4.98	5.05	4.91	4.96	4.51	5.26	5.09	5.06	5.23	
03/01/28	03/31/28	Mar 2028	49.42	41.46	52.05	46.36	46.77	39.39	51.85	45.07	51.83	47.65	5.09	5.16	4.94	4.92	5.00	4.85	4.84	4.40	5.20	5.04	5.00	5.10	
04/01/28	04/30/28	Apr 2028	47.71	41.98	49.62	45.12	45.15	38.89	49.72	44.19	49.74	46.59	5.03	5.10	4.88	4.83	4.91	4.74	4.77	4.29	5.09	4.94	4.90	5.00	
05/01/28	05/31/28	May 2028	42.43	33.55	48.27	43.09	38.76	30.26	50.43	41.34	48.16	44.14	5.06	5.07	4.85	4.79	4.88	4.68	4.62	4.33	5.05	4.90	4.86	4.85	
06/01/28	06/30/28	Jun 2028	48.01	36.95	51.90	44.22	44.09	33.52	54.84	43.92	52.34	45.98	5.09	5.10	4.88	4.76	4.87	4.63	4.63	4.36	5.03	4.87	4.83	4.86	
07/01/28	07/31/28	Jul 2028	53.60	42.98	56.37	46.51	49.43	39.28	59.82	47.72	56.99	48.94	5.16	5.17	4.95	4.81	4.94	4.70	4.70	4.47	5.08	4.92	4.89	4.93	
08/01/28	08/31/28	Aug 2028	56.70	45.76	57.80	47.04	52.52	41.98	62.06	48.51	59.98	49.75	5.18	5.28	5.02	4.91	5.00	4.84	4.87	4.18	4.48	5.18	5.02	4.99	5.10
09/01/28	09/30/28	Sep 2028	56.12	48.47	55.14	48.25	53.92	45.80	57.68	48.40	55.95	50.06	5.20	5.33	5.05	4.98	5.06	4.91	4.94	4.73	5.25	5.09	5.05	5.17	
10/01/28	10/31/28	Oct 2028	54.51	45.02	55.01	47.92	51.31	42.41	57.84	47.67	56.16	50.07	5.21	5.39	5.10	5.05	5.11	4.99	4.99	4.76	5.32	5.16	5.12	5.22	
11/01/28	11/30/28	Nov 2028	55.67	48.36	55.24	47.90	51.72	42.74	58.80	48.78	56.46	49.68	5.24	5.44	5.22	5.13	5.22	5.13	5.16	4.91	5.40	5.24	5.20	5.40	
12/01/28	12/31/28	Dec 2028	54.52	46.81	55.17	49.16	50.92	43.58	57.33	49.34	55.81	50.77	5.29	5.46	5.22	5.18	5.24	5.11	5.16	4.83	5.46	5.30	5.26	5.41	
01/01/29	01/31/29	Jan 2029	55.93	47.18	56.14	49.62	52.49	43.83	57.15	49.61	56.31	50.90	5.37	5.55	5.31	5.33	5.38	5.28	5.30	4.89	5.60	5.44	5.40	5.56	
02/01/29	02/28/29	Feb 2029	58.44	49.13	57.58	51.55	56.57	46.97	56.49	49.56	56.66	51.74	5.41	5.56	5.34	5.34	5.40	5.28	5.33	4.90	5.62	5.45	5.42	5.59	
03/01/29	03/31/29	Mar 2029	52.58	44.63	54.38	49.07	50.00	42.37	53.77	47.38	53.36	49.84	5.37	5.47	5.24	5.26	5.33	5.20	5.24	4.75	5.53	5.37	5.33	5.50	
04/01/29	04/30/29	Apr 2029	50.54	44.98	51.97	47.90	48.79	42.22	51.61	46.32	50.92	48.80	5.31	5.40	5.17	5.12	5.20	5.05	5.09	4.58	5.38	5.23	5.19	5.31	
05/01/29	05/31/29	May 2029	45.69	36.71	50.76	45.45	41.93	33.25	52.59	43.91	50.14	46.41	5.33	5.35	5.13	5.06	5.17	4.96	4.92	4.68	5.38	5.17	5.14	5.14	
06/01/29	06/30/29	Jun 2029	48.37	37.84	52.70	45.78	44.39	34.34	54.84	44.71	52.46	46.95	5.30	5.33	5.10	4.99	5.10	4.88	4.88	4.62	5.26	5.10	5.07	5.10	
07/01/29	07/31/29	Jul 2029	54.82	44.38	57.75	48.34	50.57	40.58	60.67	48.60	57.75	50.12	5.31	5.33	5.10	4.96	5.09	4.88	4.85	4.62	5.23	5.07	5.04	5.08	
08/01/29	08/31/29	Aug 2029	58.55	47.63	59.51	48.77	54.33	43.73	63.13	49.63	60.34	51.03	5.30	5.38	5.12	5.02	5.12	4.95	4.99	4.62	5.29	5.13	5.09	5.22	
09/01/29	09/30/29	Sep 2029	57.62	50.07	57.07	49.67	55.30	47.55	59.99	50.34	57.79	51.28	5.30	5.48	5.16	5.09	5.17	5.02	5.03	4.85	5.36	5.20	5.16	5.26	
10/01/29	10/31/29	Oct 2029	54.39	45.05	55.64	48.39	50.88	42.56	58.35	47.93	56.31	50.33	5.24	5.47	5.16	5.10	5.17	5.05	5.05	4.81	5.37	5.21	5.18	5.28	
11/01/29	11/30/29	Nov 2029	54.36	46.55	55.73	48.62	50.27	42.87	58.46	48.86	56.21	50.01	5.26	5.52	5.28	5.21	5.27	5.19	5.20	4.93	5.48	5.32	5.29	5.44	
12/01/29	12/31/29	Dec 2029	54.89	47.64	55.76	49.46	51.33	44.32	57.77	49.52	55.87	50.79	5.31	5.47	5.23	5.24	5.31	5.19	5.23	4.83	5.52	5.35	5.32	5.48	
01/01/30	01/31/30	Jan 2030	55.85	47.42	57.47	50.67	52.00	43.75	58.47	50.50	57.07	51.56	5.43	5.57	5.33	5.37	5.44	5.33	5.36	4.96	5.65	5.49	5.45	5.62	
02/01/30	02/28/30	Feb 2030	59.13	49.82	59.23	53.06	56.60	47.03	57.73	50.63	57.49	52.55	5.49	5.63	5.39	5.41	5.49	5.37	5.41	5.04	5.69	5.53	5.49	5.68	
03/01/30	03/31/30	Mar 2030	53.35	45.50	55.74	50.22	50.09	43.07	55.50	48.92	54.50	50.55	5.49	5.59	5.34	5.40	5.49	5.37	5.40	4.90	5.68	5.51	5.48	5.66	
04/01/30	04/30/30	Apr 2030	51.02	45.19	52.58	48.20	48.73	41.94	52.69	46.99	51.69	49.49	5.39	5.47	5.24	5.20	5.28	5.14	5.17	4.68	5.47	5.31	5.28	5.40	
05/01/30	05/31/30	May 2030	45.39	36.57	51.50	46.56	41.52	33.07	53.01	44.50	50.51	47.34	5.40	5.44	5.21	5.16	5.27	5.08	5.08	4.70	5.42	5.27	5.23	5.31	
06/01/30	06/30/30	Jun 2030	49.50	39.71	54.44	47.83	45.43	36.09	56.51	46.86	53.81	48.84	5.44	5.47	5.24	5.16	5.27	5.06	5.11	4.77	5.42	5.27	5.23	5.34	
07/01/30	07/31/30	Jul 2030	56.45	46.03	59.99	50.18	52.07	42.12	62.78	50.44	59.62	51.73	5.51	5.54	5.30	5.18	5.30	5.07	5.10	4.90	5.45	5.30	5.26	5.33	
08/01/30	08/31/30	Aug 2030	60.62	49.67	62.34	51.40	56.26	45.65	65.78	52.10	62.76	53.40	5.56	5.66	5.41	5.31	5.41	5.26	5.28	4.93	5.58	5.43	5.39	5.52	
09/01/30	09/30/30	Sep 2030	60.31	52.28	60.66	52.74	57.95	49.52	63.06	52.89	60.70	53.97	5.57	5.74	5.50	5.44	5.51	5.40	5.44	5.14	5.71	5.55	5.52	5.67	
10/01/30	10/31/30	Oct 2030	57.80	48.16	59.85	52.68	54.48	45.51	62.06	51.60	59.76	53.99	5.61	5.80	5.59	5.53	5.59	5.49	5.53	5.21	5.80	5.64	5.61	5.76	
11/01/30	11/30/30	Nov 2030	58.27	50.31	59.76	52.49	54.00	46.40	62.20	52.93	59.79	53.59	5.70	5.93	5.71	5.70	5.76	5.69	5.69	5.37	5.97	5.81	5.78	5.93	
12/01/30	12/31/30	Dec 2030	57.98	50.73	59.60	53.00	54.26	47.07	61.66	53.15	59.43	54.19	5.77	5.92	5.69	5.71	5.77	5.67	5.70	5.39	5.99	5.83	5.79	5.96	
01/01/31	01/31/31	Jan 2031	59.87	50.94	61.42	54.57	56.04	47.27	62.62	54.41	61.29	55.52	5.90	6.08	5.83	5.86	5.93	5.83	5.85	5.51	6.14	5.98	5.94	6.11	
02/01/31	02/28/31	Feb 2031	62.69	53.05	62.95	56.93	60.73	50.48	61.81	54.14	61.46	56.31	5.95	6.11	5.88	5.92	5.98	5.88	5.89	5.58	6.20	6.03	6.00		

03/01/33	03/31/33	Mar 2033	52.68	49.26	61.63	56.01	54.25	48.06	61.94	53.92	59.78	56.00	6.06	6.24	6.00	6.09	6.15	6.09	6.07	5.57	6.36	6.20	6.16	6.33
04/01/33	04/30/33	Apr 2033	53.89	48.92	59.39	54.91	52.89	46.93	59.67	53.06	57.72	55.96	5.92	6.13	5.90	5.92	5.96	5.84	5.83	5.40	6.19	6.03	5.99	6.05
05/01/33	05/31/33	May 2033	49.47	41.36	57.52	52.31	45.36	37.52	58.20	49.63	54.99	52.34	5.92	6.01	5.77	5.72	5.81	5.63	5.63	5.37	5.99	5.83	5.80	5.85
06/01/33	06/30/33	Jun 2033	54.35	44.41	61.77	53.45	50.54	40.67	63.35	52.07	59.95	54.03	5.96	6.03	5.78	5.72	5.83	5.63	5.63	5.41	5.99	5.83	5.80	5.85
07/01/33	07/31/33	Jul 2033	61.23	50.88	66.66	56.29	56.91	46.98	69.32	56.47	65.65	57.52	6.07	6.15	5.87	5.81	5.98	5.73	5.69	5.55	6.08	5.92	5.89	5.92
08/01/33	08/31/33	Aug 2033	65.96	54.03	69.74	57.88	62.06	50.64	73.11	57.97	69.47	59.39	6.10	6.30	6.06	6.00	6.09	5.95	5.92	5.64	6.27	6.11	6.07	6.15
09/01/33	09/30/33	Sep 2033	62.77	53.44	66.73	58.34	62.32	54.55	69.09	57.76	65.72	59.18	6.13	6.41	6.16	6.12	6.16	6.10	6.06	5.80	6.39	6.23	6.19	6.29
10/01/33	10/31/33	Oct 2033	58.55	48.91	66.61	59.04	59.48	51.06	67.58	57.06	65.46	59.78	6.19	6.46	6.27	6.19	6.26	6.19	6.19	5.84	6.47	6.31	6.27	6.43
11/01/33	11/30/33	Nov 2033	62.38	50.22	66.51	58.00	60.86	51.29	69.12	58.44	66.05	58.72	6.24	6.53	6.35	6.29	6.38	6.35	6.36	5.89	6.55	6.40	6.36	6.61
12/01/33	12/31/33	Dec 2033	60.43	50.79	66.26	58.98	60.37	52.13	68.04	58.77	65.43	59.65	6.32	6.55	6.33	6.33	6.49	6.46	6.47	6.00	6.61	6.45	6.41	6.73
01/01/34	01/31/34	Jan 2034	62.57	52.05	68.01	60.54	62.55	53.67	69.73	59.90	66.91	60.77	6.43	6.68	6.48	6.48	6.64	6.60	6.64	6.09	6.67	6.59	6.56	6.90
02/01/34	02/28/34	Feb 2034	63.66	52.77	69.00	63.02	67.16	56.06	68.43	59.35	66.50	61.23	6.45	6.68	6.48	6.48	6.62	6.60	6.62	6.12	6.76	6.59	6.56	6.88
03/01/34	03/31/34	Mar 2034	54.96	49.60	64.34	58.32	57.01	51.95	65.02	56.40	62.78	58.38	6.42	6.60	6.38	6.45	6.49	6.45	6.45	5.84	6.72	6.56	6.52	6.71
04/01/34	04/30/34	Apr 2034	56.77	51.36	61.62	56.40	55.92	49.26	62.48	55.06	60.49	57.58	6.27	6.46	6.26	6.26	6.29	6.23	6.18	5.66	6.53	6.37	6.33	6.41
05/01/34	05/31/34	May 2034	52.96	43.57	60.94	54.56	48.70	39.58	61.84	52.06	58.34	54.95	6.23	6.37	6.13	6.09	6.20	6.10	5.99	5.63	6.35	6.20	6.16	6.22
06/01/34	06/30/34	Jun 2034	57.56	47.17	64.75	56.11	53.56	43.20	66.39	54.71	62.86	56.60	6.26	6.35	6.10	6.04	6.18	6.07	5.94	5.65	6.31	6.15	6.12	6.17
07/01/34	07/31/34	Jul 2034	63.88	53.47	69.27	58.63	59.39	49.44	72.08	58.86	68.26	59.96	6.32	6.45	6.20	6.09	6.24	6.13	5.94	5.42	6.13	6.06	6.16	6.17
08/01/34	08/31/34	Aug 2034	68.06	56.00	72.15	60.02	63.92	52.48	75.48	60.17	71.77	61.56	6.34	6.56	6.29	6.23	6.32	6.24	6.16	5.73	6.50	6.34	6.30	6.40
09/01/34	09/30/34	Sep 2034	64.32	55.18	68.95	60.27	63.81	55.88	70.83	59.64	67.55	61.08	6.34	6.60	6.38	6.34	6.37	6.32	6.27	5.96	6.61	6.45	6.41	6.51
10/01/34	10/31/34	Oct 2034	60.27	49.80	67.49	59.30	60.63	52.32	69.34	57.77	66.60	60.30	6.27	6.56	6.37	6.29	6.35	6.31	6.29	5.93	6.56	6.40	6.37	6.52
11/01/34	11/30/34	Nov 2034	63.23	50.33	66.56	57.20	61.54	51.63	69.89	58.69	66.48	58.29	6.21	6.51	6.32	6.27	6.38	6.35	6.37	5.85	6.54	6.38	6.35	6.61
12/01/34	12/31/34	Dec 2034	61.53	51.59	66.93	59.88	61.72	53.40	68.51	59.67	65.67	60.08	6.26	6.53	6.34	6.27	6.48	6.46	6.48	5.94	6.55	6.39	6.35	6.74
01/01/35	01/31/35	Jan 2035	62.87	51.68	68.77	60.80	62.09	53.12	70.20	60.22	67.24	60.68	6.39	6.63	6.42	6.43	6.61	6.60	6.64	6.08	6.71	6.55	6.51	6.91
02/01/35	02/28/35	Feb 2035	64.23	52.61	69.99	63.18	66.92	55.52	69.32	60.16	66.79	60.93	6.43	6.66	6.43	6.47	6.64	6.63	6.66	6.08	6.74	6.58	6.54	6.92
03/01/35	03/31/35	Mar 2035	55.69	49.91	65.37	59.60	57.56	52.94	65.64	57.71	62.84	58.91	6.39	6.63	6.42	6.43	6.50	6.47	6.47	6.10	6.71	6.55	6.51	6.73
04/01/35	04/30/35	Apr 2035	55.94	50.18	63.79	58.61	57.07	51.66	62.88	56.22	61.09	58.95	6.29	6.50	6.27	6.29	6.32	6.26	6.26	5.87	6.56	6.40	6.37	6.48
05/01/35	05/31/35	May 2035	55.71	47.17	63.58	57.41	51.46	43.04	64.01	54.71	60.38	57.28	6.34	6.51	6.31	6.29	6.35	6.27	6.21	5.87	6.56	6.40	6.37	6.43
06/01/35	06/30/35	Jun 2035	56.84	47.71	65.52	57.73	52.83	43.57	66.49	55.69	62.65	57.67	6.37	6.48	6.23	6.19	6.32	6.23	6.11	5.68	6.46	6.30	6.27	6.34
07/01/35	07/31/35	Jul 2035	65.38	54.93	72.00	60.65	60.60	50.68	74.20	60.61	70.33	61.61	6.48	6.60	6.35	6.31	6.43	6.32	6.21	5.76	6.58	6.42	6.38	6.44
08/01/35	08/31/35	Aug 2035	70.53	58.26	74.86	62.15	66.07	54.42	78.30	62.69	74.36	63.53	6.53	6.72	6.50	6.45	6.53	6.45	6.39	5.94	6.72	6.56	6.53	6.62
09/01/35	09/30/35	Sep 2035	67.33	57.12	72.36	62.81	65.49	57.54	74.69	62.71	71.20	63.27	6.51	6.74	6.53	6.53	6.56	6.50	6.48	6.13	6.80	6.64	6.61	6.71
10/01/35	10/31/35	Oct 2035	61.74	50.97	69.46	60.56	60.94	52.62	71.79	59.94	68.60	61.55	6.47	6.71	6.50	6.48	6.56	6.50	6.48	6.07	6.75	6.60	6.56	6.72
11/01/35	11/30/35	Nov 2035	63.83	52.15	68.86	59.41	60.86	52.88	72.18	60.97	68.48	60.36	6.48	6.77	6.58	6.51	6.69	6.66	6.71	6.11	6.78	6.63	6.59	6.95
12/01/35	12/31/35	Dec 2035	63.96	53.63	70.20	61.98	63.27	55.04	71.75	62.28	68.57	61.92	6.56	6.80	6.55	6.56	6.77	6.74	6.77	6.11	6.84	6.68	6.64	7.03
01/01/36	01/31/36	Jan 2036	66.86	54.94	73.23	64.03	65.43	55.65	74.54	64.22	71.64	63.95	6.71	7.04	6.76	6.80	7.04	7.03	7.04	6.11	7.07	6.91	6.87	7.31
02/01/36	02/29/36	Feb 2036	66.35	54.14	72.16	65.81	68.90	57.12	71.55	61.73	68.92	63.12	6.66	6.86	6.66	6.66	6.81	6.81	6.81	6.30	6.94	6.78	6.74	7.08
03/01/36	03/31/36	Mar 2036	57.84	51.85	68.22	61.88	59.61	55.34	68.04	59.73	65.45	60.96	6.65	6.86	6.66	6.66	6.75	6.73	6.73	6.37	6.94	6.78	6.74	6.99
04/01/36	04/30/36	Apr 2036	58.99	53.65	65.94	60.23	58.57	51.87	65.58	58.03	63.39	60.85	6.53	6.70	6.52	6.52	6.55	6.48	6.45	6.09	6.78	6.63	6.59	6.68
05/01/36	05/31/36	May 2036	55.89	46.74	64.48	58.29	51.37	42.52	64.87	55.42	61.27	58.30	6.50	6.66	6.45	6.44	6.50	6.44	6.35	6.02	6.70	6.55	6.51	6.58
06/01/36	06/30/36	Jun 2036	59.25	49.76	68.35	59.93	54.95	45.47	69.14	57.82	65.32	59.57	6.57	6.65	6.40	6.34	6.48	6.37	6.25	5.81	6.60	6.45	6.41	6.48
07/01/36	07/31/36	Jul 2036	67.47	56.02	74.57	62.29	62.52	51.69	76.74	62.06	72.59	63.28	6.70	6.78	6.52	6.45	6.63	6.50	6.34	5.86	6.72	6.56	6.53	6.57
08/01/36	08/31/36	Aug 2036	72.55	60.56	77.41	65.11	67.87	56.95	80.80	65.20	76.67	66.15	6.75	6.94	6.73	6.66	6.75	6.66	6.60	6.17	6.94	6.78	6.74	6.83
09/01/36	09/30/36	Sep 2036	69.63	58.49	74.96	64.60	67.68	59.17	77.10	63.55	73.51	64.63	6.70	6.90	6.71	6.70	6.75	6.70	6.66	6.32	6.97	6.81	6.77	6.90
10/01/36	10/31/36	Oct 2036	64.49	52.58	73.30	64.05	63.96	54.50	74.45	62.02	71.30	63.80	6.66	6.94	6.75	6.66	6.76	6.73	6.71	6.27	6.94	6.78	6.74	6.95
11/01/36	11/30/36	Nov 2036	68.00	55.37	73.32	63.27	65.21	56.23	75.87	64.37	71.98	63.77	6.81	7.11	6.91	6.85	7.04	7.03	7.03	6.45	7.14	6.96	6.92	7.27
12/01/36	12/31/36	Dec 2036	67.51	55.89	73.71	64.89	66.36	57.02	75.37	65.01	72.15	65.04	6.88	7.09	6.86	6.86	7.06	7.04	7.06	6.35	7.14	6.98	6.94	7.32
01/01/37	01/31/37	Jan 2037	70.07	57.71	75.64	66.72	70.17	59.63	77.18	66.59	73.75	66.09	6.99	7.34	6.99	7.05	7.34	7.31	7.34	6.40	7.33	7.17	7.13	7.60
02/01/37	02/28/37	Feb 2037	71.18	58.39	76.10	68.52	75.14	62.06	75.36	65.19	72.63	65.99	7.04	7.29	7.00	7.02	7.31	7.27	7.32	6.52	7.30	7.14	7.10	7.59
03/01/37	03/31/37	Mar 2037	60.66	54.16	71.02	63.96	62.82	57.64	71.11	62.02	68.02	63.04	6.94	7.14	6.95	6.95	7.04	7.02	6.67	7.23	7.07	7.03	7.28	
04/0																								

04/01/39	04/30/39	Apr 2039	63.16	57.41	72.64	66.94	63.09	58.15	72.47	64.20	69.52	67.20	7.18	7.37	7.20	7.16	7.21	7.18	7.16	6.81	7.43	7.27	7.24	7.38	
05/01/39	05/31/39	May 2039	62.23	53.64	71.93	65.75	57.47	49.07	72.76	62.73	68.27	65.19	7.14	7.34	7.16	7.12	7.16	7.11	7.04	6.74	7.39	7.23	7.20	7.26	
06/01/39	06/30/39	Jun 2039	66.11	56.20	75.93	67.08	61.09	51.42	77.23	65.00	72.67	66.62	7.20	7.35	7.09	7.02	7.14	7.04	6.91	6.46	7.29	7.13	7.10	7.14	
07/01/39	07/31/39	Jul 2039	73.92	62.14	83.09	69.79	68.37	57.10	84.90	69.82	80.32	70.23	7.32	7.48	7.21	7.14	7.28	7.18	7.02	6.46	7.41	7.25	7.22	7.25	
08/01/39	08/31/39	Aug 2039	79.87	65.28	87.21	71.87	74.95	60.86	90.73	71.83	86.07	72.70	7.35	7.65	7.39	7.32	7.39	7.32	7.27	6.86	7.59	7.43	7.39	7.50	
09/01/39	09/30/39	Sep 2039	73.42	63.64	81.29	71.18	71.52	64.34	84.35	70.68	80.32	71.47	7.35	7.72	7.42	7.34	7.41	7.35	7.34	6.93	7.67	7.45	7.41	7.57	
10/01/39	10/31/39	Oct 2039	70.95	59.16	80.23	70.73	70.46	60.76	81.94	69.13	78.43	70.28	7.34	7.71	7.41	7.32	7.56	7.55	7.53	6.91	7.59	7.43	7.40	7.76	
11/01/39	11/30/39	Nov 2039	76.54	62.53	81.85	69.71	77.13	65.33	84.41	71.68	79.95	70.20	7.46	7.90	7.55	7.49	7.86	7.88	7.88	7.07	7.76	7.60	7.57	8.13	
12/01/39	12/31/39	Dec 2039	75.02	62.90	82.01	72.95	76.74	66.58	82.79	71.91	78.90	70.99	7.53	7.85	7.53	7.49	7.86	7.88	7.93	7.11	7.77	7.61	7.57	8.19	
01/01/40	01/31/40	Jan 2040	75.76	66.32	84.12	75.19	75.85	65.87	85.30	74.27	81.41	73.01	7.67	8.14	7.67	7.75	8.09	8.09	7.91	7.04	8.02	7.86	7.82	8.17	
02/01/40	02/29/40	Feb 2040	76.13	65.65	83.09	75.55	79.75	70.88	83.03	72.18	79.01	72.00	7.60	7.93	7.60	7.64	8.05	8.07	8.14	7.24	7.92	7.75	7.72	8.41	
03/01/40	03/31/40	Mar 2040	66.57	60.88	78.67	71.59	67.09	63.11	78.62	69.18	74.59	69.89	7.58	7.84	7.64	7.62	7.78	7.76	7.80	7.30	7.90	7.73	7.70	8.06	
04/01/40	04/30/40	Apr 2040	65.43	60.00	75.00	68.41	64.84	59.78	75.34	66.17	72.04	68.76	7.44	7.64	7.44	7.42	7.49	7.44	7.44	7.08	7.69	7.53	7.50	7.66	
05/01/40	05/31/40	May 2040	65.56	55.90	75.24	68.73	60.53	51.07	76.35	65.15	71.51	67.73	7.44	7.64	7.44	7.40	7.44	7.39	7.33	7.03	7.67	7.51	7.48	7.56	
06/01/40	06/30/40	Jun 2040	69.04	58.63	79.51	69.82	63.73	53.72	81.03	67.79	76.33	69.29	7.48	7.66	7.35	7.26	7.42	7.30	7.21	6.67	7.57	7.37	7.34	7.43	
07/01/40	07/31/40	Jul 2040	77.13	64.76	86.73	73.15	71.36	59.53	88.89	72.84	84.04	72.95	7.60	7.78	7.48	7.40	7.55	7.40	7.30	6.72	7.67	7.52	7.48	7.52	
08/01/40	08/31/40	Aug 2040	81.82	68.35	89.64	75.04	76.71	63.66	93.46	74.90	88.70	75.69	7.66	8.00	7.71	7.64	7.71	7.60	7.58	7.13	7.71	7.75	7.71	7.81	
09/01/40	09/30/40	Sep 2040	75.33	67.69	83.42	74.80	73.18	66.73	86.47	73.61	82.14	74.26	7.71	8.05	7.76	7.67	7.76	7.69	7.67	7.24	7.94	7.79	7.75	7.90	
10/01/40	10/31/40	Oct 2040	74.35	62.36	83.29	73.22	73.64	63.97	85.55	72.49	81.72	73.43	7.69	8.11	7.76	7.67	7.96	7.96	7.96	7.26	7.95	7.79	7.75	8.20	
11/01/40	11/30/40	Nov 2040	79.64	67.14	84.40	72.05	80.29	71.22	87.53	74.56	82.66	72.84	7.80	8.23	7.87	7.80	8.25	8.29	8.30	7.40	8.07	7.91	7.88	8.55	
12/01/40	12/31/40	Dec 2040	78.92	69.08	86.21	76.84	80.84	73.54	86.96	76.05	82.78	74.91	7.89	8.30	7.94	7.89	8.34	8.36	8.39	7.49	8.16	8.00	7.97	8.65	
01/01/41	01/31/41	Jan 2041	77.58	67.91	86.14	76.99	77.67	67.45	87.35	76.05	83.36	74.77	7.86	8.34	7.86	7.93	8.28	8.28	8.10	7.21	8.21	8.05	8.01	8.36	
02/01/41	02/28/41	Feb 2041	77.96	67.23	85.09	77.36	81.66	67.58	85.03	73.91	80.90	73.73	7.78	8.12	7.78	7.82	8.25	8.26	8.34	7.42	8.10	7.94	7.90	8.60	
03/01/41	03/31/41	Mar 2041	68.17	62.34	80.56	73.31	68.70	64.62	80.51	70.84	76.38	71.56	7.77	8.02	7.82	7.80	7.97	7.95	7.99	7.47	8.08	7.92	7.88	8.25	
04/01/41	04/30/41	Apr 2041	67.00	61.44	76.80	70.06	66.40	61.21	77.15	67.76	73.77	70.41	7.62	7.82	7.62	7.60	7.67	7.62	7.62	7.25	7.87	7.71	7.68	7.84	
05/01/41	05/31/41	May 2041	67.14	57.24	77.05	70.38	61.98	52.29	78.19	66.72	73.23	69.36	7.62	7.82	7.62	7.58	7.62	7.56	7.51	7.19	7.85	7.69	7.66	7.73	
06/01/41	06/30/41	Jun 2041	70.70	60.03	81.41	71.49	65.26	55.01	82.98	69.41	78.16	70.95	7.66	7.84	7.53	7.43	7.60	7.47	7.38	6.83	7.70	7.54	7.51	7.60	
07/01/41	07/31/41	Jul 2041	78.98	66.31	88.81	74.90	73.07	60.96	91.02	74.59	86.06	74.70	7.78	7.97	7.66	7.58	7.73	7.58	7.47	6.88	7.75	7.69	7.66	7.70	
08/01/41	08/31/41	Aug 2041	83.78	69.99	91.80	76.84	78.55	65.19	95.71	76.70	90.83	77.51	7.84	8.19	7.90	7.82	7.90	7.78	7.77	7.30	8.09	7.93	7.90	8.00	
09/01/41	09/30/41	Sep 2041	77.14	69.31	85.42	76.59	74.94	68.33	88.54	75.38	84.11	76.04	7.90	8.25	7.95	7.86	7.95	7.88	7.86	7.42	8.13	7.97	7.93	8.09	
10/01/41	10/31/41	Oct 2041	76.14	63.86	85.28	74.98	75.41	65.51	87.60	74.23	83.68	75.20	7.88	8.30	7.95	7.86	8.15	8.15	8.15	7.43	8.13	7.97	7.94	8.39	
11/01/41	11/30/41	Nov 2041	81.55	68.75	86.43	73.88	82.21	72.93	89.63	76.35	84.64	74.59	7.99	8.43	8.06	7.99	8.45	8.49	8.50	7.58	8.25	8.10	8.06	8.75	
12/01/41	12/31/41	Dec 2041	80.82	70.74	88.28	78.68	82.78	75.31	89.05	77.88	84.77	76.71	8.08	8.50	8.13	8.08	8.54	8.56	8.60	7.67	8.35	8.19	8.16	8.85	
01/01/42	01/31/42	Jan 2042	79.44	69.54	88.21	78.84	79.54	69.07	89.45	77.88	85.37	76.56	8.05	8.54	8.05	8.12	8.48	8.48	8.29	7.39	8.40	8.24	8.20	8.56	
02/01/42	02/28/42	Feb 2042	79.83	68.84	87.13	79.22	83.62	74.33	87.07	75.68	82.84	75.50	7.97	8.31	7.97	8.01	8.44	8.46	8.54	7.59	8.29	8.12	8.09	8.80	
03/01/42	03/31/42	Mar 2042	69.80	63.84	82.49	75.07	70.35	66.17	82.44	72.55	78.21	73.28	7.95	8.22	8.01	7.99	8.25	8.16	8.14	8.18	7.65	8.27	8.10	8.07	8.44
04/01/42	04/30/42	Apr 2042	68.61	62.91	78.64	71.74	67.99	62.68	79.00	69.38	75.54	72.10	7.80	8.01	7.80	7.78	7.96	7.80	7.80	7.42	8.05	7.89	7.86	8.03	
05/01/42	05/31/42	May 2042	68.75	58.61	78.89	72.07	63.47	53.55	80.06	68.32	74.98	71.02	7.80	8.01	7.80	7.76	7.80	7.74	7.69	7.37	8.03	7.87	7.84	7.91	
06/01/42	06/30/42	Jun 2042	72.40	61.48	83.37	73.21	66.83	56.33	84.97	71.08	80.03	72.65	7.84	8.03	7.71	7.61	7.78	7.65	7.56	6.99	7.88	7.72	7.69	7.78	
07/01/42	07/31/42	Jul 2042	80.87	67.90	90.94	76.70	74.83	62.42	93.20	76.38	88.13	76.49	7.97	8.16	7.84	7.76	7.91	7.76	7.65	7.05	8.03	7.87	7.84	7.88	
08/01/42	08/31/42	Aug 2042	85.79	71.67	94.00	78.68	80.43	66.75	98.00	78.54	93.01	79.37	8.03	8.39	8.08	8.01	8.08	7.97	7.95	7.48	8.28	8.12	8.09	8.18	
09/01/42	09/30/42	Sep 2042	78.99	70.97	87.47	78.43	76.74	69.87	90.67	77.19	86.13	77.87	8.08	8.44	8.14	8.05	8.14	8.07	8.05	7.59	8.32	8.16	8.12	8.28	
10/01/42	10/31/42	Oct 2042	77.97	65.39	87.33	76.77	77.22	67.08	89.70	76.02	85.69	77.00	8.07	8.50	8.14	8.05	8.35	8.35	8.35	7.61	8.32	8.16	8.12	8.58	
11/01/42	11/30/42	Nov 2042	83.51	70.40	88.50	75.55	84.19	74.68	91.78	78.18	86.67	76.38	8.18	8.63	8.25	8.18	8.65	8.69	8.71	7.76	8.45	8.29	8.26	8.95	
12/01/42	12/31/42	Dec 2042	82.76	72.44	90.40	80.57	84.76	77.11	91.18	79.75	86.80	78.55	8.27	8.71	8.33	8.27	8.75	8.76	8.80	7.86	8.55	8.39	8.35	9.06	
01/01/43	01/31/43	Jan 2043	81.35	71.21	90.32	80.73	81.44	70.73	91.59	79.74	87.41	78.40	8.24	8.74	8.24	8.32	8.68	8.68	8.49	7.56	8.60	8.43	8.40	8.76	
02/01/43	02/28/43	Feb 2043	81.75	70.49	89.22	81.12	85.63	76.11	89.16	77.50	84.83	77.31	8.16	8.51	8.16	8.20	8.65	8.65	8.67	8.74	7.78	8.48	8.32	8.90	
03/01/43	03/31/43	Mar 2043	71.48	65.37	84.47	76.87	72.03	67.76	84.42	74.29	80.09	75.04	8.14	8.41	8.20	8.18	8.36	8.34	8.38	7.83	8.46	8.30	8.26	8.64	
04/01/43	04/30/43	Apr 2043	70.26	64.42	80.53	73.46	69.62	64.19	80.90	71.05	77.36	73.83	7.99	8.20	7.99	7.97	8.05	7.99	7.99	7.60	8.26	8.08	8.05		

05/01/45	05/31/45	May 2045	73.82	62.94	84.71	77.39	68.15	57.50	85.97	73.36	80.51	76.26	8.38	8.60	8.38	8.34	8.38	8.32	8.25	7.91	8.60	8.45	8.41	8.48
06/01/45	06/30/45	Jun 2045	77.73	66.01	89.52	78.61	71.76	60.49	91.23	76.32	85.94	78.01	8.42	8.62	8.28	8.17	8.36	8.21	8.11	7.50	8.44	8.28	8.25	8.34
07/01/45	07/31/45	Jul 2045	86.84	72.91	97.65	82.36	80.34	67.03	100.08	82.01	94.63	82.13	8.56	8.76	8.42	8.34	8.50	8.34	8.21	7.57	8.61	8.45	8.41	8.44
08/01/45	08/31/45	Aug 2045	92.12	76.96	100.93	84.48	86.36	71.68	105.23	84.33	99.86	85.22	8.62	9.01	8.68	8.60	8.68	8.56	8.54	8.03	8.87	8.71	8.68	8.77
09/01/45	09/30/45	Sep 2045																						

10/01/20	10/31/20	Oct 2020	37.86	32.84	37.78	33.20	34.37	29.68	44.00	37.41	41.05	36.98	3.55	3.71	3.47	3.41	3.61	3.58	3.21	2.95	3.68	3.52	3.49	3.45
11/01/20	11/30/20	Nov 2020	40.85	33.66	36.21	32.68	36.23	33.21	44.00	38.40	43.00	37.63	3.63	3.92	3.54	3.55	3.71	3.68	3.71	3.16	3.82	3.67	3.63	3.97
12/01/20	12/31/20	Dec 2020	43.84	35.84	37.47	33.73	39.95	33.72	45.21	41.34	44.95	41.20	3.81	4.14	3.76	3.78	3.92	3.89	4.08	3.32	4.06	3.90	3.86	4.37
01/01/21	01/31/21	Jan 2021	39.53	34.75	36.44	34.23	39.93	33.90	46.06	38.82	44.49	38.05	3.94	4.29	3.88	3.90	3.99	3.95	4.01	3.42	4.19	4.02	3.98	4.30
02/01/21	02/28/21	Feb 2021	38.39	33.45	36.15	33.46	36.56	31.44	44.92	37.87	43.75	37.10	3.92	4.25	3.86	3.88	3.96	3.93	3.80	3.41	4.17	4.00	3.96	4.08
03/01/21	03/31/21	Mar 2021	36.39	32.15	35.86	31.91	34.26	29.26	41.47	35.82	40.77	36.16	3.86	4.19	3.80	3.82	3.90	3.86	3.75	3.36	4.10	3.94	3.90	4.02
04/01/21	04/30/21	Apr 2021	36.08	29.05	39.35	29.72	37.60	26.54	40.46	35.58	38.72	36.45	3.54	3.78	3.47	3.52	3.54	3.51	3.11	3.15	3.79	3.63	3.60	3.34
05/01/21	05/31/21	May 2021	33.78	24.05	36.40	29.49	31.10	21.90	41.54	30.63	39.41	30.68	3.54	3.82	3.46	3.46	3.54	3.50	3.06	3.10	3.73	3.57	3.53	3.29
06/01/21	06/30/21	Jun 2021	33.20	24.45	33.45	30.64	29.85	19.86	43.70	31.45	41.12	30.68	3.57	3.85	3.50	3.49	3.57	3.54	3.07	3.11	3.76	3.60	3.56	3.29
07/01/21	07/31/21	Jul 2021	44.48	28.45	47.37	32.61	40.09	26.65	48.90	37.36	48.33	37.16	3.61	4.11	3.54	3.55	3.66	3.62	3.28	3.13	3.82	3.66	3.62	3.52
08/01/21	08/31/21	Aug 2021	46.74	33.85	48.16	35.82	43.44	31.95	52.17	39.99	51.08	39.64	3.83	4.10	3.77	3.66	3.81	3.72	3.46	3.04	3.93	3.77	3.74	3.69
09/01/21	09/30/21	Sep 2021	44.94	34.72	43.84	35.35	42.64	33.54	48.93	38.52	47.62	39.13	3.84	4.03	3.78	3.69	3.84	3.76	3.56	3.13	3.96	3.80	3.77	3.79
10/01/21	10/31/21	Oct 2021	42.21	35.04	42.27	35.65	38.66	31.85	47.77	38.34	45.92	39.51	3.87	4.02	3.81	3.73	3.87	3.79	3.57	3.15	4.00	3.84	3.80	3.81
11/01/21	11/30/21	Nov 2021	44.32	36.15	40.94	35.11	40.17	34.29	47.01	39.68	46.18	39.47	3.92	4.15	3.87	3.83	3.95	3.88	3.83	3.28	4.11	3.95	3.91	4.09
12/01/21	12/31/21	Dec 2021	46.05	37.66	41.73	36.27	42.25	34.94	47.49	41.45	47.17	41.79	4.05	4.28	3.99	3.97	4.07	4.00	4.01	3.39	4.25	4.08	4.05	4.29
01/01/22	01/31/22	Jan 2022	44.61	37.65	42.38	37.59	42.80	35.02	49.11	40.91	48.33	41.47	4.18	4.43	4.12	4.12	4.19	4.12	4.06	3.44	4.41	4.24	4.20	4.34
02/01/22	02/28/22	Feb 2022	45.98	38.49	43.04	37.79	43.09	35.72	48.62	40.51	48.39	41.35	4.19	4.45	4.15	4.14	4.21	4.14	4.01	3.49	4.43	4.26	4.22	4.29
03/01/22	03/31/22	Mar 2022	42.17	35.56	42.13	36.22	39.24	32.44	46.18	38.82	46.34	40.38	4.17	4.40	4.10	4.08	4.16	4.08	4.01	3.46	4.37	4.20	4.16	4.29
04/01/22	04/30/22	Apr 2022	40.08	33.07	43.52	34.92	39.06	30.19	44.46	37.65	44.74	39.98	3.92	4.08	3.84	3.81	3.87	3.78	3.57	3.24	4.09	3.93	3.89	3.81
05/01/22	05/31/22	May 2022	36.99	27.06	41.30	33.36	33.96	24.51	45.19	34.43	44.23	35.58	3.93	4.11	3.84	3.78	3.87	3.77	3.50	3.25	4.06	3.90	3.86	3.73
06/01/22	06/30/22	Jun 2022	39.65	28.39	41.58	33.50	36.15	24.47	48.46	35.79	46.99	35.67	3.96	4.14	3.86	3.79	3.89	3.78	3.50	3.26	4.07	3.90	3.87	3.74
07/01/22	07/31/22	Jul 2022	46.72	32.47	50.31	36.36	42.63	29.96	53.16	40.36	52.37	40.23	4.00	4.29	3.91	3.84	3.96	3.85	3.63	3.29	4.12	3.95	3.92	3.87
08/01/22	08/31/22	Aug 2022	47.65	34.66	51.69	37.87	43.97	31.55	55.91	41.11	55.18	41.24	4.13	4.25	4.06	3.94	4.03	3.88	3.78	3.22	4.21	4.05	4.01	4.02
09/01/22	09/30/22	Sep 2022	47.40	37.98	48.24	37.47	43.75	34.73	51.98	40.37	51.55	41.17	4.16	4.30	4.09	4.00	4.09	3.96	3.91	3.32	4.27	4.11	4.07	4.15
10/01/22	10/31/22	Oct 2022	46.57	37.25	46.76	38.11	42.95	34.03	51.53	39.27	50.79	42.04	4.19	4.33	4.14	4.04	4.13	4.01	3.92	3.35	4.32	4.16	4.12	4.16
11/01/22	11/30/22	Nov 2022	47.79	38.65	45.67	37.54	44.10	35.36	50.01	40.96	49.37	41.31	4.21	4.38	4.19	4.12	4.19	4.08	3.95	3.41	4.39	4.23	4.19	4.21
12/01/22	12/31/22	Dec 2022	48.26	39.49	45.99	38.82	44.55	36.17	49.77	41.56	49.39	42.38	4.30	4.43	4.22	4.15	4.22	4.15	3.95	3.46	4.44	4.27	4.23	4.22
01/01/23	01/31/23	Jan 2023	49.69	40.54	48.31	40.94	45.88	37.14	52.16	43.00	52.16	44.89	4.41	4.57	4.36	4.34	4.40	4.29	4.10	3.46	4.63	4.46	4.42	4.39
02/01/23	02/28/23	Feb 2023	53.57	43.53	49.92	42.12	49.62	40.00	52.32	43.15	53.03	45.60	4.46	4.64	4.44	4.40	4.46	4.35	4.21	3.55	4.69	4.52	4.48	4.50
03/01/23	03/31/23	Mar 2023	47.94	38.96	48.41	40.53	44.21	35.63	50.90	41.69	51.92	44.61	4.47	4.61	4.40	4.35	4.42	4.30	4.26	3.56	4.64	4.47	4.43	4.54
04/01/23	04/30/23	Apr 2023	44.08	37.09	47.69	40.13	40.52	33.84	48.46	39.72	50.76	43.51	4.29	4.39	4.20	4.10	4.20	4.05	4.03	3.32	4.22	4.18	4.27	
05/01/23	05/31/23	May 2023	40.21	30.07	46.19	37.24	36.82	27.13	48.84	38.24	49.05	40.49	4.32	4.41	4.21	4.10	4.21	4.03	3.93	3.39	4.38	4.22	4.18	4.17
06/01/23	06/30/23	Jun 2023	46.10	32.33	49.71	36.36	42.45	29.28	53.22	40.13	52.87	40.67	4.35	4.44	4.23	4.09	4.21	4.03	3.93	3.40	4.37	4.21	4.17	4.17
07/01/23	07/31/23	Jul 2023	48.95	36.50	53.26	40.10	47.17	33.28	57.42	43.37	56.41	43.30	4.40	4.47	4.28	4.13	4.26	4.07	3.98	3.44	4.41	4.24	4.21	4.22
08/01/23	08/31/23	Aug 2023	50.95	37.14	54.46	39.73	47.09	33.88	58.68	43.06	57.90	43.19	4.44	4.55	4.36	4.25	4.34	4.19	4.12	3.46	4.52	4.36	4.33	4.35
09/01/23	09/30/23	Sep 2023	50.45	40.19	50.51	39.11	46.63	36.80	54.54	42.66	54.26	43.36	4.45	4.58	4.37	4.30	4.36	4.25	4.19	3.71	4.57	4.41	4.38	4.43
10/01/23	10/31/23	Oct 2023	50.28	39.95	48.29	39.32	46.45	36.57	53.24	42.65	53.29	44.17	4.45	4.58	4.40	4.30	4.37	4.26	4.18	3.72	4.57	4.41	4.38	4.42
11/01/23	11/30/23	Nov 2023	52.79	42.30	49.62	40.08	48.84	38.82	54.02	43.48	53.69	44.15	4.52	4.69	4.51	4.44	4.51	4.42	4.29	3.96	4.71	4.55	4.51	4.55
12/01/23	12/31/23	Dec 2023	52.66	43.15	49.70	41.87	48.72	39.63	53.44	44.41	53.36	45.47	4.57	4.71	4.52	4.46	4.52	4.44	4.35	3.96	4.75	4.58	4.54	4.63
01/01/24	01/31/24	Jan 2024	52.93	42.68	48.81	40.98	48.95	39.14	52.76	43.55	52.59	44.65	4.61	4.79	4.58	4.51	4.58	4.51	4.47	4.39	4.80	4.63	4.59	4.67
02/01/24	02/29/24	Feb 2024	55.14	45.33	49.61	41.89	51.40	41.96	52.14	43.11	52.59	45.23	4.55	4.70	4.49	4.42	4.50	4.39	4.30	3.95	4.71	4.55	4.50	4.58
03/01/24	03/31/24	Mar 2024	49.86	40.62	47.52	40.18	46.01	37.18	50.02	41.60	50.93	43.87	4.52	4.61	4.40	4.35	4.44	4.29	4.29	3.88	4.64	4.47	4.43	4.56
04/01/24	04/30/24	Apr 2024	45.71	38.57	46.50	39.79	42.04	35.23	48.28	39.83	46.43	43.85	4.44	4.52	4.32	4.26	4.34	4.17	4.14	3.57	4.54	4.38	4.34	4.37
05/01/24	05/31/24	May 2024	39.35	30.27	44.51	37.09	35.96	27.28	47.28	38.15	47.34	40.31	4.44	4.50	4.30	4.21	4.30	4.10	3.97	3.56	4.49	4.32	4.29	4.21
06/01/24	06/30/24	Jun 2024	45.65	33.32	48.54	36.56	41.98	30.19	52.03	40.57	51.79	41.23	4.44	4.50	4.29	4.17	4.26	4.06	3.96	3.54	4.45	4.29	4.25	4.20
07/01/24	07/31/24	Jul 2024	50.11	37.08	53.74	39.66	46.25	33.79	57.77	42.69	56.78	42.73	4.46	4.51	4.30	4.19	4.29	4.08	3.97	3.65	4.46	4.30	4.26	4.21
08/01/24	08/31/24	Aug 2024	52.60	38.50	55.09	40.20	48.63	35.15	59.59	43.52	58.53	43.58	4.49	4.60	4.40	4.31	4.39	4.22	4.15	3.68	4.58	4.42	4.39	4.39
09/01/24	09/30/24	Sep 2024	52.61	42.01	51.84	39.68	48.67	38.51	55.68	43.09	55.17	43.72	4.47	4.61	4.42	4.34	4.40	4.27	4.22	3.83	4.61	4.45	4.41	4.46
10/01/24	10/31/24	Oct 2024	51.60	41.04	51.63	41.34	47.73	37.60	54.96	41.62	54.36	44.54	4.49	4.64	4.44	4.36	4.41	4.31	4.22	3.82	4.63	4.47	4.44	4.46
11/0																								

11/01/26	11/30/26	Nov 2026	56.06	46.06	50.89	42.90	51.86	42.33	53.65	43.08	54.15	46.16	4.50	4.77	4.45	4.38	4.45	4.33	4.17	4.06	4.66	4.50	4.46	4.44
12/01/26	12/31/26	Dec 2026	56.61	45.52	50.43	42.97	52.54	41.95	52.76	43.10	53.94	46.15	4.56	4.67	4.45	4.40	4.46	4.33	4.16	3.77	4.68	4.52	4.48	4.44
01/01/27	01/31/27	Jan 2027	55.40	45.15	49.77	43.04	51.24	41.67	52.48	43.55	53.53	46.36	4.60	4.75	4.53	4.48	4.55	4.43	4.24	3.76	4.77	4.60	4.56	4.52
02/01/27	02/28/27	Feb 2027	57.61	48.39	50.83	43.97	53.71	44.86	50.95	43.13	53.64	47.05	4.60	4.74	4.52	4.47	4.53	4.41	4.23	3.73	4.76	4.59	4.55	4.51
03/01/27	03/31/27	Mar 2027	49.58	41.16	47.55	41.52	45.63	37.58	46.65	40.92	50.58	44.92	4.53	4.63	4.41	4.36	4.44	4.29	4.24	3.66	4.65	4.48	4.44	4.52
04/01/27	04/30/27	Apr 2027	45.39	39.08	47.03	41.18	41.62	35.59	46.62	40.10	49.80	44.22	4.43	4.51	4.29	4.21	4.29	4.13	4.07	3.43	4.49	4.33	4.29	4.30
05/01/27	05/31/27	May 2027	39.90	31.06	46.44	39.10	36.38	27.92	47.01	38.01	48.58	41.74	4.43	4.48	4.27	4.17	4.25	4.07	4.00	3.53	4.45	4.29	4.25	4.24
06/01/27	06/30/27	Jun 2027	47.19	34.66	49.62	37.43	43.34	31.36	52.16	40.48	52.30	42.30	4.45	4.48	4.27	4.15	4.25	4.03	3.93	3.56	4.42	4.26	4.22	4.17
07/01/27	07/31/27	Jul 2027	51.04	39.39	53.42	40.99	47.02	35.88	57.41	43.21	56.08	44.49	4.53	4.60	4.36	4.23	4.32	4.12	4.04	3.70	4.50	4.34	4.30	4.28
08/01/27	08/31/27	Aug 2027	53.91	41.91	54.97	41.38	49.76	38.30	59.32	44.32	58.09	45.31	4.59	4.70	4.43	4.31	4.41	4.21	4.15	3.77	4.58	4.42	4.38	4.38
09/01/27	09/30/27	Sep 2027	55.12	45.49	52.67	41.66	51.04	41.84	55.34	43.44	55.32	45.61	4.62	4.78	4.48	4.37	4.47	4.31	4.27	4.09	4.65	4.49	4.45	4.51
10/01/27	10/31/27	Oct 2027	55.96	46.08	53.78	44.87	51.76	42.34	56.27	44.41	56.18	47.83	4.68	4.92	4.60	4.52	4.59	4.47	4.45	4.16	4.80	4.63	4.60	4.70
11/01/27	11/30/27	Nov 2027	59.55	48.83	53.54	44.62	55.18	45.13	56.62	45.44	56.47	47.80	4.80	5.07	4.78	4.70	4.79	4.70	4.60	4.47	4.87	4.61	4.77	4.87
12/01/27	12/31/27	Dec 2027	58.82	47.69	52.34	44.65	54.73	43.98	54.67	45.70	55.93	47.97	4.86	5.02	4.80	4.74	4.80	4.68	4.70	4.29	5.02	4.86	4.82	4.97
01/01/28	01/31/28	Jan 2028	58.95	48.59	50.34	44.28	55.03	44.86	55.15	46.72	55.82	48.85	4.98	5.14	4.91	4.87	4.94	4.81	4.85	4.43	5.16	4.99	4.95	5.14
02/01/28	02/29/28	Feb 2028	60.90	52.64	52.90	45.87	57.80	49.23	53.97	45.89	56.04	49.20	4.96	5.10	4.87	4.84	4.91	4.77	4.83	4.37	5.13	4.96	4.92	5.11
03/01/28	03/31/28	Mar 2028	54.86	44.87	47.99	41.03	50.71	41.20	49.96	44.31	53.98	48.25	4.98	5.06	4.83	4.81	4.90	4.74	4.73	4.29	5.10	4.93	4.89	5.01
04/01/28	04/30/28	Apr 2028	51.29	43.21	48.19	40.99	47.22	39.50	48.75	43.94	52.98	47.86	4.96	5.03	4.81	4.76	4.84	4.68	4.69	4.22	5.03	4.87	4.84	4.93
05/01/28	05/31/28	May 2028	44.15	33.77	49.15	41.35	40.39	30.47	51.22	41.03	51.46	44.62	4.98	5.00	4.77	4.70	4.81	4.59	4.54	4.26	4.98	4.82	4.78	4.78
06/01/28	06/30/28	Jun 2028	51.87	38.16	53.04	39.83	47.77	34.67	56.67	44.33	56.34	45.57	5.02	5.03	4.81	4.69	4.80	4.57	4.57	4.28	4.97	4.80	4.77	4.80
07/01/28	07/31/28	Jul 2028	55.61	43.62	56.85	42.39	51.36	39.89	61.88	47.44	60.26	47.50	5.10	5.11	4.90	4.76	4.87	4.65	4.63	4.42	5.04	4.87	4.84	4.88
08/01/28	08/31/28	Aug 2028	58.25	45.40	57.63	41.78	53.87	41.60	63.06	47.21	61.36	47.57	5.11	5.21	4.96	4.85	4.95	4.79	4.80	4.43	5.13	4.97	4.93	5.04
09/01/28	09/30/28	Sep 2028	59.37	49.47	55.56	43.97	55.30	45.73	58.54	47.44	58.63	48.80	5.16	5.29	5.00	4.94	5.02	4.88	4.91	4.69	5.21	5.05	5.01	5.15
10/01/28	10/31/28	Oct 2028	60.41	50.14	54.14	44.90	56.14	46.30	59.06	47.76	58.60	50.75	5.18	5.36	5.07	5.02	5.09	4.96	4.96	4.73	5.29	5.13	5.10	5.20
11/01/28	11/30/28	Nov 2028	62.69	51.57	53.56	44.69	58.52	47.83	58.74	48.32	58.14	50.05	5.22	5.43	5.20	5.11	5.21	5.11	5.14	4.90	5.39	5.23	5.19	5.41
12/01/28	12/31/28	Dec 2028	61.77	52.31	52.60	46.54	57.99	48.42	57.65	49.32	57.92	51.01	5.29	5.46	5.22	5.18	5.24	5.11	5.16	4.83	5.47	5.30	5.26	5.43
01/01/29	01/31/29	Jan 2029	65.79	52.98	53.17	44.75	62.37	49.36	59.94	50.23	60.43	51.54	5.38	5.55	5.33	5.33	5.40	5.28	5.31	4.90	5.62	5.45	5.41	5.60
02/01/29	02/28/29	Feb 2029	68.36	58.40	57.18	48.92	67.82	55.94	60.22	50.42	61.67	53.71	5.41	5.56	5.34	5.34	5.40	5.28	5.33	4.90	5.63	5.46	5.42	5.61
03/01/29	03/31/29	Mar 2029	61.11	49.84	51.49	43.33	57.08	45.89	54.62	47.93	58.20	51.91	5.37	5.47	5.24	5.26	5.33	5.20	5.24	4.76	5.54	5.38	5.33	5.52
04/01/29	04/30/29	Apr 2029	57.31	47.58	53.87	45.90	53.06	43.78	52.73	47.11	57.21	51.14	5.33	5.40	5.17	5.12	5.23	5.05	5.09	4.58	5.39	5.23	5.19	5.32
05/01/29	05/31/29	May 2029	48.59	37.96	52.17	43.20	44.60	34.44	54.68	44.84	54.74	47.47	5.33	5.35	5.13	5.06	5.17	4.96	4.92	4.68	5.33	5.17	5.14	5.16
06/01/29	06/30/29	Jun 2029	54.14	40.17	53.95	40.55	49.91	36.55	57.87	46.33	58.01	47.38	5.30	5.33	5.10	4.99	5.10	4.88	4.88	4.62	5.27	5.10	5.07	5.12
07/01/29	07/31/29	Jul 2029	57.84	46.20	57.76	42.67	53.45	42.32	63.50	49.13	61.90	49.01	5.31	5.34	5.12	4.96	5.09	4.88	4.85	4.62	5.24	5.08	5.04	5.09
08/01/29	08/31/29	Aug 2029	62.83	48.48	59.13	42.17	58.24	44.50	65.91	48.82	63.81	49.02	5.30	5.38	5.12	5.02	5.13	4.95	4.99	4.62	5.29	5.13	5.09	5.23
09/01/29	09/30/29	Sep 2029	63.17	52.48	56.56	43.75	59.18	48.86	61.43	49.64	60.94	50.32	5.30	5.48	5.16	5.09	5.17	5.02	5.03	4.85	5.36	5.20	5.16	5.27
10/01/29	10/31/29	Oct 2029	62.49	50.89	54.55	42.81	59.04	47.21	60.73	48.57	60.13	50.76	5.36	5.47	5.16	5.10	5.19	5.05	5.05	4.81	5.37	5.21	5.18	5.29
11/01/29	11/30/29	Nov 2029	63.93	52.10	52.81	43.54	60.06	48.24	59.77	49.56	59.28	50.93	5.26	5.52	5.28	5.21	5.28	5.19	5.21	4.93	5.49	5.33	5.29	5.48
12/01/29	12/31/29	Dec 2029	65.46	54.64	52.28	45.10	62.86	50.93	59.47	50.57	59.57	51.72	5.31	5.47	5.23	5.24	5.31	5.19	5.23	4.83	5.53	5.36	5.32	5.50
01/01/30	01/31/30	Jan 2030	65.42	52.42	52.17	43.69	62.06	48.72	60.38	51.24	60.55	52.00	5.43	5.59	5.34	5.37	5.44	5.33	5.36	4.97	5.66	5.49	5.45	5.64
02/01/30	02/28/30	Feb 2030	67.59	57.76	55.16	46.68	66.91	54.97	60.49	51.67	61.33	53.89	5.50	5.64	5.40	5.43	5.50	5.39	5.41	5.04	5.72	5.55	5.51	5.70
03/01/30	03/31/30	Mar 2030	60.80	49.83	50.33	44.12	56.45	45.79	56.29	49.63	58.99	53.23	5.50	5.59	5.36	5.41	5.50	5.39	5.41	4.90	5.70	5.53	5.49	5.69
04/01/30	04/30/30	Apr 2030	56.25	48.00	49.98	43.06	51.93	44.01	52.87	47.91	56.88	51.92	5.40	5.47	5.24	5.20	5.30	5.14	5.17	4.70	5.47	5.31	5.28	5.41
05/01/30	05/31/30	May 2030	47.49	37.38	50.55	40.64	43.51	33.85	54.44	45.13	54.30	47.50	5.40	5.46	5.21	5.17	5.27	5.08	5.08	4.71	5.45	5.28	5.25	5.32
06/01/30	06/30/30	Jun 2030	54.55	41.45	53.98	41.29	50.26	37.73	58.68	48.07	58.67	48.77	5.44	5.47	5.24	5.17	5.27	5.06	5.11	4.77	5.45	5.29	5.25	5.35
07/01/30	07/31/30	Jul 2030	58.56	47.21	58.28	42.40	54.09	43.24	64.99	50.00	63.27	49.71	5.51	5.56	5.31	5.18	5.31	5.08	5.10	4.90	5.46	5.30	5.26	5.34
08/01/30	08/31/30	Aug 2030	62.98	49.42	59.82	42.93	58.33	45.36	67.38	50.68	65.28	50.59	5.57	5.66	5.41	5.33	5.43	5.26	5.28	4.93	5.60	5.44	5.40	5.52
09/01/30	09/30/30	Sep 2030	65.05	53.77	58.94	45.36	60.72	49.77	63.97	51.99	63.53	52.50	5.57	5.74	5.50	5.44	5.51	5.41	5.44	5.16	5.71	5.56	5.52	5.68
10/01/30	10/31/30	Oct 2030	65.50	53.63	59.58	47.93	62.02	49.93	64.10	52.04	63.59	53.68	5.63	5.81	5.59	5.53	5.59	5.49	5.53	5.21	5.80	5.64	5.61	5.77
11/01/30	11/30/30	Nov 2030	68.95	56.61	56.43	46.18	65.81	52.87	64.04	53.65	63.66	54.53	5.70	5.94	5.71	5.70	5.76	5.69	5.70	5.39	5.98	5.82	5.78	5.96

12/01/32	12/31/32	Dec 2032	74.98	61.06	57.34	47.76	73.45	57.15	67.51	57.50	67.13	57.45	6.03	6.24	6.00	6.03	6.07	5.98	6.00	5.71	6.31	6.14	6.10	6.27	
01/01/33	01/31/33	Jan 2033	73.86	60.38	56.91	48.44	71.83	56.92	67.33	58.00	67.21	58.39	6.12	6.33	6.09	6.13	6.19	6.10	6.10	5.78	6.42	6.25	6.21	6.39	
02/01/33	02/28/33	Feb 2033	77.12	65.14	59.98	50.28	77.61	62.92	68.88	58.20	69.71	60.41	6.15	6.35	6.10	6.15	6.21	6.12	6.12	5.81	6.44	6.27	6.23	6.40	
03/01/33	03/31/33	Mar 2033	67.59	55.83	53.56	47.31	63.30	51.51	62.14	55.26	64.50	57.89	6.07	6.24	6.01	6.09	6.16	6.09	6.07	5.58	6.37	6.21	6.17	6.35	
04/01/33	04/30/33	Apr 2033	62.02	53.65	53.83	47.53	57.42	49.31	58.89	54.14	62.51	57.82	5.93	6.15	5.90	5.92	5.96	5.84	5.84	5.40	6.19	6.03	6.00	6.08	
05/01/33	05/31/33	May 2033	52.15	42.98	53.65	44.08	47.83	39.06	59.50	51.07	58.69	52.31	5.92	6.01	5.77	5.72	5.83	5.64	5.63	5.37	5.99	5.83	5.80	5.86	
06/01/33	06/30/33	Jun 2033	60.69	46.29	58.10	44.15	56.00	42.23	64.28	52.95	63.58	53.03	5.98	6.03	5.78	5.72	5.84	5.63	5.64	5.43	6.00	5.83	5.80	5.88	
07/01/33	07/31/33	Jul 2033	64.22	53.38	61.85	46.60	59.37	49.01	70.61	55.48	68.26	55.12	6.07	6.16	5.87	5.81	6.00	5.73	5.69	5.55	6.09	5.93	5.89	5.93	
08/01/33	08/31/33	Aug 2033	70.04	55.55	63.61	46.56	64.94	51.08	73.21	55.95	70.74	55.76	6.12	6.30	6.06	6.00	6.09	5.95	5.93	5.64	6.27	6.11	6.07	6.17	
09/01/33	09/30/33	Sep 2033	71.61	59.03	62.05	47.89	67.41	54.74	68.65	56.71	68.19	57.07	6.15	6.41	6.16	6.13	6.18	6.12	6.07	5.80	6.41	6.25	6.21	6.31	
10/01/33	10/31/33	Oct 2033	74.08	60.93	63.14	51.03	71.83	57.39	70.49	58.17	69.96	59.95	6.19	6.47	6.27	6.19	6.26	6.19	6.19	5.84	6.47	6.31	6.27	6.44	
11/01/33	11/30/33	Nov 2033	79.40	64.77	61.59	50.19	79.28	61.64	72.58	59.50	71.99	60.26	6.26	6.55	6.35	6.30	6.39	6.36	6.38	5.90	6.58	6.42	6.38	6.64	
12/01/33	12/31/33	Dec 2033	78.06	63.77	59.75	49.60	77.31	59.89	70.27	59.68	70.12	59.67	6.32	6.55	6.33	6.33	6.49	6.46	6.47	6.00	6.62	6.45	6.41	6.75	
01/01/34	01/31/34	Jan 2034	76.30	65.37	59.02	50.69	75.23	62.22	69.31	60.44	69.36	61.16	6.43	6.70	6.48	6.48	6.64	6.62	6.65	6.09	6.77	6.60	6.56	6.94	
02/01/34	02/28/34	Feb 2034	78.75	69.40	62.09	53.30	79.88	68.19	70.20	61.32	71.33	63.87	6.46	6.70	6.48	6.49	6.64	6.62	6.64	6.12	6.78	6.62	6.57	6.92	
03/01/34	03/31/34	Mar 2034	69.83	61.46	55.05	48.96	66.33	57.07	63.72	57.82	66.22	60.60	6.42	6.62	6.38	6.45	6.51	6.45	6.45	5.84	6.73	6.57	6.53	6.73	
04/01/34	04/30/34	Apr 2034	66.34	57.16	55.58	49.80	61.67	52.66	60.71	56.32	65.06	60.22	6.27	6.48	6.26	6.26	6.31	6.24	6.18	5.68	6.53	6.37	6.34	6.42	
05/01/34	05/31/34	May 2034	57.36	45.55	57.90	46.37	52.76	41.48	63.28	53.58	62.79	54.70	6.24	6.38	6.13	6.10	6.10	6.21	6.10	5.99	5.63	6.38	6.22	6.18	6.23
06/01/34	06/30/34	Jun 2034	64.34	49.17	60.54	46.12	59.44	44.94	66.97	55.28	66.29	55.39	6.26	6.35	6.10	6.04	6.20	6.09	5.96	5.65	6.32	6.15	6.12	6.20	
07/01/34	07/31/34	Jul 2034	67.35	55.85	64.79	48.33	62.31	51.32	73.21	57.42	71.01	57.07	6.34	6.46	6.20	6.09	6.24	6.15	5.96	5.73	6.36	6.20	6.16	6.20	
08/01/34	08/31/34	Aug 2034	72.06	57.88	65.93	48.41	66.86	53.26	74.96	57.97	72.77	57.89	6.34	6.56	6.31	6.24	6.32	6.26	6.16	5.74	6.52	6.36	6.32	6.40	
09/01/34	09/30/34	Sep 2034	72.65	61.79	63.51	49.36	68.42	54.41	69.05	58.41	69.13	58.90	6.34	6.62	6.38	6.34	6.38	6.34	6.29	5.96	6.61	6.45	6.41	6.53	
10/01/34	10/31/34	Oct 2034	74.32	62.70	61.22	50.41	72.46	58.89	70.02	58.77	69.62	60.61	6.29	6.57	6.37	6.31	6.31	6.31	5.94	6.58	6.42	6.38	6.55	6.55	
11/01/34	11/30/34	Nov 2034	77.33	64.95	59.52	49.73	76.39	61.56	70.89	59.32	70.56	60.43	6.23	6.51	6.32	6.27	6.38	6.35	6.38	5.85	6.55	6.39	6.35	6.65	
12/01/34	12/31/34	Dec 2034	76.80	66.19	59.36	50.76	76.41	62.64	69.43	60.54	69.58	61.04	6.26	6.54	6.34	6.29	6.48	6.46	6.49	5.94	6.58	6.41	6.37	6.77	
01/01/35	01/31/35	Jan 2035	74.11	63.79	57.52	50.16	74.08	60.40	68.83	60.46	69.08	61.06	6.39	6.63	6.42	6.43	6.61	6.61	6.64	6.08	6.72	6.56	6.51	6.93	
02/01/35	02/28/35	Feb 2035	78.12	68.88	61.41	52.94	80.25	68.03	69.97	61.14	71.50	63.63	6.43	6.66	6.45	6.47	6.64	6.63	6.68	6.10	6.76	6.59	6.55	6.96	
03/01/35	03/31/35	Mar 2035	69.64	61.84	55.02	49.34	67.98	57.80	63.91	57.75	66.53	61.09	6.40	6.63	6.42	6.43	6.61	6.47	6.48	6.10	6.72	6.55	6.51	6.76	
04/01/35	04/30/35	Apr 2035	66.90	58.72	58.85	51.40	64.31	55.03	61.57	56.79	66.54	61.56	6.29	6.50	6.29	6.29	6.32	6.26	6.26	5.89	6.57	6.40	6.37	6.50	
05/01/35	05/31/35	May 2035	59.30	48.19	58.13	48.07	54.62	43.96	63.78	55.09	63.74	56.84	6.35	6.51	6.31	6.29	6.35	6.29	6.21	5.87	6.57	6.40	6.37	6.45	
06/01/35	06/30/35	Jun 2035	63.10	49.59	57.61	46.31	58.36	45.33	64.82	55.69	64.71	56.24	6.39	6.48	6.24	6.19	6.32	6.23	6.11	5.68	6.47	6.31	6.27	6.35	
07/01/35	07/31/35	Jul 2035	69.09	57.05	64.73	49.27	63.94	52.42	74.80	58.87	72.54	58.52	6.48	6.61	6.35	6.32	6.43	6.32	6.21	5.76	6.60	6.44	6.40	6.46	
08/01/35	08/31/35	Aug 2035	73.09	59.77	65.63	49.30	68.17	55.06	77.43	59.34	70.74	59.23	6.53	6.72	6.50	6.45	6.53	6.45	6.39	5.94	6.72	6.56	6.53	6.63	
09/01/35	09/30/35	Sep 2035	72.15	63.12	61.35	50.05	68.72	59.00	70.88	59.97	70.34	60.25	6.51	6.74	6.53	6.55	6.58	6.50	6.48	6.13	6.82	6.66	6.62	6.72	
10/01/35	10/31/35	Oct 2035	71.39	62.44	60.80	50.20	70.38	58.92	71.40	59.66	70.86	61.57	6.48	6.71	6.50	6.48	6.56	6.51	6.48	6.08	6.76	6.60	6.56	6.72	
11/01/35	11/30/35	Nov 2035	74.85	64.31	59.02	50.61	73.80	60.50	71.61	60.63	71.06	61.37	6.48	6.79	6.58	6.53	6.71	6.68	6.71	6.11	6.81	6.65	6.61	6.97	
12/01/35	12/31/35	Dec 2035	76.43	65.92	59.35	51.39	77.64	62.75	70.73	62.12	71.13	62.28	6.56	6.80	6.55	6.58	6.77	6.74	6.77	6.11	6.86	6.70	6.66	7.05	
01/01/36	01/31/36	Jan 2036	78.38	67.73	61.06	52.98	78.66	64.54	72.47	64.12	72.54	64.63	6.71	7.04	6.76	6.81	7.04	7.03	7.04	6.11	7.10	6.93	6.89	7.33	
02/01/36	02/29/36	Feb 2036	81.07	71.66	64.16	55.09	83.27	71.19	71.32	62.56	73.87	65.88	6.66	6.88	6.66	6.68	6.81	6.78	6.81	6.30	6.97	6.80	6.76	7.10	
03/01/36	03/31/36	Mar 2036	71.67	64.08	56.68	51.26	69.95	59.89	65.54	59.76	68.33	63.16	6.65	6.86	6.68	6.68	6.76	6.73	6.37	6.97	6.80	6.76	7.01	7.01	
04/01/36	04/30/36	Apr 2036	67.51	59.24	58.10	51.54	64.05	55.01	62.77	57.98	67.59	62.66	6.53	6.71	6.52	6.52	6.55	6.50	6.45	6.11	6.79	6.63	6.59	6.69	
05/01/36	05/31/36	May 2036	57.56	47.46	57.56	48.18	52.90	43.21	63.49	55.63	63.30	57.50	6.52	6.66	6.47	6.44	6.50	6.44	6.35	6.04	6.71	6.55	6.51	6.59	
06/01/36	06/30/36	Jun 2036	64.28	51.62	60.69	48.51	59.43	47.20	67.13	57.59	66.78	58.07	6.57	6.65	6.40	6.34	6.48	6.39	6.25	5.81	6.61	6.45	6.41	6.49	
07/01/36	07/31/36	Jul 2036	70.56	57.39	67.43	49.83	65.29	52.70	76.61	59.55	74.24	59.24	6.70	6.78	6.52	6.47	6.63	6.50	6.35	5.88	6.75	6.58	6.55	6.59	
08/01/36	08/31/36	Aug 2036	74.97	61.49	68.99	51.67	69.88	56.72	79.20	61.68	76.53	61.55	6.75	6.94	6.73	6.68	6.75	6.68	6.60	6.17	6.95	6.79	6.76	6.84	
09/01/36	09/30/36	Sep 2036	74.83	64.05	65.67	51.13	71.59	59.93	73.05	60.75	72.57	61.22	6.70	6.93	6.73	6.70	6.76	6.70	6.68	6.32	6.97	6.81	6.77	6.92	
10/01/36	10/31/36	Oct 2036	74.92	64.73	66.91	54.60	74.90	61.48	73.34	61.85	73.10	63.68	6.68	6.94	6.75	6.68	6.76	6.73	6.71	6.29	6.95	6.79	6.76	6.95	
11/01/36	11/30/36	Nov 2036	80.38	69.59	64.43	53.94	81.15	66.73	74.86	63.73	74.98	64.91	6.81	7.11	6.91	6.86	7.04	7.03	7.03	6.45	7.14	6.98	6.94	7.29	
12/01/36	12/31/36	Dec 2036	80.08	69.22	62.67	53.48	81.88	66.45	73.71	63.93	74.19	64.60	6.88	7.09	6.86	6.86	7.06	7.04	7.06	6.35	7.15	6.98	6.94		

01/01/39	01/31/39	Jan 2039	88.65	77.25	66.07	58.99	88.88	74.47	79.41	70.84	79.93	71.66	7.42	7.88	7.42	7.46	7.85	7.83	7.72	6.79	7.75	7.58	7.54	8.01
02/01/39	02/28/39	Feb 2039	90.82	80.87	69.49	60.86	93.37	80.67	80.62	70.09	83.07	74.03	7.46	7.76	7.42	7.46	7.85	7.85	7.90	6.97	7.75	7.58	7.54	8.18
03/01/39	03/31/39	Mar 2039	77.33	70.29	60.00	55.05	75.78	65.64	70.46	64.28	72.87	68.26	7.35	7.56	7.37	7.37	7.46	7.42	7.44	7.07	7.66	7.49	7.45	7.72
04/01/39	04/30/39	Apr 2039	70.96	64.81	61.40	55.40	67.28	60.23	66.58	62.88	71.48	67.88	7.18	7.37	7.20	7.16	7.21	7.18	7.16	6.81	7.44	7.27	7.24	7.40
05/01/39	05/31/39	May 2039	63.09	53.38	61.35	53.93	57.99	48.71	69.10	61.05	68.62	63.72	7.16	7.35	7.16	7.14	7.16	7.11	7.04	6.76	7.42	7.26	7.22	7.27
06/01/39	06/30/39	Jun 2039	69.09	56.34	63.97	53.38	63.75	51.54	71.93	62.49	71.49	63.28	7.20	7.35	7.11	7.02	7.16	7.04	6.93	6.47	7.30	7.13	7.10	7.17
07/01/39	07/31/39	Jul 2039	75.61	62.52	69.80	55.18	69.96	57.45	82.05	65.33	79.20	65.04	7.32	7.49	7.23	7.14	7.28	7.20	7.04	6.46	7.42	7.26	7.22	7.28
08/01/39	08/31/39	Aug 2039	84.06	66.15	71.79	56.04	78.18	60.98	85.74	66.15	83.18	66.18	7.35	7.65	7.39	7.34	7.39	7.32	7.27	6.86	7.61	7.45	7.41	7.50
09/01/39	09/30/39	Sep 2039	79.65	69.81	65.94	55.99	76.00	65.35	75.99	66.64	75.89	67.65	7.35	7.74	7.42	7.34	7.42	7.35	7.34	6.93	7.61	7.45	7.41	7.57
10/01/39	10/31/39	Oct 2039	84.01	73.44	70.59	59.13	84.58	70.62	78.67	68.00	79.42	70.78	7.35	7.71	7.42	7.32	7.56	7.55	7.53	6.93	7.59	7.43	7.40	7.77
11/01/39	11/30/39	Nov 2039	93.10	79.74	70.71	59.83	95.03	79.12	83.62	71.06	84.85	72.62	7.46	7.92	7.56	7.49	7.86	7.90	7.88	7.07	7.77	7.61	7.57	8.15
12/01/39	12/31/39	Dec 2039	89.93	78.27	66.99	59.05	91.23	77.13	80.27	69.85	81.30	71.18	7.53	7.85	7.55	7.51	7.88	7.88	7.95	7.11	7.80	7.63	7.59	8.23
01/01/40	01/31/40	Jan 2040	93.06	83.14	68.49	61.94	93.42	84.08	82.24	73.00	83.14	75.79	7.67	8.14	7.69	7.57	8.09	8.09	7.91	7.04	8.04	7.87	7.83	8.19
02/01/40	02/29/40	Feb 2040	92.88	82.92	70.43	62.13	95.56	83.49	82.71	71.12	84.80	75.90	7.60	7.94	7.60	7.66	8.05	8.07	8.16	7.24	7.95	7.78	7.74	8.44
03/01/40	03/31/40	Mar 2040	79.77	74.18	61.17	57.29	78.64	69.58	72.97	66.43	74.79	70.87	7.60	7.84	7.66	7.62	7.80	7.78	7.80	7.30	7.91	7.74	7.70	8.08
04/01/40	04/30/40	Apr 2040	72.48	67.64	61.06	56.18	69.27	63.10	68.69	64.68	73.68	69.67	7.46	7.64	7.46	7.42	7.49	7.44	7.44	7.08	7.70	7.54	7.50	7.68
05/01/40	05/31/40	May 2040	65.56	55.68	63.31	55.93	60.32	50.85	72.06	63.13	71.47	65.98	7.44	7.64	7.44	7.40	7.44	7.40	7.33	7.03	7.68	7.52	7.48	7.57
06/01/40	06/30/40	Jun 2040	70.55	58.85	65.43	55.60	65.07	53.88	74.32	64.59	73.66	65.74	7.48	7.66	7.37	7.26	7.42	7.31	7.21	6.67	7.54	7.37	7.34	7.44
07/01/40	07/31/40	Jul 2040	78.83	65.10	71.66	56.95	72.99	59.86	84.94	67.53	81.90	67.36	7.62	7.78	7.49	7.40	7.57	7.40	7.30	6.72	7.68	7.52	7.48	7.54
08/01/40	08/31/40	Aug 2040	85.87	69.18	72.74	58.25	79.95	63.87	87.46	68.64	84.89	68.71	7.66	8.00	7.71	7.64	7.71	7.62	7.58	7.13	7.91	7.75	7.71	7.82
09/01/40	09/30/40	Sep 2040	81.44	73.21	65.38	58.92	77.83	68.82	76.77	69.52	77.08	71.14	7.71	8.05	7.78	7.67	7.78	7.71	7.67	7.24	7.95	7.79	7.75	7.91
10/01/40	10/31/40	Oct 2040	88.76	78.08	70.75	60.86	90.25	75.64	81.79	71.04	82.84	74.20	7.71	8.11	7.76	7.67	7.98	7.96	7.96	7.26	7.95	7.79	7.75	8.20
11/01/40	11/30/40	Nov 2040	95.58	81.61	71.79	61.12	97.56	80.27	85.71	73.08	87.14	74.37	7.80	8.23	7.87	7.80	8.28	8.29	8.30	7.40	8.08	7.92	7.88	8.57
12/01/40	12/31/40	Dec 2040	95.81	83.42	71.67	62.81	97.41	82.92	85.51	74.39	86.82	75.98	7.91	8.30	7.94	7.89	8.34	8.36	8.41	7.49	8.18	8.01	7.97	8.69
01/01/41	01/31/41	Jan 2041	95.29	85.14	70.14	63.43	95.66	86.10	84.21	74.75	85.13	77.61	7.86	8.34	7.88	7.83	8.28	8.28	8.10	7.21	8.22	8.05	8.01	8.38
02/01/41	02/28/41	Feb 2041	95.11	84.91	72.12	63.62	97.86	85.50	84.70	72.83	86.83	77.72	7.78	8.13	7.78	7.84	8.25	8.26	8.36	7.42	8.13	7.96	7.92	8.64
03/01/41	03/31/41	Mar 2041	81.68	75.96	62.64	58.66	80.53	71.25	74.72	68.02	76.58	72.57	7.78	8.02	7.84	7.80	7.99	7.97	7.99	7.47	8.09	7.92	7.88	8.27
04/01/41	04/30/41	Apr 2041	74.22	69.27	62.53	57.53	70.93	64.62	70.33	66.24	75.45	71.35	7.64	7.82	7.64	7.60	7.67	7.62	7.62	7.25	7.88	7.71	7.68	7.86
05/01/41	05/31/41	May 2041	67.14	57.02	64.83	57.27	61.76	52.07	73.79	64.64	73.18	67.56	7.62	7.82	7.62	7.58	7.62	7.58	7.51	7.19	7.86	7.70	7.66	7.74
06/01/41	06/30/41	Jun 2041	72.24	60.26	67.00	56.93	66.63	55.18	76.10	66.14	75.42	73.42	7.66	7.84	7.54	7.43	7.60	7.49	7.38	6.83	7.71	7.55	7.51	7.62
07/01/41	07/31/41	Jul 2041	80.73	66.66	73.38	58.32	74.74	61.30	86.97	69.15	83.87	68.98	7.80	7.97	7.67	7.58	7.75	7.58	7.47	6.88	7.86	7.70	7.66	7.71
08/01/41	08/31/41	Aug 2041	87.93	70.84	74.48	59.65	81.87	65.40	89.56	70.29	86.93	70.36	7.84	8.19	7.90	7.82	7.90	7.80	7.77	7.30	8.09	7.93	7.90	8.00
09/01/41	09/30/41	Sep 2041	83.39	74.97	66.95	60.34	79.70	70.48	78.61	71.19	78.93	72.85	7.90	8.25	7.97	7.86	7.97	7.90	7.86	7.42	8.13	7.97	7.94	8.10
10/01/41	10/31/41	Oct 2041	90.89	79.95	72.44	62.32	92.41	77.46	83.76	72.75	84.83	75.98	7.90	8.30	7.95	7.86	8.15	8.15	8.15	7.43	8.13	7.97	7.94	8.39
11/01/41	11/30/41	Nov 2041	97.88	83.56	73.51	62.59	99.90	82.19	87.77	74.83	89.23	76.16	7.99	8.43	8.06	7.99	8.45	8.49	8.50	7.58	8.27	8.10	8.07	8.77
12/01/41	12/31/41	Dec 2041	98.11	85.42	73.39	64.32	99.75	84.92	87.56	76.18	88.90	77.80	8.10	8.50	8.13	8.08	8.54	8.56	8.61	7.67	8.36	8.20	8.16	8.89
01/01/42	01/31/42	Jan 2042	97.58	87.18	71.82	64.95	97.96	88.17	86.24	76.54	87.18	79.47	8.05	8.54	8.07	8.12	8.48	8.48	8.29	7.39	8.41	8.24	8.20	8.58
02/01/42	02/28/42	Feb 2042	97.39	86.94	73.85	65.15	100.21	87.55	86.73	74.58	88.92	79.59	7.97	8.33	7.97	8.03	8.44	8.46	8.56	7.59	8.32	8.15	8.11	8.84
03/01/42	03/31/42	Mar 2042	83.64	77.78	64.14	60.07	82.46	72.96	76.51	69.66	78.42	74.31	7.97	8.22	8.03	7.99	8.18	8.16	8.18	7.65	8.28	8.11	8.07	8.46
04/01/42	04/30/42	Apr 2042	76.01	70.93	64.03	58.91	72.63	66.17	72.02	67.83	77.26	73.06	7.82	8.01	7.82	7.78	7.80	7.80	7.42	8.06	7.90	7.86	8.04	
05/01/42	05/31/42	May 2042	68.75	58.39	66.38	58.65	63.25	53.32	75.56	66.19	74.94	69.18	7.80	8.01	7.80	7.76	7.80	7.76	7.69	7.37	8.04	7.88	7.84	7.92
06/01/42	06/30/42	Jun 2042	73.97	61.71	68.61	58.30	68.23	56.50	77.93	67.73	77.23	68.93	7.84	8.03	7.73	7.61	7.78	7.67	7.56	6.99	7.89	7.73	7.69	7.79
07/01/42	07/31/42	Jul 2042	82.66	68.26	75.14	59.72	76.54	62.77	89.06	70.81	85.88	70.63	7.99	8.16	7.86	7.76	7.93	7.76	7.65	7.05	8.04	7.88	7.84	7.89
08/01/42	08/31/42	Aug 2042	90.04	72.54	76.27	61.08	83.83	66.97	91.71	71.98	89.02	72.04	8.03	8.39	8.08	8.01	8.08	7.99	7.95	7.48	8.28	8.12	8.09	8.19
09/01/42	09/30/42	Sep 2042	85.40	76.76	68.55	61.78	81.61	72.17	80.49	72.90	80.83	74.60	8.08	8.48	8.16	8.05	8.16	8.08	8.05	7.59	8.32	8.16	8.12	8.29
10/01/42	10/31/42	Oct 2042	93.07	81.87	74.18	63.81	94.63	79.32	85.77	74.50	86.87	77.81	8.08	8.50	8.14	8.05	8.37	8.35	8.35	7.61	8.32	8.16	8.12	8.59
11/01/42	11/30/42	Nov 2042	100.23	85.57	75.28	64.09	102.29	84.17	89.87	76.63	91.37	77.98	8.18	8.63	8.25	8.18	8.65	8.69	8.71	7.76	8.46	8.29	8.26	8.97
12/01/42	12/31/42	Dec 2042	100.47	87.47	75.15	65.86	102.14	86.95	89.66	78.01	91.04	79.67	8.29	8.71	8.33	8.27	8.75	8.76	8.82	7.86	8.56	8.39	8.35	9.10
01/01/43	01/31/43	Jan 2043	99.92	89.28	73.54	66.51	100.31	90.28	88.31	78.38	89.27	81.38	8.24	8.74	8.26	8.22	8.68	8.68	8.49	7.56	8.61	8.44	8.40	8.78

02/01/45	02/28/45	Feb 2045	104.58	93.35	79.30	69.96	107.60	94.01	93.12	80.08	95.47	85.45	8.56	8.94	8.56	8.62	9.07	9.09	9.19	8.15	8.91	8.74	8.70	9.47
03/01/45	03/31/45	Mar 2045	89.81	83.52	68.87	64.50	88.54	78.34	82.15	74.79	84.20	79.79	8.56	8.82	8.62	8.58	8.78	8.76	8.78	8.21	8.87	8.70	8.66	9.06
04/01/45	04/30/45	Apr 2045	81.61	76.16	68.75	63.25	77.99	71.05	77.33	72.83	82.95	78.44	8.40	8.60	8.40	8.36	8.44	8.38	8.38	7.97	8.63	8.47	8.43	8.61
05/01/45	05/31/45	May 2045	73.82	62.69	71.28	62.97	67.91	57.26	81.13	71.07	80.46	74.28	8.38	8.60	8.38	8.34	8.38	8.34	8.25	7.91	8.61	8.45	8.41	8.49
06/01/45	06/30/45	Jun 2045																						

07/01/20	07/31/20	Jul 2020	44.70	26.75	47.70	33.25	44.20	24.15	47.25	38.24	48.40	38.00	3.54	4.04	3.45	3.41	3.58	3.55	3.19	2.91	3.70	3.53	3.50	3.43
08/01/20	08/31/20	Aug 2020	45.70	33.50	48.20	34.50	40.70	31.40	48.43	40.80	49.61	39.90	3.56	4.06	3.50	3.43	3.63	3.59	3.18	2.90	3.72	3.56	3.52	3.41
09/01/20	09/30/20	Sep 2020	44.20	33.25	42.20	34.25	43.45	30.40	46.07	38.56	47.19	38.95	3.55	3.87	3.48	3.42	3.62	3.59	3.24	2.96	3.72	3.55	3.51	3.48
10/01/20	10/31/20	Oct 2020	39.70	35.90	37.45	32.50	38.20	32.40	45.65	38.90	43.55	36.65	3.58	3.80	3.48	3.45	3.64	3.61	3.25	2.97	3.74	3.57	3.54	3.49
11/01/20	11/30/20	Nov 2020	41.37	36.40	36.45	32.00	40.08	36.15	45.65	39.65	45.05	37.40	3.67	3.99	3.53	3.58	3.74	3.70	3.76	3.17	3.88	3.71	3.67	4.03
12/01/20	12/31/20	Dec 2020	44.36	38.65	37.45	34.25	43.83	36.65	46.90	42.15	46.05	40.90	3.85	4.21	3.75	3.81	3.95	3.92	4.13	3.34	4.12	3.95	3.91	4.43
01/01/21	01/31/21	Jan 2021	44.00	39.00	38.70	34.10	43.45	37.25	46.10	40.21	45.49	39.38	3.99	4.37	3.88	3.94	4.02	3.99	4.07	3.45	4.25	4.08	4.04	4.36
02/01/21	02/28/21	Feb 2021	42.75	37.25	38.70	33.60	40.70	35.25	45.74	39.27	45.13	38.45	3.97	4.33	3.86	3.92	4.00	3.97	3.86	3.43	4.23	4.06	4.02	4.14
03/01/21	03/31/21	Mar 2021	41.20	35.75	38.70	32.10	37.70	33.00	43.16	37.38	42.59	37.52	3.91	4.27	3.80	3.86	3.93	3.90	3.81	3.38	4.17	3.99	3.95	4.09
04/01/21	04/30/21	Apr 2021	37.45	28.50	40.17	29.00	34.57	26.38	40.33	33.73	40.15	33.65	3.62	3.91	3.53	3.61	3.61	3.58	3.17	3.21	3.91	3.73	3.70	3.41
05/01/21	05/31/21	May 2021	36.34	26.38	41.72	31.65	34.15	23.75	43.51	33.58	44.34	34.69	3.90	4.12	3.81	3.74	3.85	3.75	3.47	3.18	4.04	3.87	3.84	3.71
06/01/21	06/30/21	Jun 2021	38.39	27.90	42.62	31.07	35.32	23.91	45.15	34.33	44.81	34.70	3.93	4.15	3.84	3.76	3.86	3.75	3.46	3.18	4.06	3.89	3.85	3.70
07/01/21	07/31/21	Jul 2021	45.95	30.98	48.92	35.53	41.88	28.12	50.65	39.51	50.68	39.31	3.96	4.26	3.88	3.80	3.93	3.83	3.58	3.19	4.10	3.93	3.89	3.82
08/01/21	08/31/21	Aug 2021	47.86	34.73	50.85	36.24	45.48	32.10	52.66	40.88	53.14	40.44	3.99	4.29	3.92	3.83	3.97	3.87	3.62	3.20	4.13	3.96	3.92	3.86
09/01/21	09/30/21	Sep 2021	47.99	36.16	47.81	36.41	45.70	33.10	51.64	40.08	52.27	40.50	4.00	4.22	3.91	3.85	3.99	3.91	3.71	3.28	4.15	3.98	3.94	3.96
10/01/21	10/31/21	Oct 2021	44.49	37.31	43.70	35.57	41.87	33.92	49.34	39.59	48.33	39.53	4.01	4.20	3.94	3.88	4.01	3.94	3.72	3.30	4.18	4.01	3.97	3.96
11/01/21	11/30/21	Nov 2021	45.44	37.84	42.81	34.95	42.92	36.07	49.03	40.56	48.70	39.54	4.07	4.32	4.00	3.98	4.09	4.03	3.99	3.43	4.29	4.11	4.07	4.26
12/01/21	12/31/21	Dec 2021	47.01	39.04	43.04	36.89	44.87	36.39	49.18	42.22	48.82	41.81	4.20	4.45	4.12	4.11	4.22	4.15	4.17	3.53	4.42	4.24	4.20	4.44
01/01/22	01/31/22	Jan 2022	46.99	39.67	42.69	37.45	44.81	37.10	49.16	41.87	49.02	41.88	4.34	4.62	4.27	4.28	4.35	4.28	4.24	3.61	4.60	4.42	4.38	4.52
02/01/22	02/28/22	Feb 2022	47.43	39.98	42.53	37.54	44.49	37.25	47.91	41.31	47.82	41.46	4.35	4.62	4.28	4.30	4.36	4.29	4.18	3.64	4.61	4.43	4.39	4.46
03/01/22	03/31/22	Mar 2022	44.51	37.71	42.53	35.79	40.91	34.65	46.33	39.71	46.33	40.35	4.31	4.56	4.22	4.23	4.30	4.23	4.16	3.60	4.54	4.36	4.32	4.44
04/01/22	04/30/22	Apr 2022	41.78	33.84	43.74	35.14	38.52	31.11	44.32	37.30	45.36	38.93	4.15	4.34	4.06	4.05	4.10	4.01	3.80	3.46	4.36	4.18	4.15	4.04
05/01/22	05/31/22	May 2022	40.73	29.25	46.96	36.05	37.36	26.39	48.11	35.96	49.79	38.74	4.33	4.43	4.25	4.16	4.23	4.06	3.96	3.47	4.46	4.29	4.25	4.20
06/01/22	06/30/22	Jun 2022	44.58	31.79	47.08	34.89	41.05	28.82	50.04	38.22	49.47	38.50	4.35	4.44	4.26	4.16	4.21	4.02	3.94	3.46	4.46	4.29	4.26	4.17
07/01/22	07/31/22	Jul 2022	47.20	35.21	50.14	37.81	43.55	32.08	54.04	40.78	52.96	40.61	4.39	4.48	4.31	4.19	4.28	4.10	3.97	3.47	4.49	4.32	4.28	4.21
08/01/22	08/31/22	Aug 2022	50.03	35.96	53.50	37.98	46.25	32.80	56.90	40.96	56.68	40.97	4.41	4.52	4.34	4.22	4.32	4.15	4.07	3.51	4.52	4.35	4.32	4.31
09/01/22	09/30/22	Sep 2022	51.78	39.08	53.43	38.57	47.96	35.80	57.20	41.60	57.34	42.05	4.44	4.57	4.35	4.27	4.35	4.23	4.19	3.60	4.57	4.40	4.36	4.43
10/01/22	10/31/22	Oct 2022	49.28	38.71	49.96	38.64	45.55	35.43	53.02	40.28	53.12	42.41	4.45	4.59	4.40	4.31	4.38	4.27	4.19	3.63	4.61	4.44	4.40	4.43
11/01/22	11/30/22	Nov 2022	49.52	39.28	49.17	37.91	45.77	35.98	52.41	41.48	52.34	41.67	4.48	4.65	4.46	4.38	4.45	4.35	4.22	3.69	4.68	4.51	4.47	4.49
12/01/22	12/31/22	Dec 2022	49.65	39.42	48.62	39.53	45.92	36.13	51.46	42.28	51.59	42.71	4.54	4.68	4.48	4.40	4.48	4.38	4.20	3.72	4.74	4.54	4.50	4.48
01/01/23	01/31/23	Jan 2023	49.98	40.34	46.68	40.81	46.17	36.96	52.21	43.53	52.56	44.38	4.69	4.86	4.66	4.62	4.68	4.57	4.40	3.77	4.94	4.76	4.72	4.69
02/01/23	02/28/23	Feb 2023	52.12	42.71	46.35	41.48	48.27	39.26	50.09	43.35	50.51	44.46	4.73	4.91	4.69	4.67	4.73	4.62	4.49	3.84	4.99	4.81	4.76	4.77
03/01/23	03/31/23	Mar 2023	47.83	39.66	46.36	39.49	44.11	36.31	49.49	42.05	50.07	43.19	4.72	4.85	4.64	4.60	4.67	4.56	4.51	3.82	4.91	4.73	4.69	4.79
04/01/23	04/30/23	Apr 2023	46.12	39.18	47.32	41.28	42.48	35.84	48.32	40.87	50.58	44.21	4.68	4.78	4.60	4.50	4.60	4.45	4.43	3.72	4.80	4.63	4.59	4.67
05/01/23	05/31/23	May 2023	45.44	32.63	50.16	38.64	41.83	29.59	52.77	39.41	53.68	41.59	4.72	4.80	4.61	4.51	4.61	4.43	4.33	3.80	4.81	4.64	4.60	4.56
06/01/23	06/30/23	Jun 2023	47.37	34.37	47.67	37.10	43.67	31.24	52.60	40.92	51.94	41.11	4.73	4.82	4.61	4.49	4.61	4.41	4.33	3.80	4.78	4.61	4.58	4.57
07/01/23	07/31/23	Jul 2023	50.17	38.21	51.54	39.98	46.35	34.92	56.97	43.26	55.65	43.03	4.78	4.85	4.66	4.51	4.64	4.45	4.36	3.83	4.81	4.64	4.60	4.60
08/01/23	08/31/23	Aug 2023	52.42	38.40	53.90	39.70	48.51	35.10	59.14	43.12	58.81	43.12	4.74	4.85	4.68	4.57	4.66	4.51	4.44	3.79	4.87	4.81	4.64	4.68
09/01/23	09/30/23	Sep 2023	54.39	41.33	52.78	39.63	50.43	37.92	59.52	43.93	59.68	44.16	4.75	4.89	4.68	4.61	4.67	4.56	4.50	4.02	4.91	4.74	4.70	4.74
10/01/23	10/31/23	Oct 2023	52.68	41.11	51.61	39.68	48.76	37.69	55.90	43.57	56.10	44.24	4.74	4.89	4.69	4.61	4.67	4.47	4.04	4.91	4.74	4.70	4.72	4.72
11/01/23	11/30/23	Nov 2023	53.72	42.03	50.51	39.78	49.75	38.57	55.96	43.95	56.06	44.15	4.78	4.95	4.77	4.69	4.77	4.69	4.55	4.22	5.00	4.83	4.79	4.81
12/01/23	12/31/23	Dec 2023	53.07	42.39	48.28	41.61	49.15	38.94	54.17	44.70	54.48	45.18	4.83	4.96	4.78	4.73	4.79	4.69	4.62	4.23	5.04	4.87	4.82	4.90
01/01/24	01/31/24	Jan 2024	53.21	42.85	51.69	41.92	49.23	39.35	54.84	45.08	55.26	46.29	4.93	5.10	4.89	4.83	4.92	4.79	4.70	4.32	5.15	4.97	4.92	4.99
02/01/24	02/29/24	Feb 2024	54.81	44.68	50.66	42.28	51.09	41.25	52.38	44.09	53.08	45.38	4.87	5.00	4.79	4.74	4.82	4.69	4.61	4.26	5.06	4.88	4.84	4.89
03/01/24	03/31/24	Mar 2024	49.55	41.26	48.10	40.09	45.74	37.80	50.27	42.67	51.12	44.12	4.82	4.92	4.70	4.65	4.73	4.59	4.58	4.19	4.97	4.79	4.75	4.86
04/01/24	04/30/24	Apr 2024	46.87	39.90	47.34	40.16	43.16	36.51	48.06	40.73	50.31	44.17	4.70	4.79	4.58	4.53	4.61	4.44	4.41	3.85	4.84	4.66	4.62	4.65
05/01/24	05/31/24	May 2024	44.13	31.65	50.61	38.06	40.54	28.61	51.63	38.59	53.75	41.08	4.67	4.74	4.54	4.46	4.54	4.34	4.22	3.82	4.75	4.58	4.55	4.46
06/01/24	06/30/24	Jun 2024	46.04	34.37	48.38	36.74	42.38	31.21	51.37	40.76	50.83	41.15	4.68	4.74	4.53	4.42	4.51	4.31	4.21	3.80	4.72	4.55	4.51	4.45
07/01/24	07/31/24	Jul 2024	49.85	37.76	51.91	38.96	46.01	34.45	56.53	42.29	55.10	42.04	4.70	4.75	4.54	4.43	4.52	4.32	4.22	3.90	4.73	4.56	4.52	4.46

08/01/26	08/31/26	Aug 2026	56.64	43.68	58.09	43.23	52.44	40.05	62.57	46.30	61.83	47.18	5.01	5.17	4.90	4.78	4.87	4.70	4.61	4.22	5.08	4.91	4.87	4.85
09/01/26	09/30/26	Sep 2026	59.06	46.48	58.49	43.05	54.83	42.98	63.18	45.66	64.26	48.11	5.01	5.21	4.90	4.81	4.90	4.73	4.64	4.34	5.11	4.93	4.90	4.88
10/01/26	10/31/26	Oct 2026	56.03	45.99	54.81	43.43	51.92	42.63	57.02	44.82	58.99	48.38	5.00	5.22	4.92	4.83	4.90	4.78	4.64	4.32	5.13	4.96	4.92	4.88
11/01/26	11/30/26	Nov 2026	58.09	47.36	54.08	43.34	53.84	44.06	56.48	45.65	58.65	48.73	5.04	5.30	4.99	4.92	4.99	4.87	4.71	4.60	5.23	5.05	5.02	4.98
12/01/26	12/31/26	Dec 2026	57.88	46.89	52.40	44.11	54.23	43.84	54.91	45.54	57.81	48.47	5.10	5.23	5.00	4.95	5.03	4.90	4.73	4.34	5.26	5.08	5.04	5.01
01/01/27	01/31/27	Jan 2027	57.21	47.88	52.51	45.37	53.34	45.37	55.49	46.91	57.96	50.45	5.07	5.32	5.16	5.11	5.18	5.05	4.87	4.40	5.42	5.24	5.20	5.15
02/01/27	02/28/27	Feb 2027	58.95	50.35	52.89	46.80	56.41	49.28	52.93	46.24	56.23	50.39	5.21	5.36	5.13	5.09	5.16	5.03	4.84	4.35	5.41	5.23	5.19	5.13
03/01/27	03/31/27	Mar 2027	52.67	44.84	49.93	43.33	48.62	41.30	50.40	44.45	53.84	48.54	5.14	5.24	5.03	4.97	5.05	4.91	4.85	4.28	5.29	5.11	5.07	5.13
04/01/27	04/30/27	Apr 2027	50.21	43.03	50.00	43.37	46.26	39.50	49.35	43.05	53.35	47.15	5.04	5.11	4.91	4.83	4.91	4.75	4.67	4.10	5.13	4.96	4.92	4.91
05/01/27	05/31/27	May 2027	46.33	34.79	53.01	42.23	42.54	31.51	52.88	41.71	56.63	45.57	5.01	5.07	4.85	4.76	4.84	4.65	4.59	4.12	5.06	4.89	4.85	4.82
06/01/27	06/30/27	Jun 2027	50.65	37.80	50.46	39.27	46.67	34.38	54.58	43.24	54.01	44.99	5.04	5.07	4.85	4.73	4.84	4.61	4.51	4.15	5.03	4.86	4.83	4.75
07/01/27	07/31/27	Jul 2027	54.26	42.86	54.98	42.36	50.13	39.23	60.15	45.63	58.51	46.14	5.11	5.16	4.92	4.80	4.89	4.68	4.61	4.28	5.10	4.93	4.89	4.86
08/01/27	08/31/27	Aug 2027	58.00	44.67	58.82	43.37	53.71	40.98	63.56	47.06	62.69	47.66	5.14	5.25	4.99	4.87	4.97	4.77	4.71	4.34	5.17	5.00	4.96	4.95
09/01/27	09/30/27	Sep 2027	60.36	47.62	59.47	44.45	56.13	44.40	64.30	47.11	65.08	49.41	5.16	5.33	5.04	4.92	5.01	4.85	4.81	4.64	5.22	5.05	5.01	5.06
10/01/27	10/31/27	Oct 2027	59.65	48.96	58.96	47.86	55.68	46.06	60.51	47.81	62.41	51.43	5.22	5.46	5.14	5.07	5.14	5.01	5.00	4.71	5.37	5.20	5.16	5.24
11/01/27	11/30/27	Nov 2027	62.89	51.29	57.86	45.56	58.54	48.53	60.22	48.00	62.24	50.64	5.32	5.58	5.30	5.21	5.30	5.21	5.12	4.99	5.52	5.34	5.30	5.38
12/01/27	12/31/27	Dec 2027	61.74	50.42	55.02	46.17	58.56	47.57	58.20	48.23	60.86	51.28	5.40	5.56	5.34	5.28	5.34	5.22	5.24	4.84	5.59	5.41	5.37	5.52
01/01/28	01/31/28	Jan 2028	60.64	51.64	55.00	46.38	57.22	49.25	59.11	49.77	62.14	53.58	5.55	5.70	5.47	5.44	5.51	5.39	5.43	5.01	5.76	5.58	5.54	5.72
02/01/28	02/29/28	Feb 2028	61.82	53.58	54.71	47.67	60.95	53.15	55.26	48.73	59.08	52.96	5.51	5.65	5.42	5.39	5.46	5.33	5.39	4.94	5.71	5.53	5.48	5.67
03/01/28	03/31/28	Mar 2028	54.93	48.19	49.54	43.34	50.97	44.67	53.25	47.43	57.20	51.87	5.52	5.59	5.37	5.35	5.43	5.28	5.27	4.83	5.66	5.48	5.44	5.55
04/01/28	04/30/28	Apr 2028	53.39	46.29	51.94	43.83	49.36	42.71	52.80	47.10	57.03	51.04	5.50	5.56	5.35	5.31	5.37	5.23	5.24	4.77	5.61	5.44	5.40	5.48
05/01/28	05/31/28	May 2028	51.20	37.90	57.46	44.41	47.16	34.45	58.05	45.25	61.69	48.86	5.51	5.54	5.31	5.24	5.33	5.13	5.08	4.81	5.54	5.37	5.33	5.31
06/01/28	06/30/28	Jun 2028	54.09	41.23	53.98	41.53	49.92	37.62	58.77	47.08	58.16	48.25	5.54	5.55	5.33	5.21	5.32	5.09	5.09	4.82	5.51	5.34	5.30	5.33
07/01/28	07/31/28	Jul 2028	58.45	46.93	58.40	44.35	54.09	43.08	64.45	49.79	62.62	49.82	5.60	5.62	5.40	5.27	5.39	5.16	5.16	4.93	5.57	5.40	5.36	5.40
08/01/28	08/31/28	Aug 2028	62.05	48.06	61.86	44.12	57.53	44.17	67.59	49.89	66.55	50.33	5.56	5.66	5.42	5.31	5.40	5.24	5.25	4.89	5.61	5.44	5.40	5.50
09/01/28	09/30/28	Sep 2028	63.29	50.85	62.42	46.62	59.25	47.56	67.21	50.72	68.13	52.67	5.59	5.73	5.44	5.37	5.46	5.31	5.35	5.13	5.68	5.50	5.47	5.59
10/01/28	10/31/28	Oct 2028	63.10	52.02	60.15	47.20	59.15	49.14	63.49	49.94	65.54	53.64	5.60	5.78	5.50	5.44	5.51	5.39	5.39	5.16	5.74	5.57	5.54	5.63
11/01/28	11/30/28	Nov 2028	65.02	52.86	57.09	45.05	60.78	49.97	62.39	50.36	64.58	52.96	5.62	5.82	5.59	5.51	5.60	5.51	5.54	5.29	5.82	5.64	5.60	5.80
12/01/28	12/31/28	Dec 2028	63.48	53.02	56.17	46.82	60.77	50.36	60.40	50.56	63.25	53.66	5.65	5.81	5.59	5.54	5.60	5.48	5.52	5.19	5.85	5.67	5.63	5.80
01/01/29	01/31/29	Jan 2029	63.05	53.45	55.94	46.49	59.49	50.59	60.63	51.74	63.99	54.80	5.81	5.98	5.76	5.77	5.83	5.73	5.74	5.34	6.09	5.91	5.87	6.03
02/01/29	02/28/29	Feb 2029	65.33	56.10	55.70	47.54	63.86	55.75	58.11	51.31	61.90	55.01	5.84	5.99	5.77	5.77	5.83	5.72	5.76	5.33	6.09	5.91	5.87	6.04
03/01/29	03/31/29	Mar 2029	57.98	50.83	51.93	45.46	53.82	47.28	55.90	50.18	59.97	54.46	5.79	5.88	5.65	5.68	5.74	5.61	5.65	5.18	5.99	5.81	5.77	5.93
04/01/29	04/30/29	Apr 2029	55.89	48.79	55.77	47.47	51.68	45.28	55.19	49.28	59.67	53.38	5.74	5.83	5.61	5.55	5.63	5.48	5.52	5.03	5.86	5.68	5.64	5.77
05/01/29	05/31/29	May 2029	54.52	41.07	59.88	45.72	50.30	37.45	60.13	47.86	64.25	51.10	5.74	5.76	5.54	5.48	5.58	5.39	5.34	5.11	5.78	5.61	5.57	5.58
06/01/29	06/30/29	Jun 2029	53.44	41.76	53.15	42.02	49.27	38.13	58.01	48.10	57.89	49.30	5.70	5.72	5.50	5.39	5.50	5.28	5.28	5.03	5.68	5.51	5.48	5.51
07/01/29	07/31/29	Jul 2029	58.35	47.42	58.43	44.17	53.96	43.51	64.69	50.63	63.06	50.45	5.70	5.72	5.50	5.36	5.48	5.28	5.25	5.03	5.66	5.49	5.45	5.49
08/01/29	08/31/29	Aug 2029	62.85	49.11	61.98	43.98	58.26	45.15	68.74	50.60	67.60	50.88	5.66	5.74	5.48	5.40	5.50	5.33	5.36	5.00	5.70	5.53	5.49	5.60
09/01/29	09/30/29	Sep 2029	64.56	51.64	62.53	46.45	60.10	48.29	69.56	52.60	70.39	53.80	5.61	5.79	5.47	5.40	5.48	5.34	5.34	5.16	5.70	5.53	5.49	5.59
10/01/29	10/31/29	Oct 2029	61.26	50.62	58.45	45.23	56.99	47.52	62.97	49.99	64.68	52.98	5.54	5.74	5.44	5.39	5.47	5.33	5.33	5.11	5.69	5.52	5.48	5.58
11/01/29	11/30/29	Nov 2029	61.89	51.18	55.04	44.14	57.39	47.80	61.21	50.25	63.50	52.69	5.51	5.77	5.54	5.47	5.54	5.45	5.19	5.78	5.60	5.56	5.52	5.72
12/01/29	12/31/29	Dec 2029	62.14	52.33	53.62	44.80	58.97	49.57	58.81	50.22	62.10	52.72	5.52	5.68	5.44	5.45	5.52	5.40	5.44	5.05	5.77	5.59	5.55	5.72
01/01/30	01/31/30	Jan 2030	60.81	52.55	52.91	45.07	57.45	49.40	59.36	50.58	62.85	54.96	5.63	5.79	5.55	5.58	5.65	5.54	5.56	5.17	5.90	5.72	5.67	5.85
02/01/30	02/28/30	Feb 2030	62.77	55.04	53.22	45.58	61.69	54.00	56.12	50.21	59.96	54.43	5.69	5.83	5.59	5.62	5.69	5.58	5.61	5.25	5.94	5.76	5.72	5.89
03/01/30	03/31/30	Mar 2030	57.10	51.27	50.46	45.53	53.12	47.87	55.36	50.21	59.50	54.70	5.72	5.82	5.58	5.63	5.72	5.61	5.63	5.14	5.95	5.77	5.73	5.92
04/01/30	04/30/30	Apr 2030	55.42	49.08	52.01	45.14	51.26	45.44	54.22	48.80	58.71	53.19	5.70	5.78	5.55	5.51	5.61	5.45	5.48	5.01	5.81	5.64	5.60	5.72
05/01/30	05/31/30	May 2030	53.12	39.99	57.60	43.17	48.93	36.37	59.11	47.19	63.42	50.66	5.69	5.73	5.51	5.47	5.56	5.38	5.38	5.01	5.76	5.59	5.56	5.62
06/01/30	06/30/30	Jun 2030	54.00	42.84	52.95	42.50	49.77	39.12	58.12	48.91	58.00	50.19	5.72	5.75	5.52	5.44	5.55	5.34	5.39	5.06	5.74	5.57	5.53	5.63
07/01/30	07/31/30	Jul 2030	59.27	48.54	58.29	43.76	54.80	44.55	65.29	50.96	63.34	50.82	5.79	5.82	5.58	5.47	5.58	5.35	5.38	5.18	5.77	5.59	5.56	5.62
08/01/30	08/31/30	Aug 2030	63.43	50.31	61.50	44.10	58.79	46.27	69.18	51.48	68.02	51.77	5.78	5.86	5.62	5.54	5.63	5.47	5.49	5.16	5.84	5.67	5.63	5.74

09/01/32	09/30/32	Sep 2032	68.19	55.93	64.94	47.32	63.87	52.18	73.26	55.49	74.16	57.15	6.17	6.40	6.14	6.08	6.15	6.03	6.06	5.80	6.38	6.21	6.17	6.31
10/01/32	10/31/32	Oct 2032	66.12	56.48	60.40	48.35	61.84	52.98	66.69	54.64	69.85	58.56	6.14	6.39	6.17	6.12	6.18	6.08	6.09	5.80	6.43	6.25	6.22	6.34
11/01/32	11/30/32	Nov 2032	68.67	57.57	58.28	47.47	64.12	53.94	67.10	54.65	70.22	57.65	6.12	6.40	6.17	6.17	6.26	6.18	6.17	5.79	6.47	6.30	6.26	6.43
12/01/32	12/31/32	Dec 2032	67.32	58.04	56.66	47.80	63.82	54.46	64.50	54.61	68.39	57.94	6.17	6.37	6.14	6.17	6.23	6.14	6.14	5.87	6.48	6.30	6.26	6.42
01/01/33	01/31/33	Jan 2033	64.76	59.39	55.89	48.76	62.13	56.04	63.10	55.35	67.45	59.63	6.30	6.51	6.27	6.31	6.37	6.28	6.28	5.97	6.63	6.45	6.41	6.57
02/01/33	02/28/33	Feb 2033	65.99	60.96	55.79	49.23	65.51	59.71	60.63	55.00	65.31	59.80	6.31	6.52	6.28	6.33	6.39	6.30	6.00	6.00	6.64	6.46	6.42	6.58
03/01/33	03/31/33	Mar 2033	61.39	57.01	52.72	48.36	57.70	53.30	59.52	53.99	64.24	58.91	6.25	6.43	6.19	6.28	6.34	6.28	6.27	5.77	6.60	6.42	6.38	6.55
04/01/33	04/30/33	Apr 2033	59.70	54.74	54.67	49.06	55.48	50.86	58.61	53.75	63.26	58.58	6.18	6.39	6.16	6.16	6.22	6.10	6.09	5.67	6.47	6.29	6.25	6.33
05/01/33	05/31/33	May 2033	58.18	44.92	61.54	46.62	53.65	40.97	63.75	51.17	68.22	55.06	6.15	6.24	6.00	5.95	6.04	5.86	5.86	5.61	6.25	6.08	6.04	6.10
06/01/33	06/30/33	Jun 2033	59.13	47.54	56.41	45.01	54.56	43.47	63.13	52.45	62.47	54.05	6.21	6.25	6.01	5.95	6.07	5.86	5.88	5.67	6.25	6.08	6.04	6.12
07/01/33	07/31/33	Jul 2033	63.48	53.97	61.55	47.06	58.71	49.62	70.24	55.37	67.83	55.10	6.31	6.39	6.12	6.06	6.22	5.98	5.94	5.80	6.36	6.19	6.15	6.18
08/01/33	08/31/33	Aug 2033	66.28	55.35	63.55	46.97	61.43	51.04	72.48	55.41	71.42	55.77	6.24	6.43	6.19	6.13	6.22	6.07	6.06	5.77	6.43	6.26	6.22	6.30
09/01/33	09/30/33	Sep 2033	67.69	57.34	65.54	48.04	63.69	53.54	73.17	55.89	74.39	58.15	6.22	6.48	6.24	6.19	6.25	6.19	6.13	5.88	6.49	6.32	6.28	6.37
10/01/33	10/31/33	Oct 2033	66.64	58.84	64.22	50.79	63.07	55.69	67.23	55.72	70.95	60.10	6.25	6.52	6.33	6.25	6.31	6.25	6.25	5.92	6.55	6.38	6.34	6.50
11/01/33	11/30/33	Nov 2033	69.40	60.63	59.62	49.01	65.64	57.62	68.15	56.03	71.39	58.95	6.31	6.60	6.42	6.36	6.45	6.42	6.43	5.97	6.66	6.49	6.45	6.70
12/01/33	12/31/33	Dec 2033	66.92	60.50	56.88	49.48	64.28	57.08	65.16	55.62	69.15	59.41	6.37	6.60	6.37	6.37	6.54	6.51	6.52	6.06	6.68	6.51	6.47	6.80
01/01/34	01/31/34	Jan 2034	65.85	62.12	57.66	50.72	63.58	59.07	64.69	57.07	69.02	59.17	6.52	6.77	6.57	6.57	6.72	6.69	6.72	6.18	6.88	6.70	6.66	7.01
02/01/34	02/28/34	Feb 2034	67.34	63.05	57.73	50.81	67.73	63.12	62.24	56.72	66.84	61.66	6.54	6.77	6.57	6.57	6.72	6.69	6.72	6.21	6.88	6.70	6.66	7.00
03/01/34	03/31/34	Mar 2034	61.39	58.55	53.20	49.52	57.53	54.78	60.94	55.72	65.25	60.79	6.49	6.69	6.46	6.52	6.57	6.52	6.52	5.92	6.84	6.66	6.62	6.80
04/01/34	04/30/34	Apr 2034	59.31	55.96	54.64	49.96	54.82	52.08	59.37	54.94	64.13	59.89	6.40	6.60	6.38	6.38	6.43	6.37	6.31	5.80	6.69	6.51	6.48	6.55
05/01/34	05/31/34	May 2034	60.13	46.42	63.81	47.65	55.46	42.36	65.69	52.63	70.32	56.88	6.37	6.51	6.28	6.23	6.34	6.25	6.12	5.77	6.53	6.36	6.32	6.36
06/01/34	06/30/34	Jun 2034	58.99	48.95	58.12	46.07	54.37	44.80	64.52	53.27	63.93	55.57	6.40	6.47	6.23	6.17	6.32	6.21	6.09	5.79	6.47	6.30	6.26	6.33
07/01/34	07/31/34	Jul 2034	63.40	54.92	63.11	47.99	58.59	50.48	70.97	56.29	68.95	56.50	6.47	6.60	6.34	6.25	6.29	6.11	5.88	6.55	6.37	6.34	6.35	6.33
08/01/34	08/31/34	Aug 2034	66.54	56.14	65.32	47.61	61.61	51.74	73.25	56.29	72.31	57.12	6.35	6.57	6.31	6.25	6.34	6.26	6.18	5.76	6.55	6.37	6.34	6.43
09/01/34	09/30/34	Sep 2034	67.51	58.32	65.81	48.83	63.25	54.48	72.49	56.39	73.94	59.25	6.32	6.58	6.37	6.32	6.37	6.31	6.28	5.95	6.62	6.45	6.41	6.52
10/01/34	10/31/34	Oct 2034	66.21	59.25	61.91	50.27	62.52	55.96	66.61	55.55	70.58	60.37	6.28	6.54	6.35	6.28	6.34	6.29	6.28	5.92	6.58	6.41	6.37	6.52
11/01/34	11/30/34	Nov 2034	68.73	61.19	58.46	49.30	65.10	58.16	67.75	55.81	71.20	59.90	6.34	6.61	6.43	6.38	6.49	6.46	6.47	5.97	6.69	6.51	6.48	6.74
12/01/34	12/31/34	Dec 2034	66.58	61.59	57.49	50.06	64.66	58.79	65.22	56.26	69.40	60.97	6.35	6.61	6.43	6.37	6.57	6.54	6.57	6.05	6.68	6.50	6.46	6.84
01/01/35	01/31/35	Jan 2035	67.60	63.38	55.98	50.74	66.33	60.76	64.37	57.54	68.65	62.71	6.52	6.75	6.55	6.56	6.74	6.74	6.77	6.22	6.88	6.70	6.66	7.05
02/01/35	02/28/35	Feb 2035	68.97	65.26	56.44	51.42	71.69	66.69	62.70	57.66	66.97	62.62	6.56	6.80	6.58	6.59	6.78	6.77	6.80	6.24	6.91	6.73	6.69	7.08
03/01/35	03/31/35	Mar 2035	63.59	60.36	53.28	49.92	60.90	56.91	61.14	56.08	65.65	61.24	6.47	6.70	6.50	6.52	6.59	6.55	6.56	6.19	6.83	6.65	6.61	6.84
04/01/35	04/30/35	Apr 2035	61.87	58.11	56.91	51.78	57.76	54.47	59.93	55.60	65.01	60.75	6.42	6.63	6.42	6.42	6.45	6.39	6.39	6.42	6.73	6.55	6.52	6.64
05/01/35	05/31/35	May 2035	63.37	49.74	64.21	49.54	58.55	45.51	66.94	54.03	71.83	58.61	6.47	6.64	6.44	6.42	6.49	6.42	6.34	6.02	6.72	6.55	6.52	6.58
06/01/35	06/30/35	Jun 2035	59.78	50.10	57.27	47.53	55.09	45.84	63.96	54.29	64.17	57.36	6.59	6.70	6.45	6.42	6.55	6.45	6.33	5.92	6.72	6.55	6.52	6.57
07/01/35	07/31/35	Jul 2035	65.54	57.31	62.45	50.20	60.59	52.73	72.73	58.06	70.47	59.04	6.74	6.84	6.61	6.66	6.69	6.58	6.47	6.03	6.86	6.69	6.66	6.71
08/01/35	08/31/35	Aug 2035	71.11	59.82	65.29	50.39	66.00	55.25	77.48	59.09	76.16	60.03	6.74	6.92	6.70	6.66	6.74	6.66	6.59	6.17	6.96	6.79	6.75	6.84
09/01/35	09/30/35	Sep 2035	72.93	62.73	66.65	52.05	68.30	58.81	78.16	60.17	79.06	62.75	6.69	6.91	6.70	6.70	6.74	6.67	6.66	6.31	7.04	6.83	6.80	6.90
10/01/35	10/31/35	Oct 2035	69.09	61.76	62.23	51.38	65.75	58.45	70.70	57.47	73.93	62.32	6.63	6.86	6.64	6.64	6.70	6.66	6.64	6.24	6.94	6.77	6.73	6.89
11/01/35	11/30/35	Nov 2035	70.52	63.76	60.13	51.48	67.02	60.53	69.56	58.17	73.35	62.37	6.67	6.97	6.77	6.72	6.89	6.86	6.91	6.31	7.03	6.85	6.81	7.17
12/01/35	12/31/35	Dec 2035	70.38	65.18	58.77	52.20	69.20	62.84	67.88	58.94	71.91	63.52	6.75	6.99	6.74	6.77	6.89	6.92	6.95	6.37	7.08	6.90	6.86	7.23
01/01/36	01/31/36	Jan 2036	69.56	65.58	58.66	53.36	69.02	61.95	67.57	60.65	71.70	65.80	6.83	7.15	6.88	6.92	7.15	7.13	7.15	6.24	7.24	7.06	7.02	7.43
02/01/36	02/29/36	Feb 2036	69.96	65.33	57.22	52.63	73.06	64.56	62.95	58.05	67.83	63.36	6.77	6.96	6.77	6.77	6.89	6.88	6.89	6.41	7.10	6.90	6.86	7.18
03/01/36	03/31/36	Mar 2036	65.41	62.39	54.85	52.46	62.50	58.60	62.65	58.57	67.55	63.96	6.77	6.97	6.78	6.78	6.88	6.85	6.85	6.49	7.08	6.92	6.88	7.13
04/01/36	04/30/36	Apr 2036	63.36	59.13	56.90	52.55	59.34	55.16	61.64	57.29	66.70	62.64	6.70	6.86	6.69	6.69	6.70	6.65	6.62	6.27	6.99	6.82	6.78	6.87
05/01/36	05/31/36	May 2036	62.09	48.96	62.32	49.90	57.26	44.70	66.38	54.94	71.57	59.54	6.65	6.80	6.61	6.59	6.65	6.59	6.51	6.19	6.89	6.72	6.68	6.75
06/01/36	06/30/36	Jun 2036	60.11	50.95	57.61	48.77	55.36	46.62	64.90	54.89	64.94	58.27	6.69	6.78	6.54	6.46	6.62	6.51	6.38	5.95	6.76	6.59	6.55	6.62
07/01/36	07/31/36	Jul 2036	65.58	56.42	62.95	49.89	60.59	51.83	73.26	57.10	70.97	59.00	6.78	6.86	6.62	6.56	6.72	6.59	6.45	5.98	6.86	6.69	6.65	6.69
08/01/36	08/31/36	Aug 2036	71.77	60.15	66.29	51.91	66.53	55.47	78.35	59.50	77.24	61.53	6.85	7.04	6.81	6.77	6.85	6.77	6.70	6.27	7.07	6.89	6.86	6.94
09/01/36	09/30/36	Sep 2036	73.69	62.06	68.05	52.84	68.99	57.86	78.64	59.33	80.18	62.90	6.81	7.04	6.83	6.81	6.86	6.80	6.78	6.43	7.11	6.94	6.91	7.02

10/01/38	10/31/38	Oct 2038	72.34	65.96	65.81	56.14	72.43	62.45	74.47	63.05	78.40	67.98	7.17	7.47	7.24	7.15	7.32	7.29	7.30	6.77	7.45	7.28	7.25	7.55	
11/01/38	11/30/38	Nov 2038	76.21	69.13	64.54	55.21	77.85	66.26	74.80	63.28	78.21	67.14	7.15	7.50	7.25	7.17	7.50	7.50	7.57	6.80	7.48	7.30	7.26	7.83	
12/01/38	12/31/38	Dec 2038	75.94	69.43	63.46	55.04	79.73	67.12	72.26	63.18	76.66	67.47	7.17	7.47	7.20	7.15	7.48	7.48	7.55	6.75	7.47	7.29	7.25	7.83	
01/01/39	01/31/39	Jan 2039	78.33	71.41	63.45	57.28	82.34	68.65	72.21	68.00	77.28	70.43	7.28	7.72	7.28	7.31	7.68	7.67	7.56	6.65	7.63	7.45	7.41	7.85	
02/01/39	02/28/39	Feb 2039	79.74	72.49	62.89	56.95	85.50	73.02	69.69	64.44	74.49	68.82	7.31	7.60	7.28	7.31	7.68	7.68	7.73	6.83	7.63	7.45	7.41	8.02	
03/01/39	03/31/39	Mar 2039	71.78	67.48	59.74	54.66	71.63	63.66	67.80	62.18	72.26	67.46	7.28	7.48	7.29	7.29	7.38	7.34	7.36	7.00	7.61	7.43	7.39	7.64	
04/01/39	04/30/39	Apr 2039	68.61	63.65	61.33	55.67	65.87	59.41	65.80	61.41	71.27	66.93	7.21	7.41	7.22	7.21	7.26	7.21	7.21	6.85	7.51	7.34	7.30	7.45	
05/01/39	05/31/39	May 2039	69.82	54.60	64.96	55.46	64.50	49.96	72.31	59.96	77.92	65.13	7.16	7.34	7.17	7.14	7.17	7.12	7.05	6.77	7.44	7.27	7.23	7.29	
06/01/39	06/30/39	Jun 2039	66.97	56.04	62.67	53.86	61.88	51.33	70.36	60.79	70.43	63.07	7.17	7.34	7.09	7.00	7.14	7.04	6.92	6.48	7.30	7.13	7.10	7.16	
07/01/39	07/31/39	Jul 2039	71.50	61.14	67.16	54.59	66.11	56.21	78.59	63.39	76.03	63.34	7.28	7.43	7.17	7.11	7.22	7.14	6.99	6.43	7.41	7.23	7.20	7.23	
08/01/39	08/31/39	Aug 2039	78.43	63.82	71.18	55.61	73.29	58.88	84.06	64.55	83.06	64.98	7.31	7.60	7.36	7.29	7.36	7.28	7.22	6.83	7.59	7.42	7.39	7.47	
09/01/39	09/30/39	Sep 2039	77.97	66.30	71.25	57.10	76.71	62.29	82.29	65.54	85.15	67.84	7.33	7.70	7.39	7.31	7.38	7.33	7.31	6.92	7.61	7.44	7.40	7.55	
10/01/39	10/31/39	Oct 2039	77.41	68.54	70.22	59.31	79.80	65.93	76.53	65.35	81.78	70.37	7.31	7.65	7.38	7.28	7.31	7.51	7.50	7.48	6.90	7.58	7.41	7.37	7.72
11/01/39	11/30/39	Nov 2039	85.12	73.35	68.31	57.96	90.88	72.29	77.84	66.18	82.49	70.35	7.34	7.79	7.43	7.38	7.73	7.75	7.75	6.97	7.68	7.51	7.47	8.02	
12/01/39	12/31/39	Dec 2039	82.35	72.54	65.37	57.24	87.84	70.03	74.40	65.62	79.45	70.21	7.38	7.68	7.38	7.36	7.70	7.72	7.79	6.97	7.67	7.50	7.46	8.06	
01/01/40	01/31/40	Jan 2040	82.33	73.96	65.14	59.12	87.34	71.54	73.64	68.14	78.92	72.58	7.50	7.95	7.52	7.57	7.91	7.90	7.72	6.89	7.89	7.71	7.66	8.01	
02/01/40	02/29/40	Feb 2040	82.27	74.83	63.60	57.99	88.19	76.30	71.02	66.05	75.87	70.62	7.43	7.74	7.43	7.46	7.86	7.88	7.95	7.06	7.78	7.60	7.56	8.23	
03/01/40	03/31/40	Mar 2040	74.89	69.75	61.55	56.84	74.50	66.49	69.29	64.53	73.82	69.94	7.45	7.69	7.50	7.48	7.65	7.62	7.65	7.15	7.80	7.62	7.58	7.94	
04/01/40	04/30/40	Apr 2040	70.71	65.80	61.67	56.33	67.97	61.76	66.94	62.80	72.28	68.38	7.41	7.60	7.41	7.39	7.45	7.39	7.39	7.06	7.70	7.53	7.49	7.64	
05/01/40	05/31/40	May 2040	72.97	56.16	66.43	56.88	67.58	51.40	74.18	61.49	79.91	66.65	7.38	7.57	7.38	7.34	7.38	7.32	7.27	6.98	7.64	7.47	7.43	7.51	
06/01/40	06/30/40	Jun 2040	70.74	58.14	65.03	55.88	66.15	53.30	72.72	62.94	72.40	64.98	7.39	7.57	7.27	7.19	7.34	7.24	7.13	6.61	7.48	7.31	7.28	7.37	
07/01/40	07/31/40	Jul 2040	75.38	63.48	69.02	56.62	69.80	58.41	81.91	65.07	78.73	64.75	7.50	7.67	7.38	7.29	7.45	7.31	7.19	6.63	7.59	7.42	7.38	7.43	
08/01/40	08/31/40	Aug 2040	81.67	66.43	73.11	57.97	76.62	61.38	86.70	66.78	85.23	67.08	7.57	7.88	7.62	7.55	7.62	7.52	7.50	7.06	7.85	7.68	7.64	7.74	
09/01/40	09/30/40	Sep 2040	79.96	69.38	71.11	59.69	78.14	65.61	81.87	67.91	85.07	70.74	7.64	7.97	7.69	7.60	7.69	7.62	7.60	7.19	7.90	7.73	7.69	7.84	
10/01/40	10/31/40	Oct 2040	82.44	72.46	70.08	60.07	85.66	70.63	78.22	67.53	83.61	72.87	7.60	7.98	7.65	7.57	7.86	7.84	7.84	7.17	7.87	7.70	7.66	8.09	
11/01/40	11/30/40	Nov 2040	88.39	75.83	69.25	59.53	94.12	74.35	79.06	67.80	83.69	72.07	7.62	8.04	7.69	7.62	8.05	8.09	8.11	7.24	7.87	7.75	7.71	8.37	
12/01/40	12/31/40	Dec 2040	86.36	76.04	67.34	59.93	92.07	74.24	76.37	68.95	81.43	73.09	7.65	8.05	7.69	7.65	8.09	8.11	8.14	7.27	7.97	7.79	7.75	8.42	
01/01/41	01/31/41	Jan 2041	84.49	75.31	66.20	60.38	89.68	72.36	75.69	69.52	80.11	74.29	7.66	8.12	7.67	7.73	8.08	8.06	7.89	7.04	8.04	7.86	7.82	8.17	
02/01/41	02/28/41	Feb 2041	84.32	77.09	64.71	59.70	90.39	78.87	73.83	67.91	77.36	72.59	7.58	7.90	7.58	7.62	8.03	8.05	8.12	7.21	7.94	7.76	7.72	8.40	
03/01/41	03/31/41	Mar 2041	77.70	71.77	62.91	58.24	78.16	69.26	71.40	66.11	75.07	71.57	7.60	7.85	7.66	7.64	7.81	7.78	7.81	7.30	7.95	7.77	7.73	8.10	
04/01/41	04/30/41	Apr 2041	72.80	68.47	64.44	58.83	70.74	64.76	68.32	64.43	73.17	70.23	7.57	7.76	7.57	7.55	7.60	7.55	7.55	7.21	7.85	7.68	7.64	7.79	
05/01/41	05/31/41	May 2041	73.51	60.04	67.20	58.55	68.10	55.06	74.59	63.40	80.39	68.99	7.53	7.73	7.53	7.50	7.53	7.48	7.42	7.12	7.79	7.62	7.59	7.66	
06/01/41	06/30/41	Jun 2041	69.29	59.23	64.79	57.37	64.42	54.28	71.96	64.06	72.28	66.87	7.55	7.73	7.42	7.34	7.50	7.39	7.28	6.75	7.64	7.46	7.43	7.52	
07/01/41	07/31/41	Jul 2041	75.16	65.60	69.74	57.79	69.51	60.42	81.80	66.06	79.53	66.81	7.66	7.83	7.53	7.44	7.60	7.46	7.34	6.67	7.74	7.57	7.54	7.58	
08/01/41	08/31/41	Aug 2041	84.05	68.68	74.41	59.38	78.76	63.66	89.00	68.32	87.37	68.55	7.73	8.05	7.78	7.71	7.78	7.67	7.66	7.21	8.01	7.84	7.80	7.90	
09/01/41	09/30/41	Sep 2041	83.35	71.26	74.98	60.79	81.35	67.18	88.05	70.00	89.45	72.57	7.80	8.13	7.85	7.76	7.85	7.78	7.76	7.34	8.06	7.89	7.85	8.00	
10/01/41	10/31/41	Oct 2041	82.67	73.05	70.83	60.48	84.22	70.59	81.34	68.96	85.34	73.91	7.76	8.15	7.81	7.73	8.03	8.01	8.01	7.32	8.03	7.86	7.82	8.25	
11/01/41	11/30/41	Nov 2041	86.57	76.11	68.99	60.63	90.53	73.56	79.77	68.93	83.65	73.58	7.78	8.20	7.85	7.78	8.22	8.26	8.28	7.39	8.09	7.91	7.87	8.54	
12/01/41	12/31/41	Dec 2041	88.62	77.96	68.82	61.38	94.54	75.96	79.08	70.22	83.55	74.83	7.81	8.22	7.85	7.81	8.26	8.28	8.31	7.42	8.13	7.95	7.91	8.59	
01/01/42	01/31/42	Jan 2042	90.35	77.28	68.43	61.70	94.41	74.94	78.15	71.24	83.42	75.80	7.82	8.29	7.83	7.89	8.25	8.23	8.05	7.18	8.21	8.03	7.98	8.34	
02/01/42	02/28/42	Feb 2042	88.74	79.48	66.86	61.02	94.72	81.65	76.56	69.70	80.36	74.33	7.74	8.07	7.74	7.78	8.20	8.21	8.29	7.36	8.10	7.92	7.88	8.57	
03/01/42	03/31/42	Mar 2042	81.05	73.29	64.33	59.49	80.61	70.77	73.34	67.64	76.78	73.16	7.76	8.02	7.82	7.80	7.98	7.94	7.98	7.45	8.11	7.93	7.89	8.26	
04/01/42	04/30/42	Apr 2042	74.52	69.62	64.33	59.19	72.12	66.08	70.18	65.91	75.64	71.76	7.73	7.92	7.73	7.71	7.76	7.71	7.71	7.36	8.01	7.84	7.80	7.95	
05/01/42	05/31/42	May 2042	74.93	59.10	68.55	58.82	69.27	54.11	76.70	64.78	82.91	70.32	7.69	7.89	7.69	7.65	7.69	7.64	7.58	7.27	7.95	7.78	7.75	7.82	
06/01/42	06/30/42	Jun 2042	70.24	61.10	65.64	58.31	64.76	56.08	72.85	65.87	73.59	68.38	7.71	7.89	7.58	7.49	7.65	7.54	7.44	6.89	7.79	7.62	7.58	7.67	
07/01/42	07/31/42	Jul 2042	77.56	67.03	71.01	58.77	71.79	61.71	83.68	67.77	81.13	67.66	7.82	8.00	7.69	7.60	7.76	7.62	7.49	6.91	7.90	7.73	7.69	7.73	
08/01/42	08/31/42	Aug 2042	90.07	70.57	78.84	60.72	84.15	65.56	93.65	70.49	92.13	70.66	7.89	8.21	7.94	7.87	7.94	7.83	7.89	7.36	8.17	8.00	7.96	8.06	
09/01/42	09/30/42	Sep 2042	88.42	72.99	77.09	61.30	85.09	68.88	89.82	70.84	92.29	73.50	7.96	8.30	8.02	7.92	8.02	7.94	7.92	7.49	8.23	8.05	8.02	8.17	
10/01/42	10/31/42	Oct 2042	88.40	75.42	74.67	63.73	90.45	73.49	83.63	71.10	88.69	76.46	7.92	8.32	7.98	7.89	8.20	8.18	8.18	7.47	8.19	8.02	7.98		

11/01/44	11/30/44	Nov 2044	95.94	83.55	74.20	65.21	100.60	82.27	85.74	75.01	90.15	79.80	8.28	8.73	8.36	8.28	8.75	8.79	8.81	7.86	8.59	8.41	8.37	9.07
12/01/44	12/31/44	Dec 2044	95.77	84.01	73.20	65.70	101.54	83.92	85.21	75.65	89.01	80.59	8.32	8.75	8.36	8.32	8.79	8.81	8.85	7.90	8.63	8.45	8.41	9.12
01/01/45	01/31/45	Jan 2045	94.14	82.32	72.00	65.74	98.55	79.95	83.05	76.07	87.70	80.95	8.32	8.82	8.34	8.40	8.78	8.76	8.57	7.64	8.71	8.53	8.49	8.86
02/01/45	02/28/45	Feb 2045	93.58	85.36	70.44	65.19	100.17	87.85	82.34	74.90	84.94	79.49	8.24	8.59	8.24	8.28	8.72	8.74	8.82	7.84	8.60	8.42	8.38	9.10
03/01/45	03/31/45	Mar 2045	87.35	78.71	68.42	63.67	87.42	76.34	79.54	72.52	81.48	78.04	8.26	8.53	8.32	8.30	8.49	8.45	8.49	7.93	8.61	8.44	8.39	8.77

04/01/20	04/30/20	Apr 2020	45.77	25.13	49.08	32.59	38.55	27.11	44.18	36.97	44.09	40.02	4.10	4.41	4.05	4.07	4.08	4.04	3.64	3.55	4.39	4.21	4.17	3.90
05/01/20	05/31/20	May 2020	41.46	18.53	45.75	31.18	37.00	18.53	45.36	31.70	44.86	33.77	4.10	4.51	4.04	4.00	4.07	4.04	3.58	3.49	4.32	4.14	4.10	3.84
06/01/20	06/30/20	Jun 2020	41.77	19.35	42.43	31.18	35.46	17.37	47.71	32.58	46.80	33.77	4.13	4.55	4.07	4.03	4.10	4.07	3.58	3.50	4.34	4.16	4.12	3.84
07/01/20	07/31/20	Jul 2020	51.05	30.32	55.92	35.94	46.66	27.75	52.75	39.94	54.66	43.03	4.15	4.72	4.10	4.08	4.17	4.14	3.78	3.50	4.40	4.22	4.17	4.05
08/01/20	08/31/20	Aug 2020	53.85	39.08	55.11	38.79	51.63	36.85	54.08	42.78	55.11	45.17	4.18	4.73	4.15	4.10	4.22	4.18	3.76	3.49	4.42	4.24	4.20	4.03
09/01/20	09/30/20	Sep 2020	51.85	39.36	49.48	38.22	50.21	38.15	51.42	40.29	51.49	44.10	4.17	4.55	4.13	4.10	4.22	4.18	3.83	3.77	4.55	4.41	4.23	4.10
10/01/20	10/31/20	Oct 2020	46.66	38.77	47.70	39.40	44.53	37.05	51.06	42.13	49.31	42.99	4.20	4.49	4.13	4.12	4.24	4.20	3.84	3.56	4.44	4.26	4.22	4.11
11/01/20	11/30/20	Nov 2020	48.88	39.39	45.96	38.81	46.57	41.18	51.06	43.25	51.50	43.73	4.28	4.70	4.20	4.24	4.35	4.31	4.31	3.77	4.56	4.46	4.38	4.34
12/01/20	12/31/20	Dec 2020	52.21	41.85	47.35	40.00	50.65	41.77	52.39	46.63	53.69	47.83	4.47	4.92	4.42	4.47	4.56	4.53	4.69	3.94	4.80	4.61	4.57	5.02
01/01/21	01/31/21	Jan 2021	50.90	41.83	47.33	38.45	49.35	41.46	53.33	42.87	52.66	43.87	4.59	5.05	4.53	4.58	4.61	4.58	4.61	4.03	4.91	4.72	4.68	4.93
02/01/21	02/28/21	Feb 2021	50.84	42.27	47.49	40.04	46.74	40.64	51.18	42.82	51.14	43.94	4.55	4.84	4.52	4.52	4.56	4.48	4.37	3.89	4.86	4.67	4.62	4.69
03/01/21	03/31/21	Mar 2021	47.11	38.73	46.13	37.84	43.26	37.04	49.03	40.76	48.87	42.24	4.51	4.78	4.45	4.44	4.48	4.41	4.36	3.82	4.77	4.59	4.54	4.68
04/01/21	04/30/21	Apr 2021	45.47	31.68	47.73	36.16	40.07	31.03	46.78	38.91	46.59	41.28	4.29	4.50	4.22	4.20	4.24	4.16	3.92	3.57	4.52	4.34	4.30	4.19
05/01/21	05/31/21	May 2021	41.18	24.72	46.41	34.76	37.25	23.25	46.94	34.87	46.81	37.09	4.29	4.54	4.21	4.15	4.22	4.11	3.83	3.54	4.47	4.29	4.25	4.11
06/01/21	06/30/21	Jun 2021	43.98	26.47	45.31	34.39	39.01	23.94	49.58	36.05	48.47	36.84	4.31	4.56	4.24	4.17	4.23	4.11	3.82	3.54	4.49	4.31	4.26	4.10
07/01/21	07/31/21	Jul 2021	51.72	34.14	56.02	38.42	47.57	31.22	56.12	41.60	56.45	42.96	4.35	4.68	4.27	4.20	4.30	4.19	3.95	3.55	4.53	4.34	4.30	4.23
08/01/21	08/31/21	Aug 2021	57.35	39.52	57.70	39.43	54.11	36.73	59.19	42.80	59.27	43.90	4.36	4.70	4.32	4.23	4.33	4.24	3.98	3.56	4.56	4.37	4.33	4.26
09/01/21	09/30/21	Sep 2021	55.33	41.55	52.55	39.59	52.66	39.24	55.49	41.81	55.06	43.90	4.37	4.62	4.31	4.25	4.35	4.27	4.07	3.64	4.57	4.39	4.34	4.34
10/01/21	10/31/21	Oct 2021	49.81	40.13	49.15	39.99	46.80	37.57	52.81	41.92	51.56	43.27	4.38	4.59	4.32	4.27	4.36	4.29	4.06	3.64	4.59	4.41	4.36	4.34
11/01/21	11/30/21	Nov 2021	55.19	42.70	48.89	40.11	52.05	41.87	53.50	43.77	53.40	44.09	4.46	4.75	4.41	4.39	4.48	4.41	4.34	3.80	4.72	4.54	4.49	4.64
12/01/21	12/31/21	Dec 2021	57.27	44.90	49.73	41.76	54.99	43.27	54.05	46.30	54.51	47.18	4.60	4.89	4.55	4.53	4.62	4.54	4.54	3.92	4.87	4.68	4.63	4.85
01/01/22	01/31/22	Jan 2022	57.28	45.94	49.16	41.33	54.51	43.99	55.89	45.77	55.17	46.56	4.71	5.03	4.66	4.67	4.71	4.64	4.57	3.96	5.01	4.82	4.77	4.89
02/01/22	02/28/22	Feb 2022	53.74	46.03	49.98	43.13	49.78	42.41	52.03	44.79	52.20	46.04	4.67	4.82	4.63	4.67	4.67	4.55	4.39	4.03	4.94	4.75	4.70	4.71
03/01/22	03/31/22	Mar 2022	49.07	40.79	47.59	40.39	45.32	37.40	51.46	42.73	50.98	43.65	4.64	4.75	4.56	4.51	4.58	4.47	4.43	3.93	4.84	4.65	4.61	4.74
04/01/22	04/30/22	Apr 2022	45.17	38.23	46.38	39.73	41.59	34.95	49.38	40.86	49.09	42.54	4.47	4.58	4.40	4.33	4.40	4.27	4.21	3.58	4.65	4.47	4.42	4.48
05/01/22	05/31/22	May 2022	40.89	30.92	47.08	38.33	37.50	27.97	48.52	38.05	48.76	40.40	4.47	4.57	4.38	4.30	4.37	4.18	4.09	3.59	4.62	4.44	4.40	4.36
06/01/22	06/30/22	Jun 2022	46.20	33.58	48.19	37.60	42.57	30.52	51.45	39.52	50.14	39.92	4.49	4.58	4.40	4.30	4.35	4.16	4.06	3.58	4.63	4.44	4.40	4.34
07/01/22	07/31/22	Jul 2022	52.38	37.96	56.12	40.91	48.48	34.70	59.48	43.27	58.25	42.90	4.55	4.63	4.45	4.33	4.43	4.24	4.12	3.61	4.65	4.47	4.43	4.40
08/01/22	08/31/22	Aug 2022	60.86	39.96	60.29	40.07	56.59	36.61	64.29	42.83	63.44	42.63	4.55	4.67	4.49	4.37	4.45	4.29	4.20	3.64	4.69	4.51	4.46	4.47
09/01/22	09/30/22	Sep 2022	58.81	43.73	55.62	40.95	55.10	40.32	59.55	43.33	58.64	43.70	4.57	4.70	4.49	4.40	4.49	4.37	4.30	3.73	4.72	4.54	4.50	4.58
10/01/22	10/31/22	Oct 2022	52.96	41.49	50.61	40.59	49.08	38.09	54.57	41.71	53.80	43.55	4.56	4.70	4.51	4.41	4.49	4.38	4.29	3.71	4.74	4.55	4.51	4.57
11/01/22	11/30/22	Nov 2022	61.50	46.02	51.83	41.41	57.54	42.56	55.94	44.29	55.29	44.45	4.64	4.81	4.62	4.55	4.61	4.51	4.38	3.83	4.88	4.69	4.64	4.68
12/01/22	12/31/22	Dec 2022	62.34	47.96	52.11	43.53	59.33	44.76	55.71	45.98	55.33	46.52	4.74	4.87	4.67	4.59	4.67	4.56	4.39	3.89	4.93	4.74	4.69	4.70
01/01/23	01/31/23	Jan 2023	63.66	50.06	51.00	44.22	59.67	46.52	58.45	48.67	57.67	49.25	4.83	5.00	4.79	4.76	4.81	4.70	4.53	3.89	5.10	4.91	4.86	4.85
02/01/23	02/28/23	Feb 2023	56.11	47.77	50.15	43.60	52.01	44.04	54.57	46.04	54.82	47.76	4.85	5.04	4.81	4.79	4.85	4.74	4.59	3.94	5.12	4.93	4.89	4.91
03/01/23	03/31/23	Mar 2023	51.23	42.28	50.48	41.13	47.35	38.80	54.09	44.28	54.07	45.57	4.81	4.95	4.74	4.69	4.76	4.65	4.60	3.90	5.02	4.83	4.79	4.92
04/01/23	04/30/23	Apr 2023	49.47	42.03	50.84	43.85	45.66	38.55	53.12	43.51	53.82	46.86	4.80	4.90	4.70	4.62	4.70	4.57	4.54	3.83	4.94	4.76	4.71	4.81
05/01/23	05/31/23	May 2023	44.62	33.16	47.90	38.84	41.03	30.08	51.86	40.34	51.38	41.71	4.83	4.91	4.72	4.62	4.72	4.54	4.43	3.90	4.94	4.76	4.71	4.70
06/01/23	06/30/23	Jun 2023	49.05	35.27	49.55	37.96	45.27	32.10	54.33	41.29	52.91	41.31	4.85	4.94	4.73	4.59	4.72	4.53	4.43	3.90	4.91	4.73	4.69	4.70
07/01/23	07/31/23	Jul 2023	56.35	39.91	59.74	41.73	52.25	36.53	63.48	45.01	62.15	44.62	4.90	4.97	4.76	4.63	4.77	4.48	3.94	4.95	4.77	4.73	4.76	
08/01/23	08/31/23	Aug 2023	62.83	40.20	61.27	39.17	58.44	36.81	65.95	42.28	64.78	42.10	4.59	4.70	4.52	4.41	4.49	4.35	4.27	3.62	4.73	4.55	4.50	4.55
09/01/23	09/30/23	Sep 2023	59.06	44.51	53.46	40.05	55.37	41.02	58.61	43.75	57.57	44.12	4.59	4.73	4.52	4.43	4.51	4.40	4.32	3.85	4.75	4.57	4.53	4.60
10/01/23	10/31/23	Oct 2023	55.69	43.87	51.10	40.82	51.68	40.31	55.86	43.98	55.42	45.04	4.64	4.78	4.59	4.49	4.57	4.46	4.37	3.92	4.82	4.63	4.59	4.65
11/01/23	11/30/23	Nov 2023	65.74	49.01	53.23	42.35	61.62	45.50	59.04	46.27	58.49	46.79	4.76	4.94	4.76	4.69	4.76	4.68	4.54	4.21	5.02	4.83	4.79	4.84
12/01/23	12/31/23	Dec 2023	65.38	51.04	51.75	44.55	62.24	47.71	57.94	47.83	57.56	48.96	4.85	4.99	4.80	4.75	4.81	4.72	4.64	4.25	5.09	4.90	4.85	4.95
01/01/24	01/31/24	Jan 2024	63.33	48.95	48.99	41.65	60.28	45.71	56.79	47.01	55.43	47.05	4.86	5.04	4.83	4.76	4.84	4.73	4.64	4.24	5.10	4.91	4.86	4.96
02/01/24	02/29/24	Feb 2024	55.88	47.26	48.24	42.09	51.83	43.61	52.56	45.13	52.02	45.65	4.84	4.99	4.78	4.71	4.79	4.68	4.59	4.24	5.05	4.86	4.81	4.91
03/01/24	03/31/24	Mar 2024	51.40	42.08	47.72	40.30	47.48	38.58	51.73	43.68	50.95	44.06	4.84	4.94	4.73	4.68	4.75	4.61	4.60	4.21	5.01	4.82	4.77	4.92
04/01/24	04/30/24	Apr 2024	47.51	40.66	47.58	41.13	43.76	37.22	50.48	41.51	50.74	44.30	4.69	4.78	4.58	4.51	4.59	4.44	4.39	3.83	4.83	4.65	4.61	4.66
05/0																								

05/01/26	05/31/26	May 2026	50.53	38.72	55.47	45.40	46.58	35.29	58.95	46.31	59.05	48.87	5.52	5.57	5.35	5.25	5.34	5.13	5.00	4.67	5.57	5.39	5.34	5.27
06/01/26	06/30/26	Jun 2026	54.68	41.61	55.16	43.80	50.55	38.05	59.84	48.17	58.82	48.95	5.54	5.57	5.35	5.23	5.31	5.00	4.93	4.63	5.55	5.37	5.33	5.20
07/01/26	07/31/26	Jul 2026	61.80	46.45	64.93	48.21	57.35	42.67	69.05	51.26	67.35	51.42	5.61	5.67	5.44	5.31	5.40	5.18	5.08	4.77	5.63	5.45	5.41	5.35
08/01/26	08/31/26	Aug 2026	67.40	49.49	65.97	47.74	62.70	45.58	71.39	52.06	69.52	52.19	5.54	5.69	5.40	5.30	5.38	5.21	5.13	4.72	5.62	5.44	5.40	5.41
09/01/26	09/30/26	Sep 2026	70.03	53.67	64.30	47.12	65.83	49.81	70.90	51.89	69.00	53.15	5.54	5.73	5.40	5.33	5.40	5.25	5.15	4.84	5.65	5.47	5.42	5.43
10/01/26	10/31/26	Oct 2026	64.24	51.66	60.95	49.30	59.84	47.71	65.29	51.14	64.94	53.99	5.52	5.73	5.43	5.34	5.40	5.29	5.14	4.83	5.66	5.48	5.44	5.42
11/01/26	11/30/26	Nov 2026	71.73	56.67	62.16	50.54	68.41	52.82	67.09	53.10	66.56	55.60	5.57	5.84	5.54	5.46	5.54	5.40	5.25	5.13	5.79	5.60	5.55	5.55
12/01/26	12/31/26	Dec 2026	73.06	58.30	62.06	53.52	71.11	54.75	66.01	54.04	66.39	57.38	5.65	5.78	5.55	5.50	5.57	5.44	5.26	4.87	5.83	5.64	5.59	5.57
01/01/27	01/31/27	Jan 2027	72.08	58.37	59.26	52.87	68.29	54.72	66.78	56.41	66.19	58.30	5.75	5.89	5.66	5.62	5.69	5.56	5.37	4.90	5.96	5.77	5.72	5.69
02/01/27	02/28/27	Feb 2027	67.71	56.57	59.21	51.94	62.98	52.32	62.79	53.53	64.47	57.01	5.76	5.91	5.68	5.62	5.70	5.57	5.38	4.89	5.96	5.77	5.72	5.70
03/01/27	03/31/27	Mar 2027	60.10	50.08	59.39	48.48	55.69	46.11	61.89	50.79	63.77	54.11	5.68	5.77	5.56	5.50	5.58	5.44	5.38	4.79	5.83	5.65	5.60	5.70
04/01/27	04/30/27	Apr 2027	56.89	48.22	58.95	49.93	52.62	44.33	60.43	50.02	62.47	53.77	5.56	5.64	5.42	5.34	5.42	5.26	5.20	4.62	5.66	5.48	5.44	5.47
05/01/27	05/31/27	May 2027	49.25	38.09	54.29	45.37	45.31	34.65	58.04	46.00	57.83	48.98	5.56	5.61	5.40	5.29	5.38	5.20	5.13	4.66	5.61	5.43	5.39	5.40
06/01/27	06/30/27	Jun 2027	55.28	42.02	55.52	43.64	51.08	38.40	60.42	48.60	59.08	49.18	5.58	5.62	5.41	5.29	5.38	5.17	5.06	4.70	5.61	5.43	5.39	5.33
07/01/27	07/31/27	Jul 2027	61.91	46.58	65.19	47.76	57.42	42.76	69.29	51.43	67.56	51.16	5.66	5.72	5.48	5.34	5.45	5.24	5.17	4.82	5.67	5.48	5.44	5.44
08/01/27	08/31/27	Aug 2027	67.84	49.64	66.43	46.89	63.09	45.69	71.96	52.30	70.15	52.08	5.64	5.76	5.49	5.37	5.46	5.28	5.21	4.82	5.69	5.51	5.47	5.49
09/01/27	09/30/27	Sep 2027	69.79	55.11	63.90	48.48	65.56	51.05	70.81	53.24	69.00	54.78	5.65	5.81	5.52	5.41	5.50	5.33	5.29	5.13	5.73	5.55	5.51	5.57
10/01/27	10/31/27	Oct 2027	67.56	54.73	64.75	53.24	63.19	50.65	68.51	53.73	68.43	57.00	5.70	5.95	5.62	5.54	5.61	5.49	5.46	5.17	5.87	5.69	5.64	5.74
11/01/27	11/30/27	Nov 2027	75.34	60.51	65.12	52.97	73.66	56.78	70.36	55.55	69.49	58.25	5.83	6.09	5.80	5.72	5.81	5.72	5.62	5.49	6.05	5.86	5.82	5.92
12/01/27	12/31/27	Dec 2027	76.13	61.28	62.66	55.16	74.17	57.49	69.15	57.01	69.27	60.16	5.95	6.11	5.88	5.83	5.89	5.77	5.79	5.37	6.16	5.97	5.92	6.10
01/01/28	01/31/28	Jan 2028	71.08	57.58	61.57	54.82	68.60	54.31	67.11	57.66	65.06	58.34	6.05	6.22	5.98	5.96	6.01	5.89	5.93	5.50	6.30	6.10	6.06	6.25
02/01/28	02/28/28	Feb 2028	68.32	58.02	61.85	54.42	64.38	53.95	63.26	54.62	64.45	57.67	6.04	6.17	5.94	5.91	5.98	5.85	5.90	5.45	6.25	6.06	6.01	6.22
03/01/28	03/31/28	Mar 2028	60.37	50.47	58.44	50.46	55.92	46.46	61.54	52.75	61.97	54.99	6.01	6.08	5.86	5.85	5.93	5.76	5.76	5.33	6.18	5.99	5.94	6.08
04/01/28	04/30/28	Apr 2028	57.89	49.25	58.99	51.24	53.54	45.30	60.70	51.69	62.25	54.60	5.91	5.98	5.76	5.71	5.79	5.63	5.64	5.16	6.03	5.85	5.81	5.91
05/01/28	05/31/28	May 2028	50.99	39.21	56.10	47.17	46.94	35.88	60.23	47.70	58.57	50.13	5.96	5.97	5.75	5.68	5.78	5.56	5.52	5.23	6.00	5.82	5.78	5.79
06/01/28	06/30/28	Jun 2028	55.88	44.11	57.80	46.97	51.62	40.37	61.82	51.08	60.22	51.03	5.98	6.01	5.78	5.68	5.76	5.53	5.53	5.25	5.98	5.79	5.75	5.80
07/01/28	07/31/28	Jul 2028	62.85	49.08	67.18	51.27	58.28	45.12	70.55	54.53	68.15	53.74	6.05	6.08	5.85	5.72	5.83	5.60	5.60	5.37	6.05	5.86	5.82	5.88
08/01/28	08/31/28	Aug 2028	66.65	49.86	66.23	49.25	62.00	45.87	71.30	52.88	68.77	52.51	5.86	5.96	5.71	5.60	5.68	5.52	5.55	5.16	5.92	5.74	5.70	5.82
09/01/28	09/30/28	Sep 2028	66.63	54.43	62.93	50.50	63.19	50.66	68.16	53.74	65.95	54.20	5.87	6.01	5.72	5.64	5.72	5.59	5.61	5.41	5.96	5.78	5.74	5.89
10/01/28	10/31/28	Oct 2028	65.07	53.87	61.39	51.95	61.16	49.83	65.48	53.22	64.71	55.23	5.87	6.05	5.76	5.71	5.78	5.65	5.66	5.42	6.03	5.85	5.81	5.93
11/01/28	11/30/28	Nov 2028	71.85	57.65	62.11	51.71	70.38	54.21	67.37	54.49	65.71	55.23	5.93	6.13	5.91	5.82	5.93	5.82	5.85	5.60	6.15	5.96	5.92	6.15
12/01/28	12/31/28	Dec 2028	72.52	59.34	62.23	54.77	71.92	55.99	65.99	56.39	65.30	58.27	6.05	6.20	6.00	5.94	6.01	5.89	5.93	5.59	6.28	6.09	6.04	6.24
01/01/29	01/31/29	Jan 2029	71.66	57.56	61.89	55.77	69.25	54.12	68.29	58.90	66.14	59.96	6.17	6.34	6.12	6.12	6.19	6.09	6.10	5.70	6.46	6.27	6.22	6.42
02/01/29	02/28/29	Feb 2029	69.22	58.48	61.82	55.46	65.23	54.26	65.19	56.44	65.71	59.43	6.20	6.37	6.13	6.13	6.20	6.09	6.12	5.70	6.46	6.28	6.23	6.44
03/01/29	03/31/29	Mar 2029	62.24	52.40	61.06	52.72	57.68	48.27	63.73	54.67	64.70	57.15	6.17	6.27	6.05	6.06	6.13	6.01	6.05	5.66	6.39	6.21	6.16	6.36
04/01/29	04/30/29	Apr 2029	60.47	51.67	62.62	54.02	55.97	47.57	63.29	53.97	65.46	57.31	6.13	6.21	5.99	5.94	6.02	5.85	5.89	5.41	6.25	6.07	6.03	6.16
05/01/29	05/31/29	May 2029	54.52	42.65	58.62	49.40	50.28	38.94	63.47	50.90	61.89	53.11	6.19	6.20	5.98	5.92	6.02	5.82	5.78	5.53	6.24	6.06	6.02	6.05
06/01/29	06/30/29	Jun 2029	55.05	44.74	55.91	47.11	50.79	40.93	60.41	51.99	59.38	52.22	6.19	6.20	5.98	5.87	5.98	5.75	5.75	5.50	6.19	6.00	5.96	6.03
07/01/29	07/31/29	Jul 2029	63.36	49.75	67.99	51.51	58.73	45.72	71.38	55.26	69.01	54.48	6.23	6.24	6.02	5.88	6.01	5.78	5.77	5.55	6.20	6.02	5.98	6.04
08/01/29	08/31/29	Aug 2029	69.53	52.32	69.24	50.01	64.72	48.18	75.02	55.33	72.19	54.61	6.17	6.26	5.99	5.89	6.01	5.82	5.87	5.50	6.22	6.03	5.99	6.14
09/01/29	09/30/29	Sep 2029	68.18	55.79	65.47	51.93	64.16	51.67	72.18	56.11	69.44	56.43	5.98	6.16	5.84	5.77	5.85	5.70	5.71	5.53	6.09	5.91	5.86	5.99
10/01/29	10/31/29	Oct 2029	63.77	53.36	62.31	52.36	59.58	49.17	66.75	53.96	65.97	56.46	5.88	6.10	5.78	5.73	5.81	5.67	5.67	5.43	6.05	5.87	5.82	5.95
11/01/29	11/30/29	Nov 2029	69.29	55.11	62.28	51.22	66.45	51.18	67.44	54.39	66.23	55.61	5.82	6.10	5.85	5.78	5.85	5.75	5.78	5.50	6.11	5.93	5.88	6.08
12/01/29	12/31/29	Dec 2029	70.40	57.00	59.96	53.14	69.16	53.69	64.67	55.26	64.14	57.08	5.85	6.02	5.78	5.78	5.85	5.74	5.78	5.38	6.12	5.93	5.88	6.09
01/01/30	01/31/30	Jan 2030	70.41	55.67	58.76	51.59	69.59	52.56	66.17	55.85	63.59	55.83	5.95	6.10	5.86	5.88	5.95	5.84	5.87	5.47	6.22	6.03	5.98	6.19
02/01/30	02/28/30	Feb 2030	68.49	57.69	59.59	52.90	66.12	54.18	62.37	54.30	63.06	56.56	6.03	6.15	5.91	5.95	6.03	5.91	5.94	5.57	6.29	6.10	6.05	6.26
03/01/30	03/31/30	Mar 2030	61.15	50.60	58.40	49.66	56.65	46.52	61.62	52.91	62.12	54.24	6.01	6.11	5.87	5.93	6.01	5.90	5.93	5.41	6.26	6.07	6.02	6.24
04/01/30	04/30/30	Apr 2030	57.47	48.96	57.87	50.85	53.07	44.94	59.69	51.21	60.99	54.27	5.91	5.98	5.76	5.71	5.80	5.66	5.68	5.20	6.03	5.85	5.81	5.96
05/01/30	05/31/30	May 2030	49.90	39.11	53.55	46.49	45.83	35.51	59.17	47.74	57.03	49.94	5.91	5.95	5.73	5.67	5.77	5.59	5.59	5.22	5.99	5.81	5.77	5.86

06/01/32	06/30/32	Jun 2032	57.21	48.27	58.88	53.20	52.74	44.20	63.87	55.98	62.50	56.81	6.62	6.67	6.43	6.33	6.43	6.24	6.30	6.08	6.65	6.47	6.42	6.57	
07/01/32	07/31/32	Jul 2032	68.00	53.93	73.65	57.01	63.05	49.61	76.83	59.15	74.69	59.42	6.71	6.11	6.74	6.51	6.36	6.49	6.28	6.27	6.11	6.68	6.50	6.45	6.54
08/01/32	08/31/32	Aug 2032	70.07	55.49	70.09	55.74	65.67	51.18	76.18	58.87	73.44	59.04	6.54	6.70	6.42	6.33	6.42	6.28	6.28	6.00	6.65	6.47	6.42	6.56	
09/01/32	09/30/32	Sep 2032	69.32	57.67	67.22	55.31	66.25	54.05	73.79	58.44	71.13	58.88	6.43	6.67	6.40	6.34	6.42	6.30	6.33	6.06	6.67	6.48	6.44	6.61	
10/01/32	10/31/32	Oct 2032	65.45	56.79	64.81	55.65	62.49	52.72	69.17	57.54	68.96	59.77	6.40	6.65	6.42	6.37	6.43	6.33	6.34	6.05	6.70	6.51	6.47	6.62	
11/01/32	11/30/32	Nov 2032	72.32	59.91	65.19	55.52	73.88	56.95	71.09	58.75	70.18	59.66	6.43	6.71	6.48	6.46	6.56	6.49	6.46	6.09	6.79	6.60	6.56	6.76	
12/01/32	12/31/32	Dec 2032	73.00	61.38	63.67	57.21	77.09	59.11	68.85	59.43	69.01	61.21	6.54	6.74	6.51	6.54	6.59	6.49	6.51	6.24	6.87	6.68	6.63	6.82	
01/01/33	01/31/33	Jan 2033	70.62	61.04	59.82	56.93	72.94	58.66	70.96	61.60	68.51	62.10	6.65	6.86	6.62	6.68	6.73	6.65	6.65	6.32	7.02	6.83	6.78	6.97	
02/01/33	02/28/33	Feb 2033	65.83	59.99	61.33	57.83	66.18	57.26	65.11	59.67	66.24	62.28	6.68	6.89	6.65	6.70	6.76	6.67	6.67	6.36	7.03	6.84	6.79	6.99	
03/01/33	03/31/33	Mar 2033	61.58	55.40	58.50	55.40	58.38	51.08	64.80	57.77	65.45	60.51	6.59	6.77	6.53	6.62	6.68	6.62	6.61	6.11	6.95	6.76	6.72	6.92	
04/01/33	04/30/33	Apr 2033	61.31	55.30	64.61	58.71	56.85	51.02	65.63	58.17	68.34	62.45	6.50	6.71	6.47	6.49	6.53	6.41	6.39	5.97	6.80	6.62	6.58	6.67	
05/01/33	05/31/33	May 2033	54.89	45.07	59.56	53.51	50.48	41.09	64.85	54.04	63.66	57.25	6.45	6.55	6.30	6.24	6.35	6.17	6.15	5.90	6.56	6.38	6.34	6.42	
06/01/33	06/30/33	Jun 2033	56.94	47.28	57.51	52.54	52.44	43.21	63.57	54.92	61.56	56.29	6.55	6.59	6.35	6.29	6.39	6.20	6.21	5.99	6.61	6.43	6.38	6.49	
07/01/33	07/31/33	Jul 2033	66.69	54.49	71.76	56.99	61.77	50.10	75.55	59.39	72.94	59.47	6.67	6.76	6.47	6.41	6.59	6.33	6.29	6.14	6.73	6.55	6.51	6.56	
08/01/33	08/31/33	Aug 2033	69.19	55.18	68.39	54.81	64.70	50.78	74.99	57.81	72.11	58.23	6.47	6.67	6.42	6.36	6.45	6.30	6.29	6.00	6.69	6.50	6.46	6.57	
09/01/33	09/30/33	Sep 2033	68.33	57.99	66.36	56.59	65.39	54.15	71.81	58.43	70.50	60.41	6.39	6.67	6.42	6.38	6.42	6.36	6.32	6.05	6.70	6.52	6.48	6.60	
10/01/33	10/31/33	Oct 2033	65.51	57.75	64.79	57.05	63.15	53.87	67.80	58.05	69.41	61.32	6.42	6.70	6.50	6.42	6.42	6.42	6.42	6.08	6.75	6.57	6.52	6.70	
11/01/33	11/30/33	Nov 2033	74.60	61.36	60.99	55.93	77.76	59.73	69.86	59.31	71.26	61.11	6.52	6.80	6.62	6.56	6.65	6.62	6.64	6.17	6.89	6.70	6.66	6.93	
12/01/33	12/31/33	Dec 2033	73.90	62.00	60.43	56.63	77.65	59.96	68.49	59.82	70.08	62.46	6.62	6.85	6.62	6.62	6.79	6.74	6.77	6.30	6.96	6.77	6.72	7.08	
01/01/34	01/31/34	Jan 2034	71.92	62.53	62.01	56.71	74.28	59.96	71.18	62.08	68.25	62.40	6.75	7.00	6.78	6.78	6.94	6.92	6.95	6.40	7.12	6.93	6.88	7.27	
02/01/34	02/28/34	Feb 2034	66.98	61.81	62.63	57.54	67.34	58.91	66.58	60.16	66.82	62.40	6.78	7.01	6.81	6.81	6.95	6.94	6.95	6.45	7.15	6.96	6.91	7.27	
03/01/34	03/31/34	Mar 2034	62.38	55.91	62.46	52.73	57.97	51.46	65.93	57.99	66.51	60.82	6.72	6.91	6.69	6.75	6.80	6.75	6.75	6.14	7.08	6.90	6.85	7.07	
04/01/34	04/30/34	Apr 2034	60.24	54.19	62.16	56.14	55.66	49.78	64.31	57.30	65.83	60.44	6.58	6.77	6.60	6.54	6.49	6.58	6.89	6.71	6.66	6.60	6.66	6.76	
05/01/34	05/31/34	May 2034	55.77	44.87	59.12	51.52	51.29	40.87	65.88	54.18	63.11	55.87	6.60	6.74	6.51	6.46	6.57	6.48	6.35	6.00	6.78	6.60	6.56	6.62	
06/01/34	06/30/34	Jun 2034	58.14	49.10	58.91	50.31	53.55	44.91	64.48	56.43	62.82	56.87	6.66	6.74	6.49	6.43	6.58	6.48	6.35	6.05	6.75	6.57	6.53	6.63	
07/01/34	07/31/34	Jul 2034	66.61	55.37	71.66	56.07	61.85	50.90	75.40	59.88	72.41	59.39	6.67	6.89	6.63	6.54	6.69	6.58	6.40	6.17	6.86	6.68	6.63	6.67	
08/01/34	08/31/34	Aug 2034	69.62	55.94	69.61	52.94	65.10	51.50	75.80	58.25	72.63	58.01	6.52	6.74	6.48	6.41	6.51	6.43	6.35	5.92	6.74	6.56	6.51	6.63	
09/01/34	09/30/34	Sep 2034	67.61	58.61	65.25	53.85	64.67	54.65	71.31	58.67	69.11	59.10	6.46	6.74	6.51	6.46	6.51	6.45	6.41	6.09	6.78	6.60	6.56	6.69	
10/01/34	10/31/34	Oct 2034	66.31	58.21	65.52	55.06	63.41	54.02	69.13	57.82	69.37	59.90	6.43	6.71	6.51	6.45	6.45	6.45	6.08	6.77	6.59	6.54	6.72		
11/01/34	11/30/34	Nov 2034	75.12	62.78	66.85	54.06	77.26	60.24	72.78	60.40	71.95	61.13	6.66	6.95	6.77	6.72	6.83	6.80	6.81	6.29	7.05	6.87	6.82	7.11	
12/01/34	12/31/34	Dec 2034	74.76	63.96	63.97	57.39	78.45	62.06	70.02	61.18	70.31	62.70	6.74	7.01	6.81	6.75	6.95	6.92	6.95	6.41	7.09	6.90	6.85	7.26	
01/01/35	01/31/35	Jan 2035	75.66	65.31	65.95	60.07	77.37	62.42	73.27	63.69	70.66	64.33	6.89	7.12	6.92	6.95	7.12	7.11	7.15	6.59	7.29	7.10	7.05	7.47	
02/01/35	02/28/35	Feb 2035	70.82	64.91	65.65	60.74	71.01	61.91	69.54	62.32	69.76	64.79	6.97	7.20	6.98	7.00	7.19	7.17	7.20	6.64	7.33	7.14	7.10	7.52	
03/01/35	03/31/35	Mar 2035	65.49	58.94	63.68	58.35	61.15	54.43	67.91	59.57	67.75	62.55	6.81	7.03	6.83	6.86	6.89	6.89	6.51	7.19	7.00	6.95	7.20		
04/01/35	04/30/35	Apr 2035	63.82	57.85	67.04	61.28	59.13	53.37	67.04	59.54	69.73	64.15	6.72	6.90	6.70	6.72	6.73	6.68	6.68	6.29	7.03	6.85	6.81	6.96	
05/01/35	05/31/35	May 2035	59.13	49.41	63.54	56.80	54.46	45.17	68.96	58.17	66.77	60.32	6.78	6.95	6.73	6.73	6.79	6.72	6.65	6.31	7.05	6.87	6.83	6.92	
06/01/35	06/30/35	Jun 2035	59.28	51.36	60.89	56.79	54.60	47.03	65.53	58.85	64.61	60.56	7.00	7.11	6.86	6.83	6.95	6.86	6.73	6.32	7.15	6.96	6.92	7.00	
07/01/35	07/31/35	Jul 2035	70.46	58.71	77.97	62.02	65.28	54.05	79.60	63.53	77.13	63.62	7.19	7.31	7.06	7.03	7.15	7.03	6.92	6.48	7.35	7.17	7.13	7.19	
08/01/35	08/31/35	Aug 2035	77.30	61.87	76.87	60.30	72.46	57.14	83.17	63.66	80.02	63.64	7.17	7.36	7.14	7.09	7.17	7.09	7.03	6.59	7.41	7.23	7.19	7.31	
09/01/35	09/30/35	Sep 2035	75.87	64.47	74.34	61.12	72.10	60.18	80.88	64.56	78.34	64.85	7.08	7.30	7.09	7.09	7.12	7.06	7.05	6.70	7.41	7.23	7.19	7.32	
10/01/35	10/31/35	Oct 2035	70.63	62.45	70.71	60.33	67.64	57.82	75.31	62.30	74.95	64.55	7.03	7.25	7.05	7.03	7.11	7.06	7.03	6.62	7.35	7.17	7.13	7.31	
11/01/35	11/30/35	Nov 2035	79.00	66.38	71.06	61.36	78.54	62.61	77.12	64.65	76.05	65.77	7.15	7.45	7.25	7.20	7.37	7.34	7.39	6.79	7.53	7.35	7.30	7.69	
12/01/35	12/31/35	Dec 2035	79.79	69.02	69.51	62.62	83.23	66.94	74.98	65.60	74.79	66.94	7.25	7.48	7.23	7.26	7.45	7.42	7.45	6.81	7.60	7.41	7.36	7.76	
01/01/36	01/31/36	Jan 2036	77.43	67.98	68.63	63.47	79.45	64.89	76.74	67.02	73.36	67.60	7.19	7.51	7.24	7.27	7.51	7.50	7.51	6.58	7.61	7.42	7.37	7.83	
02/01/36	02/29/36	Feb 2036	70.87	65.18	65.41	61.46	71.05	61.91	69.52	62.81	69.45	65.55	7.15	7.34	7.15	7.15	7.27	7.26	7.27	6.79	7.48	7.29	7.24	7.59	
03/01/36	03/31/36	Mar 2036	66.01	60.53	65.36	60.74	61.24	55.75	69.13	61.93	69.50	65.23	7.15	7.35	7.16	7.16	7.26	7.23	7.23	6.87	7.49	7.31	7.26	7.54	
04/01/36	04/30/36	Apr 2036	64.57	58.93	68.69	62.73	59.71	54.24	69.02	61.60	71.43	66.08	7.08	7.26	7.06	7.06	7.10	7.05	7.00	6.65	7.38	7.20	7.16	7.27	
05/01/36	05/31/36	May 2036	59.46	49.55	65.05	58.59	54.73	45.26	69.55	59.08	67.78	61.94	7.05	7.21	7.00	6.98	7.05	6.98	6.90	6.58	7.30	7.12	7.08	7.18	
06/01/36	06/30/36	Jun 2036	59.61	52.29	61.86	57.73	54.87	47.87	66.14	59.80	65.18	61.34	7.08	7.18	6.94	6.86	7.02	6.90	6.78	6.34	7.18	7.00	6.95	7.05	
07/0																									

07/01/38	07/31/38	Jul 2038	74.36	62.31	81.90	65.30	68.89	57.37	83.87	66.96	80.74	66.87	7.60	7.73	7.48	7.42	7.55	7.45	7.30	6.77	7.74	7.56	7.51	7.58	
08/01/38	08/31/38	Aug 2038	80.43	66.46	81.38	65.27	75.57	61.48	87.24	68.55	84.27	68.51	7.65	7.93	7.65	7.62	7.67	7.60	7.57	7.57	7.17	7.94	7.76	7.71	7.84
09/01/38	09/30/38	Sep 2038	78.24	67.66	77.00	65.10	75.38	63.95	83.97	68.77	81.20	69.05	7.62	7.92	7.68	7.60	7.67	7.62	7.60	7.22	7.92	7.74	7.70	7.88	
10/01/38	10/31/38	Oct 2038	73.33	66.06	73.45	65.22	71.83	62.30	78.58	68.15	77.64	69.66	7.58	7.90	7.67	7.57	7.75	7.72	7.72	7.18	7.89	7.71	7.66	8.00	
11/01/38	11/30/38	Nov 2038	80.79	73.53	72.16	64.86	85.16	71.16	78.95	69.04	76.60	69.29	7.58	7.93	7.68	7.60	7.93	7.93	7.98	7.22	7.93	7.74	7.70	8.28	
12/01/38	12/31/38	Dec 2038	81.02	74.09	70.51	65.30	86.58	72.64	76.48	69.12	74.96	69.65	7.62	7.90	7.63	7.58	7.93	7.93	7.98	7.18	7.92	7.73	7.68	8.29	
01/01/39	01/31/39	Jan 2039	77.66	71.47	69.03	66.37	82.67	70.13	79.25	71.71	74.03	70.89	7.64	8.08	7.64	7.67	8.05	8.03	7.93	7.01	8.01	7.82	7.77	8.25	
02/01/39	02/28/39	Feb 2039	71.36	65.94	67.05	65.15	74.40	70.37	73.72	68.87	71.54	69.61	7.67	7.98	7.64	7.67	8.07	8.07	8.10	7.20	8.01	7.82	7.77	8.42	
03/01/39	03/31/39	Mar 2039	69.20	66.39	67.67	65.72	68.29	62.85	73.24	66.48	72.23	70.16	7.64	7.85	7.67	7.67	7.76	7.73	7.73	7.37	8.01	7.82	7.77	8.04	
04/01/39	04/30/39	Apr 2039	69.11	63.68	72.49	67.41	65.06	59.64	74.25	66.44	76.26	71.14	7.59	7.78	7.61	7.57	7.62	7.59	7.57	7.23	7.89	7.71	7.67	7.84	
05/01/39	05/31/39	May 2039	64.91	54.94	69.30	63.29	59.85	50.29	76.01	64.67	73.21	67.25	7.54	7.74	7.56	7.52	7.56	7.50	7.44	7.15	7.84	7.66	7.62	7.71	
06/01/39	06/30/39	Jun 2039	65.74	56.44	66.05	61.48	60.74	51.78	72.31	64.33	70.34	65.61	7.57	7.73	7.47	7.39	7.52	7.42	7.30	6.84	7.71	7.52	7.48	7.57	
07/01/39	07/31/39	Jul 2039	75.02	62.17	82.13	65.70	69.69	57.30	85.16	67.83	82.17	67.79	7.66	7.81	7.56	7.49	7.62	7.52	7.37	6.81	7.71	7.63	7.58	7.64	
08/01/39	08/31/39	Aug 2039	80.55	65.60	81.28	65.26	75.27	60.63	87.62	68.51	84.95	68.77	7.69	8.00	7.74	7.67	7.74	7.67	7.62	7.22	8.00	7.82	7.77	7.90	
09/01/39	09/30/39	Sep 2039	76.62	65.19	76.77	67.31	73.91	63.67	82.95	70.24	80.92	71.48	7.73	8.10	7.79	7.69	7.78	7.73	7.71	7.32	8.01	7.83	7.79	7.99	
10/01/39	10/31/39	Oct 2039	73.50	64.08	73.97	67.00	72.21	62.89	78.37	69.62	78.45	71.33	7.69	8.05	7.78	7.67	7.91	7.90	7.88	7.28	8.00	7.82	7.77	8.16	
11/01/39	11/30/39	Nov 2039	83.27	73.65	72.39	66.87	88.65	73.16	80.18	71.23	78.09	71.32	7.74	8.19	7.83	7.78	8.13	8.17	8.15	7.37	8.11	7.92	7.87	8.45	
12/01/39	12/31/39	Dec 2039	81.35	71.96	70.15	66.29	86.73	72.60	77.65	70.67	75.66	70.85	7.78	8.08	7.78	7.76	8.12	8.12	8.19	7.37	8.10	7.91	7.86	8.50	
01/01/40	01/31/40	Jan 2040	87.82	77.22	71.72	67.96	87.63	74.23	82.02	73.64	77.60	73.13	7.86	8.31	7.86	7.93	8.26	8.26	8.09	7.24	8.27	8.08	8.03	8.41	
02/01/40	02/29/40	Feb 2040	78.82	76.39	68.78	66.37	78.21	72.08	75.92	70.72	73.25	71.23	7.79	8.12	7.79	7.83	8.23	8.26	8.33	7.43	8.16	7.97	7.93	8.65	
03/01/40	03/31/40	Mar 2040	74.87	70.65	69.93	64.05	70.02	65.42	76.38	69.47	75.16	72.64	7.83	8.07	7.88	7.86	8.04	8.00	8.04	7.53	8.19	8.01	7.96	8.35	
04/01/40	04/30/40	Apr 2040	71.39	66.90	72.83	68.46	66.29	61.92	76.76	68.37	76.75	72.68	7.79	7.98	7.79	7.78	7.83	7.78	7.78	7.43	8.10	7.91	7.87	8.05	
05/01/40	05/31/40	May 2040	67.07	56.53	71.04	64.28	61.82	51.75	78.04	66.42	73.98	67.94	7.76	7.97	7.78	7.72	7.72	7.65	7.36	8.04	7.86	7.82	7.93	8.33	
06/01/40	06/30/40	Jun 2040	69.61	59.59	69.53	63.09	64.28	54.67	74.73	66.90	72.91	67.11	7.79	7.97	7.67	7.59	7.74	7.62	7.53	7.00	7.91	7.72	7.68	7.81	
07/01/40	07/31/40	Jul 2040	79.33	65.72	85.69	67.64	73.58	60.53	88.54	70.05	85.10	69.56	7.88	8.05	7.76	7.67	7.83	7.69	7.59	7.01	7.99	7.81	7.77	7.86	
08/01/40	08/31/40	Aug 2040	84.32	69.69	84.28	67.09	78.90	64.38	90.82	70.86	87.58	70.69	7.95	8.28	8.00	7.93	8.00	7.90	7.88	7.45	8.26	8.07	8.03	8.16	
09/01/40	09/30/40	Sep 2040	79.88	72.30	78.14	68.44	76.33	67.57	85.08	72.54	81.98	72.59	8.04	8.37	8.09	7.98	8.09	8.02	8.00	7.57	8.31	8.12	8.08	8.28	
10/01/40	10/31/40	Oct 2040	79.84	73.88	77.90	68.51	78.43	69.66	84.07	72.54	82.42	73.37	7.98	8.37	8.04	7.95	8.24	8.23	8.23	7.55	8.27	8.09	8.05	8.51	
11/01/40	11/30/40	Nov 2040	87.89	79.40	76.17	67.47	92.11	76.65	83.63	73.57	81.06	73.60	8.02	8.44	8.09	8.02	8.45	8.49	8.51	7.62	8.35	8.16	8.12	8.80	
12/01/40	12/31/40	Dec 2040	87.07	80.02	73.72	69.07	91.51	77.83	81.70	74.07	79.52	74.31	8.04	8.44	8.09	8.04	8.47	8.49	8.54	7.65	8.37	8.18	8.14	8.85	
01/01/41	01/31/41	Jan 2041	82.10	76.24	72.76	68.88	81.10	73.50	82.33	74.22	77.64	73.56	8.02	8.48	8.02	8.09	8.43	8.43	8.25	7.38	8.43	8.24	8.19	8.57	
02/01/41	02/28/41	Feb 2041	77.00	75.43	69.66	67.05	87.09	74.19	77.14	71.85	74.12	71.88	7.95	8.29	7.95	7.98	8.39	8.43	8.50	7.58	8.32	8.13	8.08	8.82	
03/01/41	03/31/41	Mar 2041	75.40	72.41	70.75	67.60	72.06	67.06	77.00	70.03	75.44	72.33	7.98	8.23	8.04	8.02	8.20	8.16	8.20	7.68	8.35	8.16	8.12	8.51	
04/01/41	04/30/41	Apr 2041	73.49	68.69	75.81	70.76	68.69	63.61	78.14	69.38	79.18	74.39	7.95	8.14	7.95	7.93	7.98	7.93	7.93	7.58	8.25	8.07	8.03	8.20	
05/01/41	05/31/41	May 2041	69.13	59.98	72.81	66.31	63.75	55.00	79.62	68.71	76.40	70.46	7.91	8.13	7.93	7.88	7.93	7.88	7.81	7.51	8.20	8.02	7.97	8.08	
06/01/41	06/30/41	Jun 2041	68.21	60.87	67.90	64.88	63.00	55.86	73.14	68.20	71.80	68.87	7.95	8.13	7.83	7.74	7.90	7.77	7.68	7.14	8.06	7.88	7.83	7.96	
07/01/41	07/31/41	Jul 2041	78.79	66.49	85.55	68.48	72.99	61.23	88.38	70.75	85.31	70.63	8.04	8.22	7.91	7.83	7.98	7.84	7.74	7.15	8.15	7.97	7.92	8.01	
08/01/41	08/31/41	Aug 2041	86.27	70.99	85.98	68.48	80.66	65.62	93.35	72.47	89.71	72.21	8.11	8.45	8.16	8.09	8.16	8.06	8.04	7.60	8.41	8.23	8.19	8.32	
09/01/41	09/30/41	Sep 2041	84.31	72.79	83.71	70.46	80.32	68.33	91.26	74.46	88.13	74.62	8.20	8.53	8.25	8.14	8.25	8.18	8.16	7.72	8.47	8.28	8.24	8.44	
10/01/41	10/31/41	Oct 2041	79.16	73.25	79.36	69.77	77.31	68.91	85.72	73.84	84.17	74.70	8.14	8.53	8.20	8.11	8.39	8.39	7.70	8.43	8.25	8.21	8.67		
11/01/41	11/30/41	Nov 2041	84.53	79.10	75.38	69.73	87.57	75.46	83.40	74.53	80.35	74.51	8.18	8.60	8.25	8.18	8.62	8.66	8.68	7.77	8.51	8.32	8.28	8.97	
12/01/41	12/31/41	Dec 2041	86.70	79.95	75.89	70.49	92.25	78.33	82.90	75.07	80.80	75.16	8.20	8.60	8.25	8.20	8.64	8.66	8.71	7.81	8.53	8.34	8.30	9.02	
01/01/42	01/31/42	Jan 2042	84.71	78.48	73.07	69.62	89.54	75.50	84.37	75.89	79.45	75.58	8.18	8.65	8.18	8.25	8.60	8.60	8.42	7.53	8.59	8.40	8.35	8.73	
02/01/42	02/28/42	Feb 2042	79.71	78.52	70.98	68.39	82.50	75.74	79.30	73.41	75.69	73.63	8.11	8.45	8.11	8.14	8.56	8.60	8.67	7.73	8.48	8.29	8.24	8.99	
03/01/42	03/31/42	Mar 2042	78.35	74.88	71.68	66.95	73.69	69.32	79.18	72.11	77.08	74.72	8.14	8.40	8.20	8.18	8.36	8.33	8.36	7.84	8.51	8.32	8.28	8.68	
04/01/42	04/30/42	Apr 2042	74.95	70.54	76.13	71.43	69.59	65.23	79.51	70.61	79.93	75.60	8.11	8.31	8.11	8.09	8.14	8.09	8.09	7.73	8.41	8.23	8.19	8.36	
05/01/42	05/31/42	May 2042	69.45	59.75	72.80	66.85	64.02	54.74	80.44	69.57	76.49	71.06	8.07	8.29	8.09	8.04	8.09	8.04	7.96	7.66	8.36	8.17	8.13	8.23	
06/01/42	06/30/42	Jun 2042	69.88	63.26	69.37	66.08	64.55	58.09	74.91	69.89	73.34	70.26	8.11	8.29	7.98	7.89	8.05	7.93	7.84	7.28	8.21	8.03	7.99	8.11	
07/01/42	07/31/42	Jul 2042	82.19	68.13	88.53	69.93	76.20	62.75	91.68	72.11	88.17	71.98	8.20	8.38	8.07	7.98	8.14	8.18	7.89	7.30	8.30	8.12	8.08	8.17	

08/01/44	08/31/44	Aug 2044	90.23	75.79	90.57	73.26	84.20	70.11	97.61	77.63	94.46	77.14	8.62	8.98	8.68	8.60	8.68	8.57	8.55	8.08	8.93	8.74	8.70	8.82
09/01/44	09/30/44	Sep 2044	88.22	77.57	87.84	74.55	83.89	72.86	95.63	79.15	92.54	79.14	8.72	9.07	8.77	8.66	8.77	8.70	8.68	8.21	8.98	8.80	8.76	8.96
10/01/44	10/31/44	Oct 2044	83.80	78.74	83.83	74.72	81.95	74.39	90.50	79.00	88.82	79.62	8.66	9.07	8.72	8.62	8.94	8.92	8.92	8.19	8.95	8.76	8.72	9.20
11/01/44	11/30/44	Nov 2044	91.43	83.91	80.66	73.99	94.95	80.98	88.78	79.29	86.14	78.92	8.70	9.15	8.77	8.70	9.17	9.21	9.22	8.26	9.03	8.84	8.79	9.52
12/01/44	12/31/44	Dec 2044	93.44	84.23	81.54	74.27	99.48	82.98	88.58	79.39	86.66	79.12	8.72	9.15	8.77	8.72	9.19	9.21	9.26	8.30	9.05	8.86	8.81	9.57

Quote Date	Data Type:	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur
11/10/2014	Commodity:	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
	POD:	COB N-S	COB N-S	PV	PV	MID-C	MID-C	NP15	NP15	SP15	SP15	HENRYHUB	SOCALBOR	SANJUAN	ROCKOPAL	MALINGAS	STANFLDS	SUMAS5	AECO	GADSBY	CURRCRK	LAKESIDE	Z_CHEBRN	
		COB		Palo Verde		Mid-Columbia		NP 15		SP 15		Henry Hub Gas	SOCALBOR	SANJUAN	Opal Gas	Malin Gas	Stanfield Gas	SUMAS	AECO	GADSBY	Currant Creek	Lakeside	Z_CHEBRN	
Start	End	Peak Type:	HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price
01/01/15	01/31/15	Jan 2015	42.80	37.18	39.64	33.28	39.32	34.78	48.93	41.60	49.40	41.20	4.35	4.52	4.37	4.38	4.42	4.38	4.46	3.94	4.72	4.51	4.47	4.78
02/01/15	02/28/15	Feb 2015	39.60	34.40	39.25	32.96	37.12	33.80	48.45	40.00	47.98	40.00	4.31	4.48	4.32	4.34	4.38	4.34	4.36	3.89	4.68	4.47	4.43	4.66
03/01/15	03/31/15	Mar 2015	37.60	32.67	38.86	29.76	33.81	28.93	45.13	38.40	45.13	38.80	4.20	4.29	4.12	4.09	4.21	4.01	3.77	4.42	4.21	4.18	4.30	
04/01/15	04/30/15	Apr 2015	36.85	26.26	33.73	27.30	30.79	20.46	44.94	34.65	44.94	34.72	3.76	3.86	3.65	3.54	3.65	3.61	3.49	3.28	3.84	3.66	3.62	3.72
05/01/15	05/31/15	May 2015	33.17	21.36	35.86	25.71	28.53	16.01	41.16	32.01	41.16	31.44	3.71	3.80	3.56	3.48	3.59	3.56	3.23	3.19	3.78	3.59	3.56	3.44
06/01/15	06/30/15	Jun 2015	30.49	19.14	36.92	26.50	25.43	13.04	39.90	32.34	39.90	32.10	3.72	3.82	3.57	3.49	3.61	3.58	3.22	3.18	3.79	3.60	3.57	3.43
07/01/15	07/31/15	Jul 2015	44.19	26.32	44.10	32.81	35.49	23.22	48.67	38.38	49.47	38.25	3.75	3.97	3.64	3.54	3.64	3.61	3.37	3.19	3.84	3.65	3.62	3.59
08/01/15	08/31/15	Aug 2015	44.63	32.67	42.00	30.94	38.88	28.62	48.20	39.52	49.96	39.40	3.76	3.97	3.62	3.56	3.66	3.63	3.40	3.18	3.86	3.68	3.64	3.63
09/01/15	09/30/15	Sep 2015	42.44	31.76	39.90	30.00	38.88	29.16	44.89	36.10	46.08	37.10	3.76	3.91	3.62	3.55	3.66	3.63	3.43	3.19	3.85	3.67	3.63	3.66
10/01/15	10/31/15	Oct 2015	37.84	32.67	36.38	31.00	33.15	29.58	46.53	39.00	45.08	38.61	3.78	3.88	3.61	3.58	3.70	3.67	3.55	3.25	3.88	3.70	3.66	3.79
11/01/15	11/30/15	Nov 2015	39.85	34.06	36.75	30.69	36.88	31.85	46.53	38.22	46.00	38.22	3.86	4.02	3.77	3.76	3.89	3.86	4.10	3.47	4.08	3.89	3.85	4.40
12/01/15	12/31/15	Dec 2015	43.07	37.53	37.12	31.31	41.72	36.08	47.94	39.78	46.92	40.17	4.03	4.25	3.96	3.99	4.08	4.05	4.38	3.54	4.32	4.13	4.09	4.69
01/01/16	01/31/16	Jan 2016	42.90	36.75	38.38	33.92	41.53	35.04	48.83	42.12	48.10	41.46	4.13	4.31	4.07	4.04	4.12	4.08	4.31	3.60	4.38	4.18	4.14	4.62
02/01/16	02/29/16	Feb 2016	42.08	35.00	38.00	33.92	37.37	33.08	47.43	40.91	47.18	40.25	4.10	4.26	4.02	4.01	4.09	4.05	4.09	3.57	4.35	4.15	4.11	4.38
03/01/16	03/31/16	Mar 2016	38.78	33.25	37.62	31.92	34.35	30.13	43.25	38.48	43.48	39.04	4.03	4.18	3.94	3.95	4.02	3.99	4.00	3.48	4.28	4.08	4.04	4.28
04/01/16	04/30/16	Apr 2016	37.61	27.81	40.70	28.60	31.01	20.44	41.04	35.80	41.23	37.05	3.80	3.88	3.60	3.48	3.67	3.64	3.40	3.15	3.80	3.61	3.57	3.62
05/01/16	05/31/16	May 2016	32.78	18.91	37.00	26.95	29.25	15.91	42.32	29.99	42.08	30.23	3.79	3.88	3.63	3.47	3.65	3.61	3.28	3.12	3.78	3.60	3.56	3.50
06/01/16	06/30/16	Jun 2016	33.12	20.03	33.30	26.95	27.50	13.40	44.89	30.96	44.20	30.23	3.81	3.91	3.66	3.49	3.67	3.64	3.29	3.13	3.81	3.62	3.58	3.51
07/01/16	07/31/16	Jul 2016	42.44	23.70	45.32	28.44	35.65	20.06	47.75	36.62	49.73	36.62	3.84	4.15	3.73	3.63	3.76	3.73	3.55	3.19	3.95	3.76	3.72	3.78
08/01/16	08/31/16	Aug 2016	45.50	33.00	44.46	31.46	41.08	29.43	49.18	39.64	50.21	38.88	3.85	4.15	3.74	3.60	3.78	3.75	3.55	3.19	3.92	3.73	3.69	3.78
09/01/16	09/30/16	Sep 2016	43.31	33.30	38.48	30.86	39.53	30.76	46.32	37.00	46.31	37.75	3.84	3.96	3.68	3.53	3.77	3.74	3.51	3.16	3.85	3.66	3.62	3.75
10/01/16	10/31/16	Oct 2016	39.99	33.84	38.25	31.50	36.80	31.02	46.04	36.58	43.46	36.10	3.86	3.94	3.66	3.55	3.79	3.75	3.57	3.23	3.87	3.68	3.64	3.81
11/01/16	11/30/16	Nov 2016	42.57	34.55	36.38	30.87	39.20	32.67	46.04	37.73	45.75	36.86	3.93	4.15	3.97	3.84	3.95	3.92	4.15	3.40	4.17	3.97	3.94	4.45
12/01/16	12/31/16	Dec 2016	46.44	37.37	37.88	32.13	44.00	35.31	47.43	41.20	48.04	41.04	4.08	4.30	4.00	4.04	4.13	4.10	4.50	3.53	4.37	4.17	4.13	4.81
01/01/17	01/31/17	Jan 2017	45.65	38.65	41.38	35.17	44.03	37.29	49.58	42.87	48.85	42.21	4.21	4.44	4.13	4.16	4.18	4.15	4.44	3.66	4.49	4.30	4.26	4.75
02/01/17	02/28/17	Feb 2017	44.83	36.90	41.00	35.17	39.87	35.33	48.18	41.66	47.93	41.00	4.19	4.41	4.11	4.14	4.17	4.14	4.22	3.63	4.47	4.28	4.24	4.52
03/01/17	03/31/17	Mar 2017	41.53	35.15	40.62	33.17	36.85	32.38	44.00	39.23	44.23	39.79	4.12	4.36	4.03	4.08	4.11	4.07	4.18	3.59	4.41	4.22	4.18	4.48
04/01/17	04/30/17	Apr 2017	40.36	29.71	42.95	29.35	32.76	20.94	41.29	36.30	41.73	37.80	3.88	3.95	3.64	3.64	3.74	3.71	3.45	3.24	3.95	3.77	3.74	3.68
05/01/17	05/31/17	May 2017	35.53	20.81	39.25	27.70	31.00	16.41	42.57	30.49	42.58	30.98	3.88	4.00	3.71	3.57	3.74	3.71	3.43	3.21	3.88	3.70	3.67	3.66
06/01/17	06/30/17	Jun 2017	35.87	21.93	35.55	27.70	29.25	13.90	45.14	31.46	44.70	30.98	3.91	4.04	3.76	3.60	3.77	3.74	3.45	3.24	3.91	3.73	3.69	3.68
07/01/17	07/31/17	Jul 2017	45.19	25.60	48.07	29.69	39.65	23.66	48.75	37.62	50.98	37.12	3.94	4.28	3.83	3.66	3.86	3.82	3.65	3.25	3.97	3.79	3.75	3.89
08/01/17	08/31/17	Aug 2017	48.25	34.90	47.21	32.71	45.08	33.03	50.18	40.64	51.46	39.38	3.95	4.27	3.88	3.67	3.88	3.85	3.66	3.25	3.98	3.80	3.76	3.90
09/01/17	09/30/17	Sep 2017	46.06	35.20	41.23	32.11	43.53	34.36	47.32	38.00	47.56	38.25	3.94	4.09	3.77	3.66	3.88	3.84	3.66	3.26	3.97	3.79	3.75	3.90
10/01/17	10/31/17	Oct 2017	42.74	35.74	40.50	33.50	39.80	33.52	46.54	37.83	44.46	37.35	3.96	4.06	3.74	3.68	3.89	3.85	3.69	3.29	3.99	3.81	3.77	3.94
11/01/17	11/30/17	Nov 2017	45.32	36.45	38.63	32.87	42.20	35.17	46.54	38.98	46.75	38.11	4.04	4.25	4.10	3.98	4.11	4.07	4.34	3.58	4.30	4.11	4.07	4.64
12/01/17	12/31/17	Dec 2017	49.19	39.27	40.13	34.13	47.00	37.81	47.93	42.45	49.04	42.29	4.21	4.43	4.16	4.19	4.30	4.26	4.68	3.72	4.52	4.33	4.29	5.01

Quote Date	Data Type:	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur
11/3/2014	Commodity:	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
	POD:	COB N-S	COB N-S	PV	PV	MID-C	MID-C	NP15	NP15	SP15	SP15	HENRYHUB	SOCALBOR	SANJUAN	ROCKOPAL	MALINGAS	STANFLDS	SUMAS5	AECO	GADSBY	CURRCRK	LAKESIDE	Z_CHEBRN	
		COB		Palo Verde		Mid-Columbia		NP 15		SP 15		Henry Hub Gas	SOCALBOR	SANJUAN	Opal Gas	Malin Gas	Stanfield Gas	SUMAS	AECO	GADSBY	Currant Creek	Lakeside	Z_CHEBRN	
Start	End	Peak Type:	HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price
01/01/15	01/31/15	Jan 2015	41.46	34.24	37.88	31.20	38.07	32.10	46.35	40.04	46.80	39.40	4.15	4.25	4.11	4.09	4.16	4.12	4.21	3.69	4.43	4.22	4.18	4.51
02/01/15	02/28/15	Feb 2015	38.36	31.68	37.50	30.90	34.90	31.20	45.90	38.50	45.45	38.25	4.13	4.25	4.09	4.09	4.14	4.11	4.12	3.67	4.42	4.21	4.18	4.41
03/01/15	03/31/15	Mar 2015	36.43	30.08	37.13	27.90	32.78	26.70	42.75	36.96	42.75	37.10	4.06	4.09	3.92	3.89	4.01	3.97	3.86	3.55	4.22	4.02	3.98	4.14
04/01/15	04/30/15	Apr 2015	36.58	22.31	33.25	27.04	30.52	20.00	45.21	34.19	45.21	33.92	3.76	3.83	3.62	3.50	3.62	3.58	3.41	3.20	3.80	3.62	3.58	3.64
05/01/15	05/31/15	May 2015	32.92	18.00	35.35	25.46	28.28	15.52	41.41	31.28	41.41	30.72	3.74	3.79	3.55	3.48	3.59	3.56	3.19	3.14	3.77	3.59	3.56	3.40
06/01/15	06/30/15	Jun 2015	30.26	15.94	36.40	26.25	25.20	12.48	40.14	31.28	40.14	31.36	3.76	3.81	3.57	3.50	3.62	3.59	3.18	3.14	3.80	3.62	3.58	3.40
07/01/15	07/31/15	Jul 2015	43.18	25.88	44.36	32.03	35.25	23.01	48.93	37.88	49.73	37.50	3.79	4.00	3.66	3.56	3.67	3.63	3.34	3.16	3.86	3.68	3.64	3.56
08/01/15	08/31/15	Aug 2015	43.61	32.13	42.25	30.20	38.63	28.36	48.45	39.00	50.21	38.63	3.80	4.01	3.65	3.57	3.68	3.65	3.38	3.15	3.87	3.69	3.65	3.61
09/01/15	09/30/15	Sep 2015	41.47	31.24	40.14	29.28	38.63	28.89	45.13	35.63	46.31	36.38	3.80	3.94	3.64	3.56	3.68	3.65	3.41	3.16	3.86	3.68	3.64	3.64
10/01/15	10/31/15	Oct 2015	37.20	32.20	35.39	30.50	33.15	29.12	46.04	37.37	44.84	37.49	3.83	3.92	3.63	3.59	3.72	3.68	3.54	3.23	3.90	3.71	3.67	3.77
11/01/15	11/30/15	Nov 2015	39.60	33.57	35.75	30.20	36.88	32.00	46.04	37.00	45.75	37.49	3.91	4.07	3.80	3.79	3.94	3.90	4.10	3.45	4.12	3.93	3.89	4.39
12/01/15	12/31/15	Dec 2015	43.20	36.99	36.11	30.81	41.72	34.88	47.43	38.88	46.67	39.78	4.07	4.29	3.99	4.02	4.11	4.08	4.40	3.55	4.35	4.16	4.12	4.72
01/01/16	01/31/16	Jan 2016	42.38	36.23	37.88	33.02	40.98	34.24	48.04	40.82	47.32	39.91	4.18	4.35	4.09	4.07	4.15	4.12	4.34	3.64	4.41	4.21	4.17	4.64
02/01/16	02/29/16	Feb 2016	41.57	34.50	37.50	32.70	36.88	32.32	46.67	39.64	46.41	38.75	4.15	4.31	4.05	4.05	4.12	4.09	4.11	3.61	4.38	4.18	4.14	4.41
03/01/16	03/31/16	Mar 2016	38.31	32.78	37.13	30.16	33.90	29.44	42.55	37.29	42.77	37.59	4.08	4.23	3.97	3.98	4.06	4.03	4.03	3.53	4.32	4.12	4.08	4.32
04/01/16	04/30/16	Apr 2016	37.98	28.13	40.70	29.12	31.27	21.05	41.04	36.08	41.23	37.62	3.86	3.92	3.64	3.50	3.70	3.67	3.44	3.17	3.82	3.63	3.59	3.67
05/01/16	05/31/16	May 2016	33.01	19.13	37.00	27.44	29.50	16.39	42.32	30.23	42.08	30.69	3.86	3.93	3.66	3.50	3.69	3.65	3.33	3.15	3.82	3.63	3.59	3.55
06/01/16	06/30/16	Jun 2016	33.36	20.25	33.30	27.44	27.73	13.80	44.89	31.20	44.20	30.69	3.88	3.97	3.70	3.53	3.71	3.68	3.34	3.16	3.84	3.65	3.62	3.57
07/01/16	07/31/16	Jul 2016	41.95	23.31	45.85	29.14	35.19	20.25	48.25	37.35	50.24	37.35	3.91	4.20	3.78	3.66	3.80	3.77	3.60	3.23	3.98	3.79	3.76	3.84
08/01/16	08/31/16	Aug 2016	44.98	32.45	44.98	32.24	40.55	29.70	49.70	40.43	50.73	39.66	3.92	4.20	3.79	3.63	3.83	3.80	3.60	3.23	3.95	3.76	3.73	3.84
09/01/16	09/30/16	Sep 2016	42.82	32.75	38.93	31.62	39.02	31.05	46.80	37.73	46.79	38.50	3.90	4.01	3.72	3.56	3.82	3.78	3.56	3.19	3.88	3.69	3.65	3.80
10/01/16	10/31/16	Oct 2016	40.22	34.80	38.51	31.75	37.03	32.43	46.28	37.53	43.70	37.29	3.93	4.00	3.71	3.59	3.83	3.80	3.62	3.26	3.91	3.71	3.68	3.87
11/01/16	11/30/16	Nov 2016	42.82	35.53	36.62	31.12	39.45	34.16	46.28	38.71	46.00	38.07	4.00	4.21	4.00	3.90	4.00	3.97	4.19	3.43	4.23	4.04	4.00	4.49
12/01/16	12/31/16	Dec 2016	46.71	38.43	38.13	32.39	44.28	36.92	47.69	42.27	48.30	42.39	4.15	4.36	4.05	4.10	4.18	4.15	4.54	3.56	4.43	4.23	4.19	4.86
01/01/17	01/31/17	Jan 2017	45.13	38.13	40.88	34.27	43.98	36.74	49.44	41.82	48.32	40.66	4.28	4.50	4.18	4.22	4.23	4.20	4.49	3.69	4.55	4.36	4.32	4.81
02/01/17	02/28/17	Feb 2017	44.32	36.40	40.50	33.95	39.88	34.82	48.07	40.64	47.41	39.50	4.26	4.47	4.16	4.20	4.22	4.19	4.27	3.66	4.53	4.34	4.30	4.58
03/01/17	03/31/17	Mar 2017	41.06	34.68	40.13	31.41	36.90	31.94	43.95	38.29	43.77	38.34	4.19	4.42	4.08	4.14	4.16	4.13	4.23	3.62	4.47	4.28	4.24	4.53
04/01/17	04/30/17	Apr 2017	40.63	30.03	43.45	29.87	33.52	21.30	42.44	36.58	42.48	38.62	3.95	4.01	3.70	3.68	3.78	3.75	3.50	3.25	4.00	3.81	3.78	3.74
05/01/17	05/31/17	May 2017	35.76	21.03	39.75	28.19	31.75	16.64	43.72	30.73	43.33	31.69	3.96	4.07	3.76	3.62	3.79	3.75	3.50	3.24	3.93	3.75	3.71	3.73
06/01/17	06/30/17	Jun 2017	36.11	22.15	36.05	28.19	29.98	14.05	46.29	31.70	45.45	31.69	3.98	4.11	3.81	3.65	3.82	3.79	3.51	3.26	3.96	3.78	3.74	3.74
07/01/17	07/31/17	Jul 2017	44.70	25.21	49.10	30.89	39.44	23.00	49.65	38.85	51.99	38.35	4.02	4.35	3.88	3.70	3.90	3.87	3.71	3.27	4.02	3.83	3.80	3.96
08/01/17	08/31/17	Aug 2017	47.73	34.35	48.23	33.99	44.80	32.45	51.10	41.93	52.48	40.66	4.03	4.34	3.93	3.72	3.93	3.90	3.71	3.28	4.03	3.85	3.81	3.96
09/01/17	09/30/17	Sep 2017	45.57	34.65	42.18	33.37	43.27	33.80	48.20	39.23	48.54	39.50	4.02	4.16	3.82	3.71	3.92	3.89	3.72	3.28	4.02	3.84	3.80	3.97
10/01/17	10/31/17	Oct 2017	42.97	36.70	41.01	34.00	40.28	35.43	47.68	39.53	44.95	38.49	4.04	4.13	3.79	3.73	3.93	3.90	3.75	3.31	4.04	3.86	3.82	4.00
11/01/17	11/30/17	Nov 2017	45.57	37.43	39.12	33.37	42.70	37.16	47.68	40.71	47.25	39.27	4.12	4.30	4.15	4.04	4.16	4.13	4.41	3.60	4.37	4.18	4.14	4.72
12/01/17	12/31/17	Dec 2017	49.46	40.33	40.63	34.64	47.53	39.92	49.09	44.27	49.55	43.59	4.28	4.50	4.21	4.25	4.35	4.32	4.75	3.74	4.58	4.39	4.35	5.08

01/01/20	01/31/20	Jan 2020	56.16	45.43	50.69	41.92	55.43	44.53	55.56	45.16	54.68	46.04	4.76	5.13	4.67	4.76	4.77	4.74	4.99	4.24	5.10	4.91	4.86	5.33	
02/01/20	02/29/20	Feb 2020	55.31	43.65	50.30	40.97	51.05	42.49	54.15	43.95	53.74	44.85	4.74	5.10	4.64	4.74	4.75	4.71	4.78	4.23	5.08	4.89	4.84	5.12	
03/01/20	03/31/20	Mar 2020	51.89	41.88	49.91	39.06	47.87	39.43	49.89	41.54	49.98	43.66	4.68	5.05	4.56	4.68	4.69	4.65	4.74	4.19	5.02	4.83	4.78	5.07	
04/01/20	04/30/20	Apr 2020	50.67	34.40	52.80	36.98	43.50	28.66	46.75	39.65	47.51	42.44	4.37	4.61	4.13	4.32	4.30	4.27	4.08	3.94	4.64	4.46	4.42	4.37	
05/01/20	05/31/20	May 2020	45.66	26.00	49.05	35.36	41.70	23.86	48.03	33.84	48.37	35.56	4.38	4.72	4.23	4.27	4.32	4.28	4.04	3.90	4.59	4.41	4.36	4.33	
06/01/20	06/30/20	Jun 2020	46.02	27.05	45.30	35.36	39.90	21.20	50.58	34.81	50.52	35.56	4.41	4.76	4.27	4.29	4.35	4.21	4.04	3.90	4.76	4.62	4.44	4.39	4.33
07/01/20	07/31/20	Jul 2020	57.78	33.83	59.25	37.81	51.03	30.28	55.70	40.67	57.82	42.93	4.45	4.94	4.36	4.35	4.44	4.40	4.25	3.92	4.68	4.49	4.45	4.55	
08/01/20	08/31/20	Aug 2020	61.10	43.90	58.35	40.88	57.02	40.60	57.19	43.81	58.33	45.27	4.47	4.96	4.42	4.38	4.48	4.44	4.23	3.90	4.70	4.52	4.47	4.53	
09/01/20	09/30/20	Sep 2020	58.73	44.23	52.05	40.27	55.31	42.08	54.21	41.07	54.25	44.10	4.47	4.77	4.32	4.37	4.48	4.44	4.28	3.95	4.70	4.52	4.47	4.59	
10/01/20	10/31/20	Oct 2020	54.02	44.15	50.82	40.90	49.88	41.52	52.73	41.78	50.21	43.10	4.50	4.72	4.30	4.41	4.50	4.46	4.32	3.99	4.73	4.55	4.50	4.62	
11/01/20	11/30/20	Nov 2020	58.69	46.98	46.72	41.67	55.16	44.62	54.01	45.91	53.57	46.31	5.05	5.29	5.00	5.08	5.21	5.14	5.38	4.55	5.41	5.22	5.17	5.71	
12/01/20	12/31/20	Dec 2020	61.10	48.34	48.48	43.33	57.52	45.78	54.83	48.49	55.20	49.33	5.24	5.55	5.14	5.26	5.34	5.31	5.64	4.65	5.60	5.41	5.36	5.98	
01/01/21	01/31/21	Jan 2021	59.76	48.39	50.37	45.08	57.28	46.21	56.86	48.85	56.42	49.29	5.41	5.67	5.27	5.29	5.32	5.33	5.54	4.82	5.63	5.44	5.39	5.88	
02/01/21	02/28/21	Feb 2021	57.30	47.12	50.62	44.58	53.10	44.68	55.52	47.76	55.29	48.21	5.39	5.60	5.22	5.24	5.27	5.22	5.34	4.83	5.58	5.39	5.34	5.68	
03/01/21	03/31/21	Mar 2021	50.75	42.06	47.98	40.88	46.87	39.12	49.78	43.60	49.83	44.66	5.05	5.27	4.90	5.08	5.21	5.16	5.28	4.77	5.42	5.23	5.18	5.62	
04/01/21	04/30/21	Apr 2021	49.09	38.19	50.06	40.23	43.68	33.60	49.71	43.23	49.58	44.53	4.86	4.98	4.65	4.85	4.98	4.90	4.73	4.58	5.18	4.99	4.95	5.03	
05/01/21	05/31/21	May 2021	43.89	31.58	48.16	38.93	40.19	28.91	48.38	39.26	48.87	40.21	4.88	5.12	4.73	4.71	4.84	4.77	4.42	5.04	4.85	4.81	4.87	4.87	
06/01/21	06/30/21	Jun 2021	47.59	33.48	47.91	39.84	42.66	28.89	52.08	40.70	51.88	40.99	4.95	5.21	4.79	4.73	4.88	4.80	4.59	4.44	5.06	4.88	4.83	4.89	
07/01/21	07/31/21	Jul 2021	60.77	39.68	61.56	42.74	55.20	36.11	61.32	45.37	62.27	46.43	5.00	5.36	4.86	4.77	4.94	4.78	4.69	4.45	5.11	4.92	4.87	5.00	
08/01/21	08/31/21	Aug 2021	64.70	46.17	61.91	45.29	60.37	42.67	63.01	47.30	63.60	48.49	5.03	5.53	4.91	4.80	4.98	4.89	4.71	4.46	5.14	4.95	4.90	5.01	
09/01/21	09/30/21	Sep 2021	59.16	46.53	52.79	43.29	55.72	43.74	56.21	44.95	56.14	46.45	4.99	5.31	4.84	4.82	5.00	4.91	4.75	4.51	5.16	4.97	4.92	5.06	
10/01/21	10/31/21	Oct 2021	56.16	45.90	49.14	43.09	52.55	42.82	54.73	45.62	52.64	46.06	5.02	5.30	4.84	4.86	5.03	4.94	4.79	4.55	5.20	5.01	4.96	5.10	
11/01/21	11/30/21	Nov 2021	63.39	51.06	47.05	45.28	60.70	47.95	57.04	50.33	56.33	50.22	5.64	5.81	5.48	5.73	5.62	5.81	6.06	5.10	6.06	5.87	5.83	6.38	
12/01/21	12/31/21	Dec 2021	64.12	50.78	49.02	47.32	60.44	47.42	57.26	51.85	57.26	51.86	5.84	6.08	5.69	5.87	5.95	5.94	6.20	5.13	6.21	6.02	5.97	6.54	
01/01/22	01/31/22	Jan 2022	63.36	51.36	50.05	48.23	59.14	47.89	58.15	52.54	58.15	52.54	6.06	6.21	5.86	5.81	5.97	5.93	6.09	5.39	6.16	5.96	5.91	6.44	
02/01/22	02/28/22	Feb 2022	59.30	50.59	50.94	48.85	55.15	46.86	56.89	51.56	56.85	51.56	6.04	6.10	5.80	5.80	5.73	5.79	5.74	5.90	5.42	6.08	5.89	6.24	
03/01/22	03/31/22	Mar 2022	49.62	42.25	46.05	42.70	45.87	38.82	49.67	45.67	49.67	45.66	5.43	5.48	5.24	5.47	5.73	5.67	5.83	5.36	5.82	5.62	5.57	6.17	
04/01/22	04/30/22	Apr 2022	47.52	41.98	47.32	43.49	43.89	38.55	52.66	46.82	51.65	46.62	5.34	5.48	5.17	5.38	5.65	5.54	5.39	5.22	5.71	5.53	5.48	5.68	
05/01/22	05/31/22	May 2022	42.11	37.17	47.26	42.50	38.68	33.96	48.74	44.68	49.38	44.87	5.39	5.52	5.23	5.15	5.37	5.26	5.10	4.94	5.48	5.30	5.25	5.40	
06/01/22	06/30/22	Jun 2022	49.15	39.91	50.52	44.32	45.41	36.58	53.58	46.58	53.25	46.43	5.50	5.65	5.30	5.17	5.41	5.29	5.13	4.98	5.50	5.31	5.27	5.43	
07/01/22	07/31/22	Jul 2022	63.76	45.53	63.88	47.67	59.38	41.95	66.93	50.08	66.72	49.93	5.55	5.78	5.36	5.20	5.45	5.16	5.14	4.99	5.53	5.34	5.30	5.45	
08/01/22	08/31/22	Aug 2022	68.31	48.43	65.48	49.70	63.73	44.74	68.83	50.78	68.86	51.70	5.59	6.11	5.41	5.23	5.48	5.34	5.18	5.02	5.56	5.38	5.33	5.48	
09/01/22	09/30/22	Sep 2022	59.60	48.84	53.52	46.31	56.13	45.41	58.21	48.83	58.04	48.80	5.50	5.85	5.35	5.27	5.52	5.38	5.22	5.06	5.60	5.42	5.37	5.52	
10/01/22	10/31/22	Oct 2022	58.30	47.66	47.45	45.29	55.23	44.11	56.72	49.47	55.06	49.22	5.53	5.89	5.38	5.32	5.57	5.42	5.27	5.10	5.65	5.46	5.42	5.58	
11/01/22	11/30/22	Nov 2022	65.86	52.98	48.99	47.32	62.44	49.55	59.52	52.62	58.40	52.46	5.95	6.08	5.80	6.05	6.28	6.17	6.34	5.36	6.38	6.20	6.15	6.66	
12/01/22	12/31/22	Dec 2022	67.42	54.22	51.24	49.58	63.79	50.75	54.28	59.75	54.28	54.27	6.27	6.36	6.13	6.23	6.29	6.25	6.43	5.37	6.57	6.38	6.33	6.77	
01/01/23	01/31/23	Jan 2023	64.72	52.77	50.23	48.28	60.43	49.15	58.63	52.87	58.63	52.87	6.06	6.18	5.91	5.87	5.99	5.95	6.24	5.35	6.21	6.02	5.97	6.59	
02/01/23	02/28/23	Feb 2023	60.33	51.86	50.78	47.91	56.10	48.07	57.19	51.47	57.10	51.47	6.08	6.03	5.83	5.78	5.90	5.87	6.15	5.38	6.13	5.93	5.88	6.50	
03/01/23	03/31/23	Mar 2023	50.30	43.20	48.41	44.16	46.48	39.69	51.78	47.01	51.73	47.04	5.68	5.67	5.56	5.60	5.71	5.67	5.60	5.45	5.94	5.74	5.70	5.94	
04/01/23	04/30/23	Apr 2023	50.75	44.19	51.96	46.49	46.91	40.64	56.27	49.70	55.17	49.40	5.57	5.67	5.47	5.50	5.57	5.45	5.31	5.83	5.64	5.60	5.75	5.76	
05/01/23	05/31/23	May 2023	45.24	39.15	49.50	44.62	41.64	35.82	50.89	46.56	51.48	46.64	5.61	5.72	5.41	5.33	5.50	5.44	5.41	5.28	5.66	5.48	5.43	5.71	
06/01/23	06/30/23	Jun 2023	51.16	41.23	52.47	45.50	47.30	37.81	55.91	47.98	55.33	47.69	5.72	5.76	5.42	5.35	5.76	5.40	5.28	5.21	5.68	5.49	5.44	5.58	
07/01/23	07/31/23	Jul 2023	67.71	47.81	67.70	49.54	63.13	44.10	70.81	52.12	70.57	51.81	5.77	5.97	5.46	5.39	5.80	5.43	5.38	5.24	5.72	5.54	5.49	5.68	
08/01/23	08/31/23	Aug 2023	71.42	50.94	68.43	51.81	66.69	47.10	71.83	52.92	71.83	53.82	5.80	6.37	5.49	5.42	5.81	5.46	5.41	5.27	5.75	5.57	5.52	5.71	
09/01/23	09/30/23	Sep 2023	61.82	50.86	53.56	47.08	58.19	47.30	58.91	49.90	58.82	49.92	5.73	6.05	5.53	5.46	5.56	5.50	5.44	5.31	5.79	5.61	5.56	5.75	
10/01/23	10/31/23	Oct 2023	61.83	50.74	48.74	47.03	59.02	47.11	57.25	51.24	56.80	50.93	5.76	6.13	5.71	5.73	6.00	5.97	5.53	5.39	6.07	5.88	5.83	5.84	
11/01/23	11/30/23	Nov 2023	70.26	56.60	52.86	51.13	66.62	53.05	63.28	62.37	56.06	6.20	6.60	6.21	6.37	6.62	6.59	6.35	5.61	6.70	6.51	6.46	6.67	6.77	
12/01/23	12/31/23	Dec 2023	71.06	57.76	54.28	52.65	67.51	54.19	62.77	57.45	62.77	57.46	6.48	6.76	6.45	6.51	6.65	6.62	6.95	5.63	6.85	6.66	6.61	7.29	
01/01/24	01/31/24	Jan 2024	70.56	57.77	54.56	52.29	66.35	53.95	62.95	56.92	62.95	56.93	6.44	6.71	6.37	6.38	6.62	6.50	7.20	6.07	6.72	6.53	6.48	7	

02/01/26	02/28/26	Feb 2026	69.61	58.68	57.94	55.02	64.88	54.52	68.32	60.27	64.38	58.99	6.70	6.84	6.50	6.50	6.52	6.50	5.97	6.85	6.65	6.60	6.84
03/01/26	03/31/26	Mar 2026	59.48	51.20	54.64	50.57	55.18	47.25	59.68	53.40	58.34	53.68	6.21	6.37	6.03	6.21	6.46	6.42	5.98	6.55	6.36	6.31	6.76
04/01/26	04/30/26	Apr 2026	56.67	50.72	56.31	51.68	52.47	46.79	61.85	56.35	59.53	54.78	6.13	6.26	5.96	6.03	6.41	6.31	6.08	5.79	6.36	6.18	6.38
05/01/26	05/31/26	May 2026	49.94	44.65	53.63	50.27	46.04	40.98	56.44	52.06	57.14	53.00	6.18	6.43	6.02	6.00	6.23	6.01	6.00	5.73	6.33	6.15	6.30
06/01/26	06/30/26	Jun 2026	56.00	46.15	57.49	50.36	51.83	42.41	62.92	53.25	59.89	52.58	6.28	6.33	6.05	5.99	6.25	6.03	5.93	5.72	6.32	6.14	6.09
07/01/26	07/31/26	Jul 2026	82.15	53.69	82.65	54.90	76.83	49.62	88.78	58.05	85.95	57.56	6.34	6.55	6.16	6.08	6.30	6.07	5.98	5.75	6.41	6.22	6.17
08/01/26	08/31/26	Aug 2026	86.08	58.05	82.42	56.60	80.66	53.88	88.75	59.60	86.38	59.40	6.38	6.72	6.20	6.12	6.37	6.11	6.07	5.78	6.45	6.27	6.37
09/01/26	09/30/26	Sep 2026	70.96	57.87	63.07	52.99	66.52	54.33	73.52	57.09	69.18	56.11	6.33	6.68	6.16	6.15	6.44	6.17	6.11	5.82	6.48	6.29	6.41
10/01/26	10/31/26	Oct 2026	67.78	56.61	54.03	52.20	64.05	52.95	67.08	58.13	62.51	56.04	6.36	6.72	6.22	6.21	6.54	6.44	6.21	5.92	6.54	6.36	6.52
11/01/26	11/30/26	Nov 2026	77.19	61.18	54.98	53.13	73.19	58.35	70.22	62.40	65.49	59.13	6.51	6.78	6.41	6.48	6.79	6.69	6.69	6.13	6.81	6.62	7.02
12/01/26	12/31/26	Dec 2026	79.82	63.51	57.71	55.58	76.92	60.19	70.68	62.29	67.68	61.67	6.74	7.11	6.64	6.64	6.90	6.80	6.80	6.16	6.98	6.79	7.14
01/01/27	01/31/27	Jan 2027	80.48	64.74	61.54	58.89	75.56	60.86	73.59	64.86	70.51	64.39	7.29	7.50	7.16	7.18	7.26	7.32	7.32	6.77	7.52	7.33	7.28
02/01/27	02/28/27	Feb 2027	73.18	61.82	61.37	58.09	68.27	57.63	71.81	63.51	67.51	62.00	7.23	7.23	6.98	6.93	6.97	7.02	7.03	6.53	7.28	7.09	7.04
03/01/27	03/31/27	Mar 2027	59.99	51.56	55.42	51.28	55.61	47.55	61.40	54.57	59.04	54.36	6.37	6.42	6.17	6.25	6.56	6.51	6.49	6.05	6.60	6.40	6.35
04/01/27	04/30/27	Apr 2027	56.35	50.50	56.95	52.20	52.13	46.54	63.48	57.57	60.16	55.33	6.28	6.32	6.09	6.15	6.47	6.39	6.14	5.86	6.48	6.30	6.25
05/01/27	05/31/27	May 2027	50.06	44.66	56.37	52.24	46.12	40.96	57.72	52.62	58.91	54.58	6.34	6.66	6.15	6.15	6.42	6.16	6.08	5.81	6.48	6.29	6.24
06/01/27	06/30/27	Jun 2027	57.44	47.28	60.05	52.47	53.17	43.46	65.17	54.41	61.90	54.38	6.46	6.62	6.22	6.20	6.47	6.19	6.06	5.86	6.53	6.34	6.38
07/01/27	07/31/27	Jul 2027	82.66	55.02	84.12	56.43	77.28	50.86	89.86	59.53	86.59	58.92	6.51	6.74	6.34	6.24	6.50	6.24	6.16	5.88	6.57	6.39	6.46
08/01/27	08/31/27	Aug 2027	87.04	59.33	84.27	58.48	81.51	55.06	90.39	61.36	87.60	60.98	6.55	6.98	6.41	6.31	6.54	6.27	6.20	5.91	6.64	6.46	6.50
09/01/27	09/30/27	Sep 2027	71.79	59.19	64.94	55.00	67.15	55.40	74.46	58.63	69.97	57.63	6.48	6.90	6.38	6.31	6.60	6.47	6.22	5.94	6.64	6.45	6.41
10/01/27	10/31/27	Oct 2027	70.04	58.73	58.15	54.68	66.15	55.06	68.59	60.02	63.97	58.03	6.52	6.95	6.43	6.42	6.76	6.63	6.39	6.10	6.76	6.57	6.52
11/01/27	11/30/27	Nov 2027	81.94	65.32	58.25	56.44	77.99	63.29	73.45	64.88	68.56	62.09	6.80	7.23	6.71	6.77	7.02	6.90	6.91	6.36	7.10	6.91	6.86
12/01/27	12/31/27	Dec 2027	82.00	65.59	59.78	57.89	78.70	62.26	72.79	64.53	69.32	63.81	7.03	7.41	6.95	6.93	7.06	6.99	6.99	6.39	7.27	7.08	7.33
01/01/28	01/31/28	Jan 2028	82.32	65.21	62.25	59.59	77.26	61.14	74.89	65.82	71.15	65.11	7.42	7.60	7.30	7.37	7.43	7.47	7.49	6.94	7.71	7.52	7.47
02/01/28	02/29/28	Feb 2028	73.77	62.31	62.07	58.57	68.78	57.94	72.63	64.31	67.94	62.96	7.35	7.30	7.12	7.10	7.14	7.16	6.66	7.44	7.25	7.20	7.51
03/01/28	03/31/28	Mar 2028	58.87	51.85	55.72	51.80	54.51	47.80	62.38	55.80	59.35	55.11	6.58	6.59	6.39	6.44	6.70	6.69	6.62	6.18	6.78	6.59	6.54
04/01/28	04/30/28	Apr 2028	55.50	50.68	56.54	52.54	51.28	46.68	63.84	58.69	59.80	55.82	6.50	6.46	6.29	6.35	6.65	6.50	6.25	5.98	6.68	6.49	6.45
05/01/28	05/31/28	May 2028	51.57	46.14	57.95	53.61	47.53	42.34	59.96	54.49	60.18	55.89	6.55	6.88	6.34	6.36	6.63	6.34	6.26	6.00	6.69	6.51	6.46
06/01/28	06/30/28	Jun 2028	60.09	49.10	63.86	55.30	55.67	45.17	68.79	56.56	64.91	56.15	6.68	6.99	6.40	6.42	6.67	6.53	6.23	6.04	6.75	6.56	6.52
07/01/28	07/31/28	Jul 2028	85.80	57.20	88.72	59.89	80.25	52.91	94.09	62.29	90.41	61.40	6.73	7.15	6.49	6.43	6.69	6.40	6.32	6.05	6.76	6.58	6.53
08/01/28	08/31/28	Aug 2028	88.67	59.53	86.80	60.10	83.01	55.22	92.80	62.52	89.41	62.17	6.77	7.23	6.63	6.49	6.77	6.43	6.36	6.09	6.82	6.63	6.59
09/01/28	09/30/28	Sep 2028	72.38	59.64	65.84	56.78	67.70	55.76	74.89	60.15	70.28	59.01	6.69	7.13	6.61	6.54	6.82	6.66	6.41	6.14	6.87	6.68	6.64
10/01/28	10/31/28	Oct 2028	72.78	59.72	58.79	55.86	68.60	56.10	70.24	61.72	65.42	59.40	6.73	7.17	6.63	6.66	7.09	6.94	6.69	6.42	7.00	6.81	6.76
11/01/28	11/30/28	Nov 2028	86.50	68.36	61.58	59.73	81.98	65.20	77.31	68.97	72.26	65.60	7.22	7.65	7.17	7.23	7.49	7.35	7.38	6.81	7.57	7.38	7.33
12/01/28	12/31/28	Dec 2028	86.16	68.61	63.58	61.59	82.74	64.89	76.73	68.45	72.83	67.45	7.47	7.89	7.41	7.40	7.54	7.44	7.47	6.86	7.75	7.55	7.50
01/01/29	01/31/29	Jan 2029	83.83	65.39	63.78	61.02	78.77	61.13	76.39	67.00	72.46	66.33	7.61	7.80	7.51	7.52	7.50	7.57	7.54	6.99	7.86	7.67	7.62
02/01/29	02/28/29	Feb 2029	76.89	63.58	65.10	61.69	71.72	59.14	75.90	67.32	70.97	65.55	7.52	7.76	7.31	7.28	7.26	7.32	7.30	6.80	7.62	7.43	7.38
03/01/29	03/31/29	Mar 2029	62.49	54.83	59.29	55.26	57.95	50.63	66.08	58.65	62.94	58.18	6.89	7.04	6.75	6.79	7.12	7.07	7.05	6.51	7.13	6.94	6.89
04/01/29	04/30/29	Apr 2029	59.35	54.06	61.13	56.78	54.94	49.90	67.74	61.84	63.64	59.22	6.80	7.00	6.60	6.65	7.01	6.88	6.58	6.32	6.98	6.79	6.75
05/01/29	05/31/29	May 2029	54.23	48.81	60.70	56.50	50.04	44.85	62.26	57.01	62.10	58.22	6.86	7.20	6.67	6.67	6.95	6.68	6.55	6.31	7.00	6.82	6.77
06/01/29	06/30/29	Jun 2029	58.53	49.78	63.03	56.36	54.15	45.78	67.41	57.89	63.78	56.92	6.98	7.21	6.69	6.65	6.98	6.67	6.51	6.33	6.98	6.79	6.75
07/01/29	07/31/29	Jul 2029	87.78	58.59	89.77	61.79	82.11	54.21	96.19	64.28	92.09	63.23	7.09	7.42	6.83	6.79	7.02	6.75	6.58	6.37	7.12	6.93	6.89
08/01/29	08/31/29	Aug 2029	94.53	61.78	91.05	62.52	88.58	57.33	98.67	65.97	94.47	64.71	7.14	7.53	6.99	6.88	7.09	6.78	6.66	6.40	7.21	7.02	6.97
09/01/29	09/30/29	Sep 2029	77.52	62.09	70.89	59.93	72.50	58.34	81.26	64.43	76.20	62.50	7.07	7.45	6.98	6.87	7.15	7.01	6.71	6.45	7.21	7.02	6.97
10/01/29	10/31/29	Oct 2029	75.41	60.51	62.17	58.61	70.87	57.25	74.47	64.76	69.45	62.07	7.11	7.56	7.03	7.01	7.48	7.35	7.05	6.78	7.35	7.16	7.11
11/01/29	11/30/29	Nov 2029	85.97	65.61	62.02	60.33	81.18	62.31	77.92	69.77	72.78	65.93	7.38	7.75	7.36	7.43	7.74	7.66	7.63	7.09	7.77	7.58	7.53
12/01/29	12/31/29	Dec 2029	88.33	68.98	63.97	62.18	84.75	65.06	78.11	69.57	73.65	68.08	7.64	7.96	7.60	7.62	7.78	7.70	7.68	7.13	7.96	7.76	7.72
01/01/30	01/31/30	Jan 2030	85.97	66.95	65.74	63.11	80.78	62.56	78.65	69.18	74.41	68.41	7.77	8.05	7.70	7.71	7.63	7.64	7.57	7.03	8.06	7.86	7.81
02/01/30	02/28/30	Feb 2030	77.99	64.87	66.19	63.13	72.76	60.27	77.46	69.18	72.40	67.15	7.69	7.93	7.51	7.51	7.48	7.50	7.43	6.98	7.85	7.66	7.61
03/01/30	03/31/30	Mar 2030	63.35	56.82	61.01	57.19	58.74	52.52	68.33	60.78	64.82	60.29	7.13	7.27	6.99	7.04	7.37	7.38	7.31	6.81	7.38	7.19	7.14
04/01/30	04/30/30	Apr 2030	59.90	55.53	61.67	58.18	55.45	51.28	69.43	63.97	65.02	61.24	7.07	7.26	6.88	6.90	7.27	7.19	6.85				

03/01/32	03/31/32	Mar 2032	65.87	59.81	63.08	59.48	61.06	55.35	70.66	62.95	66.91	62.61	7.41	7.55	7.26	7.31	7.65	7.67	7.59	7.07	7.65	7.46	7.41	7.93
04/01/32	04/30/32	Apr 2032	61.95	58.04	63.95	60.73	57.32	53.65	71.68	66.39	67.23	63.49	7.34	7.53	7.14	7.16	7.55	7.47	7.12	6.85	7.49	7.31	7.26	7.42
05/01/32	05/31/32	May 2032	58.71	52.96	63.77	60.93	54.21	48.72	66.84	61.18	66.18	62.78	7.40	7.76	7.21	7.19	7.53	7.24	7.15	6.90	7.52	7.33	7.29	7.45
06/01/32	06/30/32	Jun 2032	64.41	54.60	67.62	60.88	59.66	50.29	73.96	62.89	69.52	62.11	7.56	7.79	7.26	7.23	7.58	7.29	7.13	6.95	7.56	7.37	7.33	7.43
07/01/32	07/31/32	Jul 2032	93.50	62.06	94.37	65.33	87.48	57.41	102.38	68.28	97.79	67.35	7.68	8.03	7.41	7.33	7.65	7.32	7.24	6.98	7.66	7.47	7.42	7.55
08/01/32	08/31/32	Aug 2032	97.46	66.31	93.14	67.26	91.33	61.63	102.03	70.87	97.33	69.78	7.73	8.20	7.56	7.46	7.74	7.40	7.29	7.02	7.80	7.61	7.56	7.59
09/01/32	09/30/32	Sep 2032	81.64	64.37	71.69	63.10	76.21	61.18	83.77	67.95	78.37	66.07	7.65	8.05	7.52	7.42	7.86	7.68	7.33	7.06	7.75	7.56	7.52	7.63
10/01/32	10/31/32	Oct 2032	81.25	65.05	64.85	63.63	76.17	61.86	78.08	70.38	72.73	67.11	7.70	8.18	7.59	7.58	8.09	7.91	7.56	7.28	7.92	7.73	7.68	7.87
11/01/32	11/30/32	Nov 2032	94.74	73.78	67.95	66.38	89.62	70.00	83.80	75.52	78.29	71.57	8.08	8.51	8.04	8.07	8.37	8.25	8.16	7.61	8.41	8.22	8.17	8.49
12/01/32	12/31/32	Dec 2032	96.51	77.31	69.73	67.80	92.26	72.63	84.67	75.42	79.52	73.59	8.35	8.67	8.28	8.32	8.43	8.30	8.22	7.66	8.66	8.47	8.42	8.56
01/01/33	01/31/33	Jan 2033	90.93	72.64	69.48	67.09	85.55	68.27	82.10	72.52	77.62	71.92	8.23	8.53	8.15	8.17	8.08	8.10	8.02	7.45	8.51	8.32	8.27	8.36
02/01/33	02/28/33	Feb 2033	82.82	69.23	69.83	66.79	77.28	64.37	80.97	72.34	75.85	70.63	8.15	8.40	7.95	7.95	7.92	7.95	7.87	7.39	8.30	8.10	8.05	8.21
03/01/33	03/31/33	Mar 2033	66.98	61.44	63.94	60.65	62.09	56.86	71.38	64.25	67.78	63.92	7.56	7.70	7.40	7.46	7.80	7.82	7.74	7.21	7.80	7.61	7.56	8.08
04/01/33	04/30/33	Apr 2033	63.02	59.13	64.57	61.52	58.30	54.62	73.03	67.63	68.39	65.03	7.49	7.69	7.29	7.31	7.70	7.62	7.26	6.98	7.63	7.45	7.40	7.56
05/01/33	05/31/33	May 2033	59.49	53.29	64.28	61.88	54.92	49.00	67.96	62.09	67.63	64.08	7.55	7.92	7.35	7.33	7.68	7.38	7.29	7.03	7.66	7.48	7.43	7.59
06/01/33	06/30/33	Jun 2033	65.75	55.84	68.77	61.99	60.90	51.43	75.46	63.97	71.07	63.40	7.71	7.95	7.40	7.37	7.73	7.43	7.27	7.09	7.71	7.52	7.47	7.57
07/01/33	07/31/33	Jul 2033	93.36	63.83	93.87	66.89	87.28	59.07	102.20	69.92	97.59	69.04	7.83	8.19	7.56	7.47	7.80	7.47	7.39	7.12	7.81	7.62	7.57	7.69
08/01/33	08/31/33	Aug 2033	99.00	66.73	93.92	67.67	92.77	62.04	103.16	70.72	98.36	70.25	7.89	8.36	7.72	7.61	7.89	7.55	7.43	7.16	7.95	7.76	7.71	7.74
09/01/33	09/30/33	Sep 2033	82.18	65.51	72.09	64.22	76.67	62.30	83.77	68.71	78.34	67.19	7.80	8.21	7.67	7.57	8.02	7.83	7.48	7.20	7.90	7.71	7.66	7.78
10/01/33	10/31/33	Oct 2033	83.67	67.05	67.30	65.12	78.89	64.44	78.94	71.24	73.52	68.33	7.85	8.35	7.74	7.73	8.25	8.07	7.71	7.43	8.07	7.88	7.83	8.02
11/01/33	11/30/33	Nov 2033	97.41	77.73	69.42	67.75	93.62	76.33	85.32	76.70	79.70	72.86	8.24	8.68	8.20	8.24	8.54	8.41	8.33	7.76	8.57	8.38	8.33	8.66
12/01/33	12/31/33	Dec 2033	97.51	78.78	70.84	69.11	93.26	74.72	85.46	76.31	80.36	74.70	8.51	8.85	8.45	8.48	8.60	8.47	8.39	7.81	8.82	8.63	8.58	8.73
01/01/34	01/31/34	Jan 2034	93.46	74.92	70.78	68.39	88.15	70.62	82.97	73.68	78.19	72.79	8.38	8.69	8.31	8.32	8.23	8.25	8.17	7.59	8.67	8.47	8.42	8.51
02/01/34	02/28/34	Feb 2034	86.39	71.48	71.07	67.82	80.68	66.57	81.57	73.14	76.23	71.49	8.30	8.56	8.10	8.11	8.08	8.10	8.02	7.54	8.45	8.26	8.21	8.36
03/01/34	03/31/34	Mar 2034	68.92	63.14	64.82	61.58	63.92	58.45	72.33	65.32	68.80	65.08	7.70	7.85	7.54	7.60	7.95	7.97	7.89	7.35	7.94	7.75	7.70	8.23
04/01/34	04/30/34	Apr 2034	64.20	60.54	65.37	62.52	59.40	55.92	74.09	68.83	69.41	66.21	7.63	7.83	7.43	7.44	7.85	7.76	7.40	7.12	7.77	7.59	7.54	7.70
05/01/34	05/31/34	May 2034	61.04	54.34	65.38	62.99	56.36	49.97	69.06	63.15	68.92	65.22	7.69	8.07	7.49	7.47	7.82	7.52	7.43	7.17	7.80	7.62	7.57	7.73
06/01/34	06/30/34	Jun 2034	67.43	57.14	69.78	63.10	62.48	52.64	76.93	65.01	72.46	64.41	7.86	8.10	7.54	7.51	7.86	7.57	7.41	7.22	7.85	7.66	7.61	7.71
07/01/34	07/31/34	Jul 2034	96.93	65.32	96.68	67.99	90.68	60.46	105.35	70.85	100.78	69.96	7.98	8.34	7.70	7.62	7.95	7.61	7.53	7.25	7.95	7.76	7.71	7.83
08/01/34	08/31/34	Aug 2034	101.42	68.55	94.61	68.66	95.08	63.78	104.39	71.61	99.52	71.20	8.04	8.52	7.86	7.76	8.04	7.70	7.57	7.29	8.09	7.90	7.85	7.88
09/01/34	09/30/34	Sep 2034	83.15	67.02	72.18	65.30	77.69	63.81	83.77	69.66	78.37	68.20	7.95	8.36	7.81	7.71	8.17	7.98	7.62	7.34	8.04	7.86	7.81	7.92
10/01/34	10/31/34	Oct 2034	86.60	68.64	67.80	66.15	81.67	65.85	80.27	72.60	74.76	69.65	8.00	8.65	8.19	7.88	8.41	8.22	7.86	7.57	8.22	8.03	7.98	8.17
11/01/34	11/30/34	Nov 2034	98.28	79.02	70.46	68.82	93.59	76.19	85.98	77.85	80.23	73.85	8.39	8.85	8.35	8.39	8.70	8.57	8.49	7.91	8.73	8.54	8.49	8.81
12/01/34	12/31/34	Dec 2034	98.95	81.33	72.25	70.57	94.97	77.76	86.38	77.43	81.14	75.67	8.68	9.01	8.61	8.64	8.76	8.63	8.54	7.96	8.98	8.79	8.74	8.88
01/01/35	01/31/35	Jan 2035	95.48	76.59	71.84	69.64	90.52	72.21	84.14	74.71	79.57	74.20	8.55	8.87	8.47	8.49	8.39	8.42	8.33	7.74	8.83	8.64	8.59	8.68
02/01/35	02/28/35	Feb 2035	91.80	74.39	72.36	69.07	85.87	69.31	83.06	74.30	77.69	72.82	8.47	8.73	8.26	8.27	8.24	8.26	8.18	7.69	8.61	8.42	8.37	8.52
03/01/35	03/31/35	Mar 2035	72.41	65.17	65.94	62.90	67.26	60.36	73.34	66.48	70.03	66.37	7.85	8.01	7.69	7.75	8.11	8.13	8.05	7.49	8.09	7.90	7.85	8.39
04/01/35	04/30/35	Apr 2035	67.41	62.67	67.43	64.07	62.47	58.01	75.84	69.84	71.27	67.45	7.78	7.99	7.57	7.59	8.01	7.92	7.55	7.26	7.92	7.74	7.69	7.84
05/01/35	05/31/35	May 2035	62.86	56.50	66.45	64.29	58.07	51.98	69.40	64.37	70.21	66.60	7.85	8.23	7.64	7.62	7.98	7.67	7.58	7.31	7.95	7.77	7.72	7.88
06/01/35	06/30/35	Jun 2035	66.30	57.65	68.73	64.17	61.36	53.09	74.97	65.49	71.25	65.11	8.01	8.26	7.70	7.66	8.00	7.73	7.56	7.36	8.00	7.81	7.76	7.86
07/01/35	07/31/35	Jul 2035	99.80	66.76	98.83	69.12	93.38	61.80	107.66	71.61	103.04	71.08	8.14	8.51	7.86	7.77	8.11	7.76	7.68	7.40	8.10	7.91	7.87	7.98
08/01/35	08/31/35	Aug 2035	108.40	71.16	100.09	70.19	101.73	66.29	110.27	73.28	105.41	72.88	8.20	8.69	8.02	7.91	8.20	7.85	7.72	7.44	8.25	8.06	8.01	8.03
09/01/35	09/30/35	Sep 2035	87.46	69.68	76.63	67.55	81.66	66.08	89.24	72.26	83.61	70.52	8.11	8.53	7.97	7.86	8.33	8.14	7.77	7.49	8.20	8.01	7.96	8.08
10/01/35	10/31/35	Oct 2035	87.35	69.15	69.04	67.16	82.11	66.40	82.32	73.47	76.70	70.88	8.16	8.68	8.05	8.04	8.57	8.38	8.02	7.72	8.37	8.19	8.14	8.32
11/01/35	11/30/35	Nov 2035	98.73	78.68	71.39	70.06	93.38	74.83	86.66	78.15	80.90	75.01	8.56	9.03	8.52	8.56	8.88	8.74	8.66	8.07	8.89	8.71	8.66	8.98
12/01/35	12/31/35	Dec 2035	100.74	83.26	73.46	71.77	96.82	80.28	87.88	78.55	82.70	77.10	8.85	9.19	8.78	8.62	8.94	8.80	8.72	8.12	9.16	8.97	8.92	9.06
01/01/36	01/31/36	Jan 2036	96.08	78.31	72.82	70.77	92.93	74.78	85.76	76.23	81.66	75.98	8.72	9.04	8.64	8.66	8.56	8.58	8.50	7.90	9.00	8.81	8.76	8.84
02/01/36	02/29/36	Feb 2036	88.47	73.17	72.60	70.08	88.21	71.11	84.81	75.69	79.61	74.49	8.64	8.90	8.43	8.43	8.42	8.34	8.24	7.84	8.78	8.58	8.53	8.69
03/01/36	03/31/36	Mar 2036	72.19	66.72	67.03	64.19	68.94	61.94	74.14	67.80	71.29	67.73	8.01	8.17	7.85	7.91	8.20	8.29	8.21	7.64	8.25	8.06	8.	

04/01/38	04/30/38	Apr 2038	73.07	68.27	70.93	67.49	69.43	63.49	78.84	73.24	75.24	71.55	8.26	8.48	8.04	8.06	8.50	8.40	8.01	7.70	8.39	8.20	8.16	8.31
05/01/38	05/31/38	May 2038	67.25	61.11	69.80	68.26	62.14	56.27	70.94	68.07	73.74	70.76	8.33	8.73	8.11	8.09	8.47	8.14	8.05	7.76	8.42	8.23	8.19	8.35
06/01/38	06/30/38	Jun 2038	73.21	63.04	72.35	68.17	67.91	58.11	80.38	69.66	76.42	69.53	8.51	8.77	8.17	8.13	8.53	8.20	8.02	7.82	8.47	8.28	8.23	8.32
07/01/38	07/31/38	Jul 2038	105.10	73.56	101.12	72.53	99.13	68.45	112.13	74.56	107.31	74.64	8.64	9.03	8.34	8.24	8.60	8.24	8.15	7.85	8.58	8.39	8.34	8.45
08/01/38	08/31/38	Aug 2038	112.97	78.57	101.71	74.42	108.13	74.80	112.88	76.96	108.56	77.24	8.70	9.23	8.51	8.40	8.71	8.33	8.20	7.89	8.73	8.54	8.49	8.50
09/01/38	09/30/38	Sep 2038	88.89	75.98	76.20	70.26	89.91	73.58	91.35	74.67	85.72	73.77	8.60	9.05	8.46	8.35	8.84	8.64	8.25	7.94	8.68	8.49	8.44	8.55
10/01/38	10/31/38	Oct 2038	85.67	76.76	72.68	71.12	90.35	74.74	85.71	77.75	79.82	75.29	8.66	9.21	8.54	8.53	9.10	8.90	8.51	8.19	8.87	8.68	8.63	8.82
11/01/38	11/30/38	Nov 2038	99.12	84.56	76.19	74.43	102.04	87.32	92.68	82.76	86.56	79.68	9.09	9.58	9.04	9.08	9.42	9.28	9.19	8.56	9.42	9.23	9.18	9.51
12/01/38	12/31/38	Dec 2038	103.95	87.33	77.80	76.12	105.04	90.63	92.38	82.90	87.74	81.75	9.39	9.76	9.32	9.36	9.49	9.34	9.25	8.62	9.70	9.51	9.46	9.59
01/01/39	01/31/39	Jan 2039	101.71	84.61	77.28	75.22	101.57	84.26	90.68	81.06	86.46	80.78	9.26	9.60	9.17	9.19	9.09	9.11	9.02	8.38	9.53	9.34	9.29	9.36
02/01/39	02/28/39	Feb 2039	90.95	81.59	76.28	74.23	97.19	81.33	89.51	80.30	84.01	78.97	9.17	9.45	8.94	8.95	8.92	8.94	8.85	8.32	9.29	9.10	9.05	9.20
03/01/39	03/31/39	Mar 2039	79.62	73.07	70.69	68.05	78.23	68.14	78.26	71.76	75.13	71.84	8.50	8.67	8.33	8.39	8.78	8.80	8.71	8.11	8.73	8.54	8.49	9.05
04/01/39	04/30/39	Apr 2039	74.71	69.66	72.06	68.61	70.90	64.82	80.40	74.88	76.49	72.88	8.42	8.65	8.20	8.22	8.67	8.57	8.17	7.86	8.55	8.36	8.32	8.47
05/01/39	05/31/39	May 2039	68.35	61.57	71.19	69.55	63.15	56.66	73.28	69.42	75.32	72.17	8.49	8.91	8.27	8.25	8.64	8.30	8.21	7.91	8.58	8.40	8.35	8.51
06/01/39	06/30/39	Jun 2039	75.79	64.85	74.84	69.63	70.43	59.81	83.41	71.22	78.90	71.04	8.68	8.94	8.33	8.30	8.70	8.36	8.18	7.97	8.63	8.44	8.39	8.48
07/01/39	07/31/39	Jul 2039	111.25	76.37	107.73	74.97	104.85	71.16	118.86	77.46	114.02	77.24	8.81	9.21	8.50	8.41	8.77	8.40	8.31	8.01	8.74	8.55	8.51	8.62
08/01/39	08/31/39	Aug 2039	118.94	80.14	107.94	75.61	113.57	76.53	119.54	78.08	114.95	78.59	8.88	9.41	8.68	8.58	8.88	8.50	8.36	8.05	8.90	8.71	8.66	8.67
09/01/39	09/30/39	Sep 2039	91.33	77.82	77.64	71.79	92.60	75.44	92.91	76.36	87.11	75.37	8.78	9.23	8.63	8.51	9.02	8.81	8.41	8.10	8.85	8.66	8.61	8.72
10/01/39	10/31/39	Oct 2039	89.36	79.21	74.87	73.29	94.42	77.95	87.92	79.65	81.89	77.15	8.83	9.39	8.71	8.70	9.28	9.07	8.68	8.36	9.04	8.85	8.80	8.99
11/01/39	11/30/39	Nov 2039	104.31	87.87	78.21	76.09	108.16	92.07	95.70	85.12	89.40	81.54	9.27	9.77	9.22	9.27	9.61	9.46	9.37	8.73	9.60	9.41	9.36	9.70
12/01/39	12/31/39	Dec 2039	106.55	89.48	79.75	77.74	107.76	93.23	94.80	84.89	89.81	83.50	9.58	9.95	9.50	9.54	9.68	9.53	9.43	8.79	9.88	9.69	9.64	9.77
01/01/40	01/31/40	Jan 2040	96.09	85.89	78.71	76.64	102.75	85.84	91.67	82.24	87.37	81.96	9.44	9.79	9.35	9.37	9.27	9.29	9.20	8.55	9.72	9.52	9.47	9.54
02/01/40	02/29/40	Feb 2040	91.24	82.93	78.08	75.75	97.61	82.44	90.11	81.34	84.77	80.22	9.35	9.64	9.12	9.13	9.09	9.12	9.03	8.49	9.47	9.28	9.23	9.37
03/01/40	03/31/40	Mar 2040	81.23	74.35	71.71	69.35	78.75	69.12	79.34	73.17	76.13	73.21	8.67	8.84	8.49	8.56	8.95	8.97	8.88	8.27	8.90	8.71	8.66	9.23
04/01/40	04/30/40	Apr 2040	76.17	70.83	72.87	69.74	71.95	65.72	81.73	76.60	77.38	74.09	8.59	8.82	8.36	8.38	8.84	8.74	8.33	8.02	8.71	8.53	8.48	8.63
05/01/40	05/31/40	May 2040	69.99	62.83	72.95	71.22	64.67	57.83	74.77	70.79	76.90	73.64	8.66	9.08	8.43	8.42	8.81	8.47	8.37	8.07	8.75	8.56	8.51	8.67
06/01/40	06/30/40	Jun 2040	77.44	66.24	76.93	71.17	72.04	61.09	85.12	72.53	80.55	72.25	8.85	9.12	8.50	8.46	8.87	8.53	8.35	8.13	8.79	8.61	8.56	8.65
07/01/40	07/31/40	Jul 2040	109.95	77.96	107.65	76.18	104.30	72.61	118.51	78.48	113.53	78.14	8.99	9.39	8.67	8.58	8.95	8.57	8.48	8.17	8.91	8.72	8.67	8.78
08/01/40	08/31/40	Aug 2040	113.14	81.06	105.47	77.00	110.69	77.30	116.71	79.19	112.12	79.53	9.05	9.60	8.85	8.73	9.06	8.67	8.53	8.21	9.07	8.88	8.83	8.83
09/01/40	09/30/40	Sep 2040	88.28	79.20	78.15	73.72	91.78	76.95	90.79	77.55	85.32	76.42	8.95	9.42	8.80	8.68	9.20	8.99	8.58	8.27	9.02	8.83	8.78	8.88
10/01/40	10/31/40	Oct 2040	90.52	81.01	75.95	74.37	96.24	79.62	88.85	80.73	82.67	78.30	9.01	9.58	8.89	8.88	9.47	9.26	8.85	8.52	9.21	9.02	8.97	9.16
11/01/40	11/30/40	Nov 2040	101.55	88.19	79.12	77.42	107.13	91.93	95.96	86.88	89.62	82.77	9.45	9.97	9.41	9.45	9.60	9.67	9.56	8.91	9.79	9.60	9.55	9.88
12/01/40	12/31/40	Dec 2040	104.28	90.64	81.16	79.31	109.40	94.82	95.82	86.22	91.11	85.07	9.77	10.15	9.69	9.73	9.87	9.72	9.62	8.96	10.07	9.88	9.83	9.96
01/01/41	01/31/41	Jan 2041	99.50	88.55	80.33	78.11	106.34	88.16	93.47	83.72	89.48	83.47	9.63	9.98	9.54	9.56	9.94	9.38	9.38	8.72	9.90	9.71	9.66	9.73
02/01/41	02/28/41	Feb 2041	95.30	86.13	79.64	77.13	101.98	86.66	91.97	82.97	86.80	81.85	9.54	9.83	9.31	9.31	9.28	9.30	9.21	8.66	9.65	9.46	9.41	9.55
03/01/41	03/31/41	Mar 2041	84.96	77.49	72.95	70.79	83.63	72.27	80.30	74.73	77.32	74.67	8.84	9.02	8.66	8.73	9.13	9.15	9.06	8.44	9.07	8.88	8.83	9.40
04/01/41	04/30/41	Apr 2041	80.82	73.52	74.77	71.69	77.41	68.74	83.01	77.96	78.78	75.36	8.76	9.00	8.53	8.55	9.02	8.92	8.50	8.18	8.88	8.69	8.65	8.80
05/01/41	05/31/41	May 2041	72.35	65.90	74.08	72.57	66.98	60.71	75.21	72.30	78.33	75.19	8.84	9.27	8.60	8.59	8.99	8.64	8.54	8.23	8.92	8.73	8.68	8.84
06/01/41	06/30/41	Jun 2041	77.66	67.48	76.39	72.66	72.22	62.23	83.01	73.67	79.21	73.19	9.03	9.30	8.67	8.63	9.05	8.70	8.51	8.29	8.96	8.78	8.73	8.81
07/01/41	07/31/41	Jul 2041	115.08	80.01	111.77	77.12	109.26	74.48	122.59	79.07	117.92	78.92	9.17	9.58	8.85	8.75	9.13	8.74	8.65	8.33	9.08	8.89	8.85	8.95
08/01/41	08/31/41	Aug 2041	122.25	84.59	112.83	78.56	119.19	81.02	124.23	81.12	119.56	81.17	9.23	9.79	9.03	8.91	9.24	8.84	8.70	8.38	9.24	9.06	9.01	9.00
09/01/41	09/30/41	Sep 2041	96.32	81.99	83.74	75.71	99.44	79.89	99.27	80.30	93.26	79.04	9.13	9.61	8.97	8.86	9.39	9.17	8.75	8.43	9.19	9.00	8.95	9.06
10/01/41	10/31/41	Oct 2041	92.08	82.64	77.40	75.54	97.50	80.79	91.13	82.38	84.87	79.88	9.19	9.77	9.06	9.05	9.66	9.44	9.03	8.69	9.39	9.20	9.15	9.34
11/01/41	11/30/41	Nov 2041	102.03	89.48	80.26	78.80	106.72	92.01	96.71	87.53	90.25	84.13	9.64	10.16	9.60	9.64	10.00	9.85	9.75	9.08	9.97	9.79	9.74	10.08
12/01/41	12/31/41	Dec 2041	108.58	93.28	82.72	80.65	113.76	97.91	97.83	87.47	92.86	86.54	9.97	10.35	9.89	9.93	10.07	9.91	9.82	9.14	10.27	10.08	10.03	10.15
01/01/42	01/31/42	Jan 2042	102.83	91.36	82.17	79.81	109.61	90.93	95.17	85.57	91.19	85.17	9.83	10.19	9.74	9.76	9.65	9.68	9.58	8.90	10.10	9.91	9.86	9.93
02/01/42	02/28/42	Feb 2042	98.27	88.94	81.42	78.85	105.13	90.21	93.92	84.69	88.63	83.54	9.74	10.04	9.50	9.51	9.47	9.50	9.40	8.84	9.85	9.66	9.61	9.75
03/01/42	03/31/42	Mar 2042	87.93	79.69	74.59	72.38	86.70	74.43	82.14	76.39	78.92	76.20	9.03	9.21	8.85	8.91	9.32	9.35	9.25	8.62	9.26	9.06	9.01	9.59
04/01/42	04/30/42	Apr 2042	83.02	75.32	75.70	72.71	79.33	70.45	84.79	80.03	80.11	76.95	8.95	9.18	8.71	8.73</								

05/01/44	05/31/44	May 2044	75.99	69.30	78.85	77.32	70.23	63.82	79.31	76.92	83.18	80.21	9.41	9.86	9.16	9.14	9.56	9.20	9.09	8.76	9.47	9.28	9.24	9.39
06/01/44	06/30/44	Jun 2044	85.03	72.60	82.75	77.41	79.41	66.97	88.56	78.30	85.89	78.42	9.61	9.90	9.22	9.19	9.63	9.26	9.06	8.83	9.52	9.33	9.29	9.36
07/01/44	07/31/44	Jul 2044	123.06	86.14	119.60	82.11	116.63	80.05	130.54	84.00	125.40	84.32	9.75	10.20	9.42	9.31	9.72	9.30	9.20	8.87	9.64	9.46	9.41	9.51
08/01/44	08/31/44	Aug 2044	128.51	90.88	118.09	84.08	124.64	86.74	128.70	86.58	124.42	86.82	9.83	10.42	9.61	9.48	9.83	9.41	9.26	8.92	9.82	9.63	9.58	9.56
09/01/44	09/30/44	Sep 2044	101.85	87.47	89.47	80.20	105.78	85.58	103.73	84.68	97.45	83.70	9.72	10.22	9.55	9.43	9.99	9.76	9.31	8.97	9.76	9.57	9.52	9.62

Quote Date	Data Type:	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	
6/30/2014	Commodity:	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
	POD:	COB N-S	COB N-S	PV	PV	MID-C	MID-C	NP15	NP15	SP15	SP15	HENRYHUB	SOCALBOR	SANJUAN	ROCKOPAL	MALINGAS	STANFLD5	SUMAS5	AECO	GADSBY	CURRCK	LAKESIDE	Z CHEBRN			
		COB		Palo Verde		Mid-Columbia		NP 15		SP 15		Henry Hub Gas	SOCALBOR	SANJUAN	Opal Gas	Malin Gas	Stanfield Gas	SUMAS	AECO	GADSBY	Current Creek	Lakeside	Z CHEBRN			
		Forward Prices		Forward Prices		Forward Prices		Forward Prices		Forward Prices		Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price
Start	End	Peak Type:	HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat
07/01/14	7/31/2014	Jul 2014	51.50	29.50	54.25	34.00	45.50	26.50	56.25	42.50	56.50	42.00	4.40	4.69	4.44	4.34	4.52	4.46	4.39	4.30	4.68	4.48	4.51	4.46	4.35	
08/01/14	08/31/14	Aug 2014	57.25	37.25	54.25	36.50	52.25	34.50	58.50	45.75	58.50	45.50	4.46	4.76	4.44	4.40	4.53	4.49	4.38	4.18	4.73	4.53	4.49	4.49	4.67	
09/01/14	09/30/14	Sep 2014	52.00	37.50	46.25	33.50	48.50	36.25	56.00	44.00	56.75	42.50	4.44	4.70	4.39	4.38	4.52	4.48	4.35	4.17	4.71	4.50	4.46	4.46	4.64	
10/01/14	10/31/14	Oct 2014	47.98	39.01	42.84	34.85	43.70	37.13	52.27	43.61	52.02	43.31	4.43	4.64	4.35	4.38	4.52	4.49	4.46	4.20	4.71	4.50	4.46	4.52	4.75	
11/01/14	11/30/14	Nov 2014	50.50	41.09	41.16	34.50	46.55	38.32	51.23	44.06	50.99	42.44	4.46	4.70	4.42	4.51	4.60	4.57	4.85	4.24	4.85	4.64	4.60	4.60	5.19	
12/01/14	12/31/14	Dec 2014	53.03	44.41	42.00	34.16	52.25	43.06	51.75	45.84	51.50	45.50	4.53	4.77	4.48	4.58	4.67	4.63	5.05	4.30	4.92	4.71	4.66	5.40		
01/01/15	01/31/15	Jan 2015	49.76	40.39	41.41	32.57	47.85	38.79	50.47	43.16	50.96	43.00	4.59	4.82	4.54	4.64	4.73	4.69	4.97	4.36	4.98	4.76	4.72	5.32		
02/01/15	02/28/15	Feb 2015	46.04	37.37	41.00	32.25	43.07	36.61	49.98	41.50	49.49	41.75	4.56	4.79	4.51	4.61	4.70	4.66	4.85	4.33	4.95	4.74	4.69	5.19		
03/01/15	03/31/15	Mar 2015	43.71	35.49	40.59	31.93	39.59	33.35	46.55	39.84	46.55	40.50	4.46	4.70	4.42	4.51	4.60	4.57	4.79	4.24	4.85	4.64	4.60	5.12		
04/01/15	04/30/15	Apr 2015	41.90	28.26	39.96	29.14	33.92	20.77	45.63	35.15	45.74	35.43	4.07	4.19	3.97	3.85	4.00	3.96	3.65	3.56	4.16	3.97	3.93	3.89		
05/01/15	05/31/15	May 2015	37.00	20.40	35.89	24.68	32.00	17.75	40.98	31.28	41.90	30.88	4.04	4.16	3.90	3.74	3.97	3.93	3.55	3.53	4.05	3.86	3.82	3.79		
06/01/15	06/30/15	Jun 2015	34.35	15.51	35.15	24.94	30.08	14.73	40.14	30.96	40.61	31.20	4.07	4.18	3.92	3.94	3.99	3.96	3.54	3.55	4.25	4.06	4.02	3.78		
07/01/15	07/31/15	Jul 2015	49.96	25.92	52.64	34.13	41.13	25.52	52.74	40.94	52.02	40.00	4.10	4.21	3.95	3.89	4.02	3.99	3.82	3.58	4.20	4.00	3.97	4.07		
08/01/15	08/31/15	Aug 2015	50.44	34.56	47.00	30.75	45.50	30.74	51.24	41.74	52.53	41.20	4.10	4.22	3.96	3.90	4.02	3.99	3.82	3.58	4.21	4.01	3.98	4.07		
09/01/15	09/30/15	Sep 2015	45.11	35.52	41.36	27.37	44.63	30.74	45.27	36.57	48.45	38.80	4.08	4.20	3.94	3.82	4.01	3.98	3.83	3.57	4.13	3.93	3.90	4.09		
10/01/15	10/31/15	Oct 2015	43.25	36.00	39.40	30.25	38.87	33.73	46.78	39.60	46.06	39.20	4.10	4.22	3.96	3.88	4.03	3.99	4.11	3.59	4.20	4.00	3.96	4.38		
11/01/15	11/30/15	Nov 2015	46.04	36.75	38.63	29.65	41.41	34.44	46.78	39.20	47.00	39.20	4.16	4.33	4.05	4.11	4.18	4.14	4.54	3.68	4.43	4.23	4.19	4.86		
12/01/15	12/31/15	Dec 2015	50.22	39.75	36.72	30.86	46.48	38.34	48.20	41.20	47.94	41.60	4.30	4.48	4.20	4.26	4.33	4.29	4.71	3.83	4.58	4.38	4.34	5.04		
01/01/16	01/31/16	Jan 2016	50.51	40.39	39.91	32.07	47.85	39.29	49.47	43.66	50.21	43.00	4.43	4.60	4.32	4.38	4.45	4.42	4.62	3.95	4.71	4.50	4.46	4.94		
02/01/16	02/29/16	Feb 2016	46.79	37.37	39.50	31.75	43.07	37.11	48.98	42.00	48.74	41.75	4.41	4.58	4.30	4.36	4.43	4.40	4.61	3.94	4.69	4.48	4.44	4.93		
03/01/16	03/31/16	Mar 2016	44.46	35.49	39.09	31.43	39.59	33.85	45.55	40.34	45.80	40.50	4.35	4.52	4.25	4.30	4.38	4.34	4.55	3.88	4.63	4.42	4.38	4.87		
04/01/16	04/30/16	Apr 2016	42.65	28.26	39.96	28.64	33.92	20.77	45.88	34.90	45.74	35.43	4.10	4.23	3.94	3.77	3.93	3.90	3.78	3.41	4.08	3.88	3.84	4.04		
05/01/16	05/31/16	May 2016	37.75	20.40	35.89	24.18	32.00	17.75	41.23	31.03	41.90	30.88	4.11	4.24	3.95	3.78	3.94	3.91	3.78	3.42	4.09	3.89	3.85	4.03		
06/01/16	06/30/16	Jun 2016	35.10	15.51	35.15	24.44	30.08	14.73	40.39	30.71	40.61	31.20	4.14	4.27	3.98	3.81	3.97	3.94	3.80	3.45	4.12	3.92	3.88	4.05		
07/01/16	07/31/16	Jul 2016	50.71	25.92	53.39	35.13	41.18	27.57	54.24	41.19	52.02	40.00	4.17	4.29	4.00	3.83	4.00	3.96	3.81	3.47	4.15	3.95	3.91	4.07		
08/01/16	08/31/16	Aug 2016	51.19	34.56	47.75	31.75	45.55	32.79	52.74	41.99	52.53	41.20	4.17	4.30	4.01	3.84	4.00	3.97	3.82	3.48	4.15	3.95	3.92	4.07		
09/01/16	09/30/16	Sep 2016	45.86	35.52	42.11	28.37	44.68	32.79	46.77	36.82	48.45	38.80	4.17	4.29	4.00	3.83	4.00	3.96	3.77	3.47	4.14	3.94	3.91	4.02		
10/01/16	10/31/16	Oct 2016	44.00	36.00	39.40	31.25	38.87	34.73	46.78	41.10	46.06	39.20	4.19	4.31	4.02	3.85	4.02	3.98	3.86	3.49	4.17	3.97	3.93	4.12		
11/01/16	11/30/16	Nov 2016	46.79	36.75	38.63	30.65	41.41	35.44	46.78	40.70	47.00	39.20	4.26	4.45	4.18	4.20	4.20	4.17	4.50	3.67	4.53	4.32	4.28	4.82		
12/01/16	12/31/16	Dec 2016	50.97	39.75	36.72	31.86	46.48	39.34	48.20	42.70	47.94	41.60	4.43	4.62	4.35	4.37	4.33	4.66	3.84	4.70	4.49	4.45	4.99			
01/01/17	01/31/17	Jan 2017	53.01	42.24	42.66	34.07	50.35	40.99	50.82	44.91	51.56	44.25	4.57	4.75	4.48	4.51	4.51	4.47	4.80	3.98	4.84	4.64	4.60	5.14		
02/01/17	02/28/17	Feb 2017	49.29	39.22	42.25	33.75	45.57	38.81	50.33	43.25	50.09	43.00	4.55	4.73	4.46	4.50	4.49	4.45	4.78	3.96	4.82	4.62	4.58	5.12		
03/01/17	03/31/17	Mar 2017	46.96	37.34	41.84	33.43	42.09	35.55	46.90	41.59	47.15	41.75	4.49	4.67	4.40	4.44	4.43	4.39	4.73	3.90	4.67	4.56	4.52	5.06		
04/01/17	04/30/17	Apr 2017	45.15	30.11	42.71	30.64	36.42	22.47	47.23	36.15	47.09	36.68	4.24	4.38	4.08	3.91	4.02	3.99	3.95	3.44	4.21	4.02	3.98	4.21		
05/01/17	05/31/17	May 2017	40.25	22.25	38.64	26.18	34.50	19.45	42.58	32.28	43.25	32.13	4.25	4.39	4.09	3.92	4.02	4.03	4.00	3.95	3.45	4.23	4.03	4.00	4.22	
06/01/17	06/30/17	Jun 2017	37.60	17.36	37.90	26.44	32.58	16.43	41.74	31.96	41.96	32.45	4.28	4.42	4.12	3.95	4.06	4.03	3.97	3.48	4.26	4.07	4.03	4.24		
07/01/17	07/31/17	Jul 2017	53.21	27.77	56.14	37.13	43.68	29.27	55.59	42.44	53.37	41.25	4.46	4.61	4.16	3.98	4.10	4.06	3.99	3.52	4.29	4.10	4.06	4.25		
08/01/17	08/31/17	Aug 2017	53.69	36.41	50.50	33.75	48.05	34.49	54.09	43.24	53.88	42.45	4.33	4.47	4.17	4.00	4.11	4.08	4.00	3.53	4.31	4.11	4.08	4.26		
09/01/17	09/30/17	Sep 2017	48.36	37.37	44.86	30.37	47.18	34.49	48.12	38.07	49.80	40.05	4.32	4.47	4.17	3.99	4.11	4.07	4.01	3.53	4.30	4.11	4.07	4.27		
10/01/17	10/31/17	Oct 2017	46.50	37.85	42.15	33.25	41.37	36.43	48.13	42.35	47.41	40.45	4.35	4.49	4.19	4.02	4.14	4.10	4.04	3.56	4.33	4.14	4.10	4.31		
11/01/17	11/30/17	Nov 2017	49.29	38.60	41.38	32.65	43.91	37.14	48.13	41.95	48.35	40.45	4.43	4.66	4.33	4.39	4.41	4.38	4.78	3.86	4.71	4.51	4.47	5.11		
12/01/17	12/31/17	Dec 2017	53.47	41.60	39.47	33.86	48.98	41.04	49.55	43.95	49.29	42.85	4.61	4.84	4.51	4.57	4.59	4.55	4.94	4.04	5.00	4.69	4.65	5.28		
01/01/18	01/31/18	Jan 2018	56.51	44.84	46.16	36.67	53.85	43.59	52.72	46.56	53.46	46.00	4.75	4.98	4.67	4.72	4.73	4.69	5.01	4.18	5.04	4.85	4.80	5.36		
02/01/18	02/28/18	Feb 2018	52.79	41.82																						

10/01/19	10/31/19	Oct 2019	53.25	43.20	48.90	38.15	47.12	41.78	49.93	42.55	51.31	43.95	4.73	4.99	4.57	4.60	4.63	4.59	4.45	4.13	4.92	4.72	4.68	4.74
11/01/19	11/30/19	Nov 2019	56.04	43.95	48.13	37.55	49.66	42.49	49.93	42.15	52.25	43.95	4.82	5.19	4.72	4.83	4.84	4.80	5.12	4.45	5.16	4.96	4.92	5.47
12/01/19	12/31/19	Dec 2019	60.22	46.95	46.22	38.76	54.73	46.39	51.35	44.15	53.19	46.35	5.02	5.38	4.91	5.02	5.03	4.99	5.30	4.64	5.36	5.16	5.11	5.66
01/01/20	01/31/20	Jan 2020	63.26	50.34	52.66	41.72	59.60	49.09	55.37	47.36	58.21	50.00	5.13	5.49	5.04	5.13	5.14	5.10	5.35	4.75	5.47	5.27	5.22	5.72
02/01/20	02/29/20	Feb 2020	59.54	47.32	52.25	41.40	54.82	46.91	54.88	45.70	56.74	48.75	5.10	5.47	5.02	5.11	5.12	5.08	5.32	4.73	5.45	5.25	5.20	5.69
03/01/20	03/31/20	Mar 2020	57.21	45.44	51.84	41.08	51.34	43.65	51.45	44.04	53.80	47.50	5.04	5.40	4.96	5.05	5.06	5.02	5.26	4.67	5.39	5.18	5.13	5.62
04/01/20	04/30/20	Apr 2020	55.40	38.21	52.71	38.29	45.67	30.57	51.78	38.60	53.74	42.43	4.77	5.10	4.61	4.67	4.68	4.64	4.52	4.32	4.99	4.80	4.75	4.84
05/01/20	05/31/20	May 2020	50.50	30.35	48.64	33.83	43.75	27.55	47.13	34.73	49.90	37.88	4.80	5.12	4.64	4.69	4.71	4.67	4.54	4.35	5.02	4.82	4.78	4.86
06/01/20	06/30/20	Jun 2020	47.85	25.46	47.90	34.09	41.83	24.53	46.29	34.41	48.61	38.20	4.83	5.15	4.67	4.72	4.74	4.70	4.56	4.38	5.05	4.85	4.81	4.88
07/01/20	07/31/20	Jul 2020	63.46	35.87	66.14	44.78	52.93	37.37	60.14	44.89	60.02	47.00	4.87	5.19	4.71	4.77	4.78	4.74	4.59	4.42	5.09	4.90	4.85	4.91
08/01/20	08/31/20	Aug 2020	57.59	43.57	56.48	43.79	52.30	40.85	59.36	48.47	59.80	49.61	5.05	5.33	4.81	4.76	4.89	4.78	4.60	4.41	5.09	4.89	4.85	4.92
09/01/20	09/30/20	Sep 2020	53.70	43.71	50.97	41.04	50.75	40.55	54.48	45.44	55.47	47.25	5.04	5.27	4.80	4.78	4.92	4.81	4.62	4.43	5.11	4.91	4.87	4.95
10/01/20	10/31/20	Oct 2020	52.65	43.85	48.10	41.58	47.77	41.39	53.20	47.51	52.82	46.85	5.06	5.25	4.82	4.83	4.98	4.86	4.67	4.49	5.16	4.96	4.91	5.00
11/01/20	11/30/20	Nov 2020	55.01	45.16	48.13	41.60	49.87	42.64	53.62	48.00	53.55	47.46	5.21	5.45	4.98	5.05	5.25	5.20	5.44	4.81	5.39	5.18	5.13	5.81
12/01/20	12/31/20	Dec 2020	58.69	47.34	47.86	43.19	54.01	45.26	54.92	49.30	54.58	49.51	5.40	5.64	5.19	5.26	5.36	5.38	5.70	4.99	5.61	5.40	5.35	6.08
01/01/21	01/31/21	Jan 2021	62.92	51.65	54.11	47.20	59.30	49.18	57.34	50.96	58.79	52.87	5.44	5.67	5.24	5.29	5.31	5.32	5.58	4.98	5.64	5.43	5.38	5.95
02/01/21	02/28/21	Feb 2021	60.16	49.55	53.77	47.12	55.91	47.43	56.46	49.63	57.51	51.90	5.42	5.60	5.18	5.24	5.25	5.27	5.46	4.98	5.69	5.38	5.33	5.84
03/01/21	03/31/21	Mar 2021	55.82	46.42	52.14	45.49	50.91	43.70	53.42	48.12	54.65	50.00	5.23	5.43	5.01	5.06	5.17	5.10	5.28	4.86	5.41	5.20	5.15	5.65
04/01/21	04/30/21	Apr 2021	52.81	41.95	52.54	43.95	46.06	36.34	53.27	45.18	54.52	47.22	5.07	5.27	4.82	4.85	4.99	4.88	4.73	4.60	5.19	4.99	4.94	5.06
05/01/21	05/31/21	May 2021	48.55	36.57	50.78	41.78	43.37	33.45	50.86	42.81	52.59	44.80	5.10	5.26	4.86	4.86	4.99	4.88	4.78	4.59	5.20	5.00	4.95	5.11
06/01/21	06/30/21	Jun 2021	49.92	35.09	52.28	43.05	44.99	32.86	53.04	43.59	54.23	45.92	5.16	5.37	4.92	4.89	5.02	4.91	4.78	4.62	5.23	5.03	4.98	5.12
07/01/21	07/31/21	Jul 2021	61.16	42.84	64.44	49.75	53.82	41.71	63.46	50.26	63.27	51.92	5.21	5.49	4.97	4.93	5.06	4.94	4.81	4.65	5.27	5.06	5.01	5.15
08/01/21	08/31/21	Aug 2021	54.74	45.39	55.71	48.93	50.79	41.85	62.83	53.49	61.82	53.27	5.42	5.71	5.08	4.97	5.19	5.01	4.81	4.72	5.30	5.10	5.05	5.13
09/01/21	09/30/21	Sep 2021	52.30	44.70	50.33	46.81	48.57	41.25	59.03	52.62	57.24	50.94	5.38	5.59	5.07	5.00	5.24	5.06	4.84	4.75	5.33	5.13	5.08	5.16
10/01/21	10/31/21	Oct 2021	52.05	44.50	47.29	45.00	48.42	41.01	56.48	52.47	54.32	49.76	5.40	5.51	5.07	5.06	5.33	5.14	4.89	4.84	5.39	5.19	5.14	5.22
11/01/21	11/30/21	Nov 2021	53.98	46.38	48.13	45.66	50.08	42.80	57.32	53.84	54.86	50.98	5.59	5.72	5.25	5.27	5.66	5.60	5.77	5.16	5.61	5.40	5.35	6.13
12/01/21	12/31/21	Dec 2021	57.16	47.72	49.50	47.62	53.29	44.12	58.50	54.46	55.97	52.67	5.78	5.90	5.47	5.50	5.70	5.76	6.11	5.34	5.85	5.64	5.59	6.48
01/01/22	01/31/22	Jan 2022	62.59	52.95	55.55	52.67	59.01	49.26	59.31	54.56	59.37	55.75	5.75	5.85	5.44	5.45	5.47	5.54	5.80	5.20	5.80	5.59	5.54	6.18
02/01/22	02/28/22	Feb 2022	60.79	51.78	55.29	52.85	57.01	47.95	58.03	53.55	58.27	55.05	5.73	5.74	5.34	5.38	5.38	5.46	5.60	5.23	5.73	5.52	5.46	5.98
03/01/22	03/31/22	Mar 2022	54.44	47.41	52.44	49.90	50.48	43.75	55.40	52.19	55.50	52.51	5.42	5.45	5.06	5.08	5.29	5.19	5.30	5.05	5.43	5.22	5.17	5.67
04/01/22	04/30/22	Apr 2022	50.22	45.68	52.37	49.61	48.45	42.11	54.77	51.75	55.30	52.01	5.36	5.44	5.03	5.04	5.29	5.12	4.93	4.87	5.37	5.17	5.13	5.26
05/01/22	05/31/22	May 2022	46.61	42.79	52.92	49.74	42.99	39.34	54.59	50.88	55.29	51.72	5.40	5.39	5.07	5.03	5.28	5.08	5.02	4.83	5.37	5.17	5.12	5.35
06/01/22	06/30/22	Jun 2022	51.99	44.72	56.66	52.02	48.14	41.19	59.80	52.78	59.84	53.64	5.50	5.58	5.17	5.06	5.50	5.11	5.01	4.86	5.40	5.20	5.15	5.34
07/01/22	07/31/22	Jul 2022	58.87	49.80	62.73	54.72	54.71	46.04	66.78	55.63	66.53	56.83	5.55	5.79	5.22	5.09	5.34	5.14	5.04	4.88	5.43	5.23	5.18	5.37
08/01/22	08/31/22	Aug 2022	63.07	51.18	64.79	55.87	58.73	47.36	69.14	56.62	69.17	58.07	5.59	5.93	5.27	5.13	5.39	5.17	5.02	4.90	5.46	5.26	5.21	5.35
09/01/22	09/30/22	Sep 2022	61.39	51.69	58.79	53.67	57.33	47.91	63.01	55.50	62.85	56.06	5.52	5.77	5.22	5.15	5.46	5.24	5.05	4.93	5.48	5.28	5.24	5.38
10/01/22	10/31/22	Oct 2022	60.33	50.50	55.44	51.48	56.24	46.71	60.11	55.01	59.74	54.60	5.55	5.66	5.21	5.21	5.54	5.31	5.11	5.02	5.54	5.34	5.29	5.44
11/01/22	11/30/22	Nov 2022	63.90	53.81	56.26	52.95	59.80	49.89	61.33	57.02	60.70	56.18	5.88	5.90	5.55	5.58	5.95	5.89	6.04	5.43	5.93	5.72	5.67	6.40
12/01/22	12/31/22	Dec 2022	66.92	56.43	59.22	55.98	64.21	52.74	63.86	58.97	63.53	59.21	6.20	6.37	5.89	5.84	6.07	6.08	6.41	5.69	6.18	5.97	5.92	6.79
01/01/23	01/31/23	Jan 2023	64.40	54.89	57.65	54.33	61.02	51.13	61.35	56.15	61.43	57.45	5.85	6.07	5.58	5.56	5.68	5.61	6.04	5.39	5.91	5.70	5.65	6.42
02/01/23	02/28/23	Feb 2023	62.76	53.54	57.40	54.53	59.06	49.65	60.12	55.43	60.28	56.61	5.88	5.93	5.54	5.56	5.72	5.64	5.80	5.42	5.91	5.70	5.65	6.17
03/01/23	03/31/23	Mar 2023	56.25	49.41	54.47	52.16	52.19	45.64	57.34	54.07	57.36	54.16	5.63	5.57	5.24	5.37	5.62	5.48	5.48	5.29	5.72	5.51	5.46	5.85
04/01/23	04/30/23	Apr 2023	52.68	47.86	54.59	52.21	48.77	44.16	57.37	54.14	57.63	54.09	5.58	5.58	5.22	5.28	5.54	5.34	5.20	5.09	5.61	5.41	5.36	5.53
05/01/23	05/31/23	May 2023	49.00	44.99	55.15	52.16	45.25	41.41	56.86	53.36	57.32	53.75	5.62	5.58	5.28	5.19	5.42	5.26	5.17	4.97	5.63	5.33	5.28	5.50
06/01/23	06/30/23	Jun 2023	53.85	46.41	58.83	53.58	49.88	42.78	61.96	54.58	61.93	55.10	5.72	5.72	5.38	5.22	5.39	5.29	5.15	5.00	5.56	5.36	5.31	5.48
07/01/23	07/31/23	Jul 2023	61.04	51.49	65.23	56.71	56.76	47.63	69.26	57.58	69.00	58.76	5.76	6.00	5.41	5.25	5.41	5.29	5.22	5.01	5.59	5.39	5.34	5.55
08/01/23	08/31/23	Aug 2023	64.93	53.05	67.06	57.92	60.48	49.12	71.39	58.56	71.40	60.04	5.79	6.15	5.44	5.28	5.43	5.32	5.16	5.03	5.61	5.41	5.37	5.48
09/01/23	09/30/23	Sep 2023	62.71	52.87	59.58	54.70	58.69	49.01	64.41	57.53	64.12	57.56	5.75	5.97	5.40	5.32	5.59	5.37	5.23	5.06	5.65	5.45	5.40	5.55
10/01/23	10/31/23	Oct 2023	62.63	52.24	57.25	53.17	58.61	48.35	61.80	56.90	61.27	56.41	5.77	5.87	5.43	5.39	5.67	5.44	5.28	5.14	5.72	5.52	5.48	5.61

12/01/25	12/31/25	Dec 2025	70.53	61.71	63.85	60.27	70.93	58.46	70.35	63.81	68.61	63.58	6.49	6.72	6.20	6.15	6.41	6.46	6.82	6.05	6.50	6.29	6.24	7.19
01/01/26	01/31/26	Jan 2026	70.58	61.77	65.39	61.44	69.59	58.27	70.82	64.00	69.87	64.76	6.61	6.80	6.35	6.30	6.40	6.48	6.84	6.13	6.65	6.44	6.39	7.22
02/01/26	02/28/26	Feb 2026	68.80	61.33	64.80	61.84	67.34	57.61	68.74	62.60	68.21	64.16	6.55	6.63	6.23	6.22	6.29	6.23	6.59	6.09	6.57	6.36	6.31	6.97
03/01/26	03/31/26	Mar 2026	62.00	55.88	60.19	57.80	58.07	51.88	64.28	59.72	63.77	59.82	6.09	6.10	5.79	5.83	6.08	5.93	6.01	5.76	6.18	5.97	5.92	6.39
04/01/26	04/30/26	Apr 2026	58.54	52.84	60.35	57.63	54.57	49.12	63.42	58.95	63.46	59.26	6.03	6.05	5.75	5.76	5.97	5.79	5.68	5.54	6.09	5.89	5.84	6.01
05/01/26	05/31/26	May 2026	53.20	49.75	60.27	57.46	49.43	45.99	62.19	58.62	62.93	58.81	6.07	6.09	5.69	5.69	5.88	5.70	5.64	5.44	6.02	5.82	5.77	5.97
06/01/26	06/30/26	Jun 2026	59.16	51.27	64.62	58.53	55.03	47.46	68.81	60.03	68.21	60.33	6.17	6.15	5.74	5.72	5.91	5.73	5.63	5.48	6.05	5.85	5.80	5.97
07/01/26	07/31/26	Jul 2026	69.34	57.52	73.39	62.57	64.60	53.31	79.50	64.72	77.50	64.99	6.25	6.48	5.86	5.79	6.00	5.79	5.71	5.51	6.13	5.93	5.88	6.04
08/01/26	08/31/26	Aug 2026	72.23	59.28	74.85	64.08	67.45	55.16	81.56	66.71	79.60	66.79	6.29	6.58	5.89	5.82	6.04	5.82	5.66	5.54	6.15	5.96	5.91	5.98
09/01/26	09/30/26	Sep 2026	68.88	57.71	68.02	61.40	65.67	56.02	76.86	65.07	73.59	64.52	6.22	6.59	5.88	5.84	6.11	5.87	5.74	5.57	6.17	5.97	5.92	6.06
10/01/26	10/31/26	Oct 2026	64.88	56.85	63.40	58.95	63.32	53.84	71.74	63.44	68.67	62.40	6.25	6.42	5.97	5.97	6.18	6.08	5.79	5.66	6.30	6.10	6.05	6.12
11/01/26	11/30/26	Nov 2026	68.75	60.62	64.56	60.42	66.74	56.88	72.36	65.36	69.44	63.95	6.39	6.71	6.15	6.13	6.50	6.43	6.40	6.01	6.47	6.27	6.22	6.77
12/01/26	12/31/26	Dec 2026	72.99	64.18	66.26	62.88	73.71	60.83	72.84	66.61	71.27	66.13	6.66	6.95	6.43	6.38	6.69	6.68	7.11	6.28	6.73	6.52	6.47	7.49
01/01/27	01/31/27	Jan 2027	73.15	64.78	68.53	64.73	72.21	61.46	74.49	68.21	73.09	67.98	6.92	7.19	6.63	6.58	6.73	6.78	7.18	6.44	6.93	6.72	6.67	7.56
02/01/27	02/28/27	Feb 2027	71.22	63.80	68.91	65.36	69.15	59.75	72.81	65.68	72.10	67.15	6.89	7.12	6.44	6.41	6.46	6.43	6.82	6.32	6.76	6.55	6.50	7.20
03/01/27	03/31/27	Mar 2027	64.36	57.73	62.24	59.74	60.62	53.57	66.27	61.97	65.68	61.71	6.27	6.27	6.01	5.97	6.25	6.13	6.22	6.02	6.32	6.11	6.06	6.60
04/01/27	04/30/27	Apr 2027	60.60	54.63	61.89	59.00	56.46	50.83	65.83	61.01	65.46	60.99	6.21	6.25	5.94	5.90	6.15	6.07	5.78	5.67	6.23	6.03	5.98	6.11
05/01/27	05/31/27	May 2027	55.27	51.31	62.37	59.32	51.38	47.45	64.43	60.39	65.07	60.85	6.26	6.33	5.92	5.89	6.10	5.88	5.83	5.61	6.23	6.02	5.98	6.16
06/01/27	06/30/27	Jun 2027	61.88	52.98	67.68	61.09	57.55	49.10	71.81	61.85	71.22	62.85	6.38	6.44	6.00	5.93	6.13	5.92	5.82	5.65	6.26	6.06	6.01	6.15
07/01/27	07/31/27	Jul 2027	71.16	58.99	75.12	64.07	66.32	54.68	81.40	66.24	79.22	66.53	6.44	6.58	6.05	5.99	6.18	5.95	5.89	5.67	6.32	6.12	6.07	6.23
08/01/27	08/31/27	Aug 2027	74.61	61.22	77.48	66.23	69.66	56.96	84.25	68.89	82.17	68.81	6.48	6.79	6.10	6.02	6.24	5.88	5.84	5.70	6.35	6.15	6.10	6.16
09/01/27	09/30/27	Sep 2027	70.50	59.59	70.97	63.69	67.15	57.76	78.91	66.89	75.49	66.16	6.41	6.71	6.13	6.06	6.28	6.02	5.92	5.74	6.39	6.19	6.14	6.24
10/01/27	10/31/27	Oct 2027	67.43	59.08	66.72	61.95	65.35	55.87	74.35	65.67	71.25	64.83	6.44	6.69	6.16	6.14	6.40	6.29	5.99	5.84	6.47	6.27	6.23	6.31
11/01/27	11/30/27	Nov 2027	72.14	63.73	67.78	63.21	70.77	59.93	75.93	68.80	72.53	66.68	6.73	6.98	6.53	6.53	6.93	6.82	6.82	6.40	6.87	6.67	6.62	7.18
12/01/27	12/31/27	Dec 2027	76.08	67.28	69.00	65.36	77.61	64.05	76.41	70.06	74.15	68.81	6.99	7.25	6.76	6.78	7.01	6.83	7.51	6.64	7.13	6.92	6.87	7.88
01/01/28	01/31/28	Jan 2028	76.22	67.09	71.65	67.12	75.38	63.67	77.70	70.22	76.02	70.32	7.20	7.48	6.92	6.81	6.90	6.97	7.39	6.63	7.16	6.95	6.89	7.77
02/01/28	02/29/28	Feb 2028	73.60	66.52	71.43	68.03	71.10	62.25	75.63	68.48	74.47	69.60	7.14	7.39	6.70	6.69	6.71	6.62	7.04	6.52	7.04	6.83	6.78	7.41
03/01/28	03/31/28	Mar 2028	66.04	59.22	63.88	61.18	62.25	54.92	68.63	63.72	67.52	63.16	6.44	6.44	6.18	6.16	6.42	6.26	6.35	6.12	6.50	6.30	6.24	6.72
04/01/28	04/30/28	Apr 2028	62.58	56.52	63.56	60.81	68.28	52.46	67.79	62.73	67.24	62.74	6.39	6.40	6.10	6.07	6.31	6.23	5.93	5.84	6.40	6.20	6.15	6.26
05/01/28	05/31/28	May 2028	57.35	52.85	64.65	61.20	53.34	48.85	66.79	62.04	67.26	62.53	6.43	6.51	6.09	6.07	6.24	6.03	5.96	5.79	6.40	6.20	6.15	6.29
06/01/28	06/30/28	Jun 2028	64.69	54.70	70.51	63.01	60.16	50.68	74.88	63.80	73.98	64.66	6.54	6.61	6.15	6.08	6.29	6.07	5.94	5.82	6.41	6.21	6.16	6.28
07/01/28	07/31/28	Jul 2028	73.45	61.48	77.65	66.58	68.47	57.03	83.97	69.03	81.71	69.09	6.60	6.76	6.22	6.13	6.32	6.10	6.00	5.82	6.47	6.27	6.22	6.34
08/01/28	08/31/28	Aug 2028	76.96	62.90	79.85	67.97	71.88	58.50	87.05	70.80	84.59	70.53	6.63	6.97	6.25	6.17	6.41	6.13	5.99	5.86	6.49	6.30	6.25	6.31
09/01/28	09/30/28	Sep 2028	71.81	61.95	72.31	65.80	68.30	59.66	80.30	68.96	76.67	68.06	6.58	6.90	6.27	6.20	6.45	6.18	6.03	5.89	6.53	6.34	6.29	6.35
10/01/28	10/31/28	Oct 2028	70.49	61.62	68.14	63.41	68.13	58.61	76.95	67.77	73.16	66.58	6.61	6.82	6.39	6.33	6.66	6.47	6.11	6.02	6.66	6.46	6.41	6.46
11/01/28	11/30/28	Nov 2028	77.21	68.72	70.81	66.37	76.35	64.92	80.28	72.98	76.17	70.10	7.12	7.41	6.96	7.00	7.41	7.31	7.61	6.91	7.34	7.13	7.08	7.97
12/01/28	12/31/28	Dec 2028	81.32	72.15	73.33	70.29	83.32	69.17	81.06	75.00	78.37	73.47	7.49	7.77	7.29	7.35	7.56	7.61	8.12	7.30	7.69	7.48	7.43	8.50
01/01/29	01/31/29	Jan 2029	79.47	69.83	74.50	70.05	79.09	66.15	80.36	72.83	79.06	73.32	7.48	7.78	7.22	7.15	7.29	7.33	7.64	6.90	7.50	7.49	7.23	8.02
02/01/29	02/28/29	Feb 2029	77.70	70.57	74.41	70.86	75.72	66.63	78.47	70.77	77.58	72.58	7.43	7.67	7.04	6.98	7.13	7.22	7.40	6.94	7.33	7.12	7.07	7.78
03/01/29	03/31/29	Mar 2029	70.35	62.86	67.06	64.49	67.22	58.45	71.38	66.48	70.62	66.32	6.74	6.74	6.50	6.47	6.67	6.59	6.76	6.49	6.82	6.61	6.56	7.14
04/01/29	04/30/29	Apr 2029	65.94	59.66	67.27	64.27	61.54	55.51	70.34	65.44	70.40	65.41	6.68	6.73	6.43	6.40	6.57	6.38	6.25	6.14	6.73	6.53	6.48	6.58
05/01/29	05/31/29	May 2029	59.83	55.31	67.22	63.93	55.81	51.36	69.28	64.80	70.06	65.22	6.72	6.79	6.43	6.40	6.56	6.35	6.31	6.10	6.73	6.53	6.48	6.64
06/01/29	06/30/29	Jun 2029	65.06	56.87	71.75	65.32	60.63	52.92	75.24	66.01	75.16	66.87	6.83	6.90	6.42	6.39	6.60	6.38	6.26	6.13	6.73	6.52	6.48	6.59
07/01/29	07/31/29	Jul 2029	76.90	64.29	81.59	69.57	71.73	59.68	87.45	71.34	85.56	72.12	6.91	7.07	6.51	6.49	6.71	6.46	6.38	6.16	6.82	6.62	6.57	6.71
08/01/29	08/31/29	Aug 2029	81.61	66.68	84.66	71.77	76.27	62.03	91.64	74.17	89.41	74.39	6.97	7.33	6.64	6.55	6.76	6.51	6.37	6.19	6.88	6.68	6.63	6.70
09/01/29	09/30/29	Sep 2029	76.98	66.56	77.41	69.42	72.75	63.49	85.98	73.09	82.71	72.57	6.93	7.34	6.64	6.58	6.82	6.56	6.41	6.23	6.91	6.71	6.67	6.73
10/01/29	10/31/29	Oct 2029	73.35	63.86	72.22	66.43	69.94	60.86	80.86	70.95	77.43	70.01	6.96	7.29	6.73	6.64	6.92	6.65	6.47	6.33	6.97	6.77	6.72	6.80
11/01/29	11/30/29	Nov 2029	77.12	68.62	72.85	68.00	74.73	64.35	81.07	73.75	77.86	71.72	7.25	7.57	7.03	7.04	7.41	7.34	7.53	6.85	7.38	7.17	7.12	7.89
12/01/29	12/31/29	Dec 2029	82.99	73.55	75.21	71.00	84.64	70.36	82.71	75.55	80.46	74.44	7.61	7.87	7.35	7.37	7.61	7.65	8.13	7.23	7.72	7.51	7.46	8.51

02/01/32	02/29/32	Feb 2032	84.39	78.67	82.54	79.24	82.26	74.31	85.48	78.37	85.74	80.48	8.24	8.49	7.84	7.82	7.85	7.93	8.20	7.68	8.17	7.96	7.90	8.58
03/01/32	03/31/32	Mar 2032	75.17	67.97	72.55	70.29	73.65	64.04	76.38	71.47	75.99	71.47	7.20	7.18	6.95	6.96	7.20	7.06	7.35	7.00	7.31	7.10	7.05	7.73
04/01/32	04/30/32	Apr 2032	69.68	64.13	72.06	70.08	66.18	60.06	75.04	70.08	75.59	70.68	7.15	7.16	6.90	6.85	7.02	6.93	6.60	6.51	7.18	6.98	6.93	6.93
05/01/32	05/31/32	May 2032	64.23	59.93	72.94	69.69	59.80	55.65	74.12	69.65	75.41	70.36	7.18	7.23	6.79	6.78	6.92	6.68	6.61	6.43	7.11	6.91	6.86	6.94
06/01/32	06/30/32	Jun 2032	71.56	61.73	79.66	71.41	66.59	57.37	82.54	71.10	83.09	72.74	7.32	7.36	6.87	6.82	7.00	6.72	6.58	6.46	7.15	6.95	6.90	6.91
07/01/32	07/31/32	Jul 2032	83.77	70.43	90.02	76.54	78.21	65.46	95.09	77.29	93.92	78.98	7.40	7.73	6.99	6.91	7.00	6.76	6.69	6.50	7.24	7.04	6.99	7.03
08/01/32	08/31/32	Aug 2032	86.69	72.82	91.33	78.31	81.01	67.84	97.63	79.84	96.14	81.07	7.45	7.81	7.02	6.97	7.19	6.85	6.69	6.54	7.30	7.10	7.05	7.01
09/01/32	09/30/32	Sep 2032	81.84	71.33	82.59	74.77	78.98	67.88	91.37	77.25	88.15	77.59	7.41	7.81	7.06	7.02	7.24	6.90	6.73	6.58	7.35	7.15	7.10	7.05
10/01/32	10/31/32	Oct 2032	78.48	70.31	77.42	72.53	74.30	66.38	85.58	76.27	83.00	75.84	7.45	7.79	7.22	7.15	7.35	7.20	6.84	6.72	7.48	7.28	7.24	7.17
11/01/32	11/30/32	Nov 2032	86.00	78.18	80.61	75.63	83.95	74.28	89.34	81.27	86.11	79.38	7.95	8.36	7.77	7.81	8.30	8.18	8.45	7.74	8.15	7.95	7.90	8.82
12/01/32	12/31/32	Dec 2032	91.36	81.77	82.64	79.20	94.27	79.43	90.25	83.42	88.51	82.69	8.41	8.66	8.19	8.23	8.53	8.55	9.15	8.18	8.58	8.37	8.32	9.53
01/01/33	01/31/33	Jan 2033	91.50	82.24	85.28	80.66	92.51	79.18	90.57	82.38	90.02	83.66	8.48	8.80	8.27	8.21	8.36	8.44	9.17	8.08	8.56	8.35	8.29	9.55
02/01/33	02/28/33	Feb 2033	86.58	80.69	84.51	81.19	84.04	76.25	86.82	79.63	87.42	82.24	8.41	8.66	7.99	7.97	8.01	8.09	8.36	7.83	8.32	8.11	8.06	8.74
03/01/33	03/31/33	Mar 2033	76.89	70.00	74.14	72.03	75.59	66.23	77.53	73.15	77.32	72.80	7.34	7.33	7.09	7.10	7.35	7.20	7.50	7.14	7.45	7.24	7.19	7.87
04/01/33	04/30/33	Apr 2033	71.20	65.72	73.63	71.08	67.86	61.70	76.16	71.71	76.99	72.00	7.29	7.31	7.04	6.99	7.16	7.07	6.73	6.64	7.32	7.12	7.07	7.06
05/01/33	05/31/33	May 2033	66.10	61.68	74.60	70.86	61.41	57.33	75.75	71.34	77.02	71.74	7.32	7.38	6.92	6.91	7.10	6.82	6.74	6.55	7.25	7.04	7.00	7.07
06/01/33	06/30/33	Jun 2033	73.51	63.48	82.46	73.29	68.40	59.02	84.71	72.72	85.52	74.36	7.46	7.51	7.00	6.95	7.14	6.86	6.71	6.59	7.29	7.09	7.04	7.04
07/01/33	07/31/33	Jul 2033	85.71	72.85	92.37	79.13	80.01	67.74	96.97	79.39	96.14	81.44	7.55	7.88	7.13	7.05	7.22	6.90	6.83	6.63	7.38	7.18	7.13	7.16
08/01/33	08/31/33	Aug 2033	88.81	74.42	93.87	79.91	83.01	69.37	99.74	80.53	98.47	82.63	7.60	7.97	7.16	7.11	7.34	6.98	6.82	6.67	7.44	7.24	7.19	7.15
09/01/33	09/30/33	Sep 2033	83.66	73.19	85.45	77.39	78.57	69.66	92.53	78.74	90.23	79.48	7.56	7.96	7.20	7.16	7.39	7.04	6.86	6.71	7.49	7.29	7.24	7.19
10/01/33	10/31/33	Oct 2033	80.55	72.60	80.18	75.63	76.21	68.63	86.89	77.81	85.00	77.75	7.60	7.94	7.37	7.29	7.50	7.34	6.98	6.85	7.63	7.43	7.38	7.31
11/01/33	11/30/33	Nov 2033	88.55	81.27	82.97	78.22	86.31	77.41	91.07	83.02	88.17	81.60	8.11	8.53	7.92	7.97	8.47	8.34	8.62	7.90	8.31	8.10	8.05	8.99
12/01/33	12/31/33	Dec 2033	93.85	84.29	84.76	81.04	96.37	81.91	91.76	84.91	90.26	84.42	8.58	8.84	8.35	8.39	8.70	8.72	9.33	8.34	8.74	8.53	8.48	9.71
01/01/34	01/31/34	Jan 2034	93.17	84.58	87.01	82.50	94.56	81.38	92.88	84.51	91.99	85.45	8.65	8.98	8.44	8.37	8.53	8.61	9.36	8.25	8.72	8.51	8.46	9.73
02/01/34	02/28/34	Feb 2034	88.31	82.37	86.30	83.05	85.34	77.81	89.19	81.59	83.87	83.87	8.58	8.83	8.15	8.13	8.17	8.25	8.83	7.99	8.48	8.27	8.22	8.91
03/01/34	03/31/34	Mar 2034	78.34	71.69	76.20	73.06	76.97	68.01	79.70	74.90	79.29	74.00	7.49	7.47	7.23	7.24	7.49	7.35	7.65	7.29	7.59	7.38	7.33	8.02
04/01/34	04/30/34	Apr 2034	72.94	67.31	75.45	72.73	69.80	63.31	78.36	73.59	78.68	73.46	7.44	7.45	7.18	7.12	7.30	7.21	6.87	6.77	7.46	7.26	7.21	7.20
05/01/34	05/31/34	May 2034	67.91	63.00	76.82	72.80	63.20	58.46	77.91	72.97	79.01	73.20	7.47	7.52	7.06	7.05	7.24	6.95	6.88	6.69	7.38	7.18	7.14	7.21
06/01/34	06/30/34	Jun 2034	75.78	65.12	85.15	75.54	70.51	60.58	87.38	74.73	88.04	76.25	7.61	7.66	7.14	7.09	7.28	6.99	6.85	6.73	7.43	7.22	7.18	7.18
07/01/34	07/31/34	Jul 2034	87.89	74.74	95.05	81.22	82.06	69.50	99.39	81.56	98.50	83.31	7.70	8.04	7.27	7.19	7.36	7.03	6.96	6.76	7.52	7.32	7.27	7.30
08/01/34	08/31/34	Aug 2034	90.80	76.53	96.22	82.28	84.86	71.35	102.07	82.90	100.62	84.74	7.76	8.13	7.30	7.25	7.48	7.12	6.96	6.80	7.58	7.38	7.34	7.28
09/01/34	09/30/34	Sep 2034	84.92	74.79	86.99	79.47	79.78	71.06	94.27	80.65	91.51	81.10	7.71	8.12	7.35	7.30	7.53	7.18	7.00	6.84	7.63	7.43	7.38	7.32
10/01/34	10/31/34	Oct 2034	82.77	74.72	81.76	77.14	78.34	70.64	89.41	79.85	86.79	79.49	7.75	8.10	7.51	7.44	7.65	7.29	7.12	6.99	7.77	7.57	7.52	7.45
11/01/34	11/30/34	Nov 2034	90.51	83.76	84.48	79.44	88.08	79.89	93.52	85.05	90.01	83.32	8.27	8.70	8.08	8.13	8.64	8.51	8.80	8.05	8.47	8.26	8.21	9.16
12/01/34	12/31/34	Dec 2034	95.32	86.87	86.68	83.28	98.02	84.62	94.08	87.36	92.20	86.47	8.75	9.01	8.52	8.56	8.87	8.90	9.52	8.51	8.91	8.70	8.65	9.90
01/01/35	01/31/35	Jan 2035	94.94	86.63	88.93	85.24	96.84	83.76	94.46	86.30	94.13	88.20	8.82	9.16	8.61	8.54	8.70	8.78	9.54	8.41	8.89	8.68	8.62	9.92
02/01/35	02/28/35	Feb 2035	90.20	82.07	88.80	85.42	88.83	80.13	91.53	83.35	91.90	86.22	8.75	9.01	8.32	8.30	8.33	8.41	8.70	8.15	8.64	8.44	8.38	9.08
03/01/35	03/31/35	Mar 2035	79.33	73.59	78.41	75.91	79.65	71.54	80.97	76.90	80.92	76.50	7.64	7.62	7.38	7.39	7.64	7.49	7.80	7.43	7.74	7.53	7.48	8.18
04/01/35	04/30/35	Apr 2035	74.12	69.16	78.28	75.25	72.53	65.71	79.89	75.22	81.03	75.19	7.58	7.60	7.32	7.27	7.45	7.35	7.01	6.91	7.60	7.40	7.35	7.34
05/01/35	05/31/35	May 2035	69.35	64.77	78.70	75.19	64.73	60.31	79.33	74.87	81.07	78.42	7.62	7.67	7.20	7.19	7.39	7.09	7.01	6.82	7.53	7.32	7.28	7.35
06/01/35	06/30/35	Jun 2035	74.79	66.03	85.45	76.96	69.59	61.57	86.15	75.83	87.85	77.35	7.76	7.81	7.29	7.23	7.43	7.13	6.98	6.86	7.57	7.37	7.32	7.31
07/01/35	07/31/35	Jul 2035	89.58	76.80	98.00	83.79	83.64	71.45	101.05	83.24	101.21	85.69	7.85	8.20	7.41	7.33	7.53	7.17	7.10	6.90	7.67	7.46	7.42	7.44
08/01/35	08/31/35	Aug 2035	93.83	78.99	99.77	84.98	87.72	73.67	105.22	85.19	103.91	87.40	7.91	8.29	7.45	7.40	7.63	7.27	7.10	6.94	7.73	7.53	7.48	7.42
09/01/35	09/30/35	Sep 2035	88.64	76.74	91.11	82.09	83.14	73.15	98.87	83.72	96.37	84.31	7.86	8.28	7.49	7.45	7.69	7.32	7.14	6.98	7.77	7.58	7.53	7.46
10/01/35	10/31/35	Oct 2035	82.48	74.67	84.32	79.34	79.56	72.06	92.06	81.42	89.85	81.52	7.91	8.26	7.66	7.59	7.80	7.64	7.26	7.13	7.92	7.72	7.67	7.59
11/01/35	11/30/35	Nov 2035	91.53	84.31	87.05	82.03	88.43	80.05	94.91	86.94	92.48	85.70	8.43	8.87	8.24	8.29	8.81	8.68	8.97	8.21	8.83	8.43	8.38	9.34
12/01/35	12/31/35	Dec 2035	97.04	89.26	89.43	84.77	99.72	87.30	96.59	89.09	95.25	88.46	8.92	9.19	8.69	8.73	9.05	9.08	9.71	8.68	9.08	8.87	8.82	10.09
01/01/36	01/31/36	Jan 2036	98.83	89.44	91.66	87.75	99.69	86.49	96.42	88.58	96.56	90.47	9.01	9.35	8.79	8.72	8.88	8.97	9.74	8.59	9.07	8.86	8.80	10.12
02/01/36	02/29/36	Feb 2036	92.77	84.45	91.41	87.70	91.20	82.23	93.04	85.60	93.95	88.16	8.93	9.20	8.49	8.47	8.50	8.59	8.89	8.32	8.82	8.61	8.56	9

04/01/38	04/30/38	Apr 2038	79.08	75.37	84.08	81.64	76.86	70.85	85.00	81.15	86.28	80.22	8.07	8.09	7.79	7.73	7.93	7.83	7.46	7.35	8.07	7.87	7.82	7.79
05/01/38	05/31/38	May 2038	75.07	70.14	85.20	81.56	70.14	65.64	84.92	80.88	86.38	80.28	8.11	8.17	7.67	7.65	7.86	7.55	7.47	7.26	7.99	7.79	7.74	7.80
06/01/38	06/30/38	Jun 2038	81.60	72.09	95.31	84.56	75.91	67.20	93.52	82.26	96.09	83.78	8.26	8.31	7.75	7.70	7.91	7.59	7.43	7.30	8.03	7.83	7.78	7.76
07/01/38	07/31/38	Jul 2038	96.02	82.95	106.19	91.04	89.67	77.34	107.95	88.88	108.43	91.28	8.36	8.37	7.89	7.80	7.99	7.64	7.56	7.34	8.14	7.94	7.89	7.89
08/01/38	08/31/38	Aug 2038	99.62	85.56	107.49	92.96	93.15	79.99	111.19	91.41	110.74	93.54	8.42	8.43	7.93	7.87	8.12	7.73	7.55	7.38	8.20	8.00	7.96	7.88
09/01/38	09/30/38	Sep 2038	93.88	82.41	96.91	88.49	88.13	78.18	103.26	88.73	101.04	88.74	8.37	8.42	7.98	7.92	8.18	7.79	7.60	7.43	8.25	8.06	8.01	7.92
10/01/38	10/31/38	Oct 2038	87.60	81.21	91.28	86.07	85.55	78.05	95.38	87.49	94.08	86.42	8.42	8.42	8.16	8.08	8.30	8.13	7.73	7.59	8.41	8.21	8.16	8.06
11/01/38	11/30/38	Nov 2038	98.18	93.04	93.53	89.83	95.19	89.06	100.17	93.32	98.16	91.06	8.98	8.98	8.45	8.77	8.82	8.38	8.24	8.24	9.55	8.74	9.16	8.96
12/01/38	12/31/38	Dec 2038	104.70	97.66	95.76	92.47	106.87	96.07	101.74	95.59	100.56	94.69	9.50	9.79	9.25	9.30	9.63	9.66	10.34	9.24	9.64	9.43	9.38	10.71
01/01/39	01/31/39	Jan 2039	104.56	96.98	98.96	95.54	104.77	94.27	102.28	95.43	101.85	95.32	9.59	9.59	9.35	9.28	9.46	9.55	10.37	9.14	9.63	9.43	9.36	10.75
02/01/39	02/28/39	Feb 2039	97.67	91.21	98.21	94.68	94.57	87.63	98.57	92.32	98.71	92.94	9.51	9.79	9.04	9.01	9.05	9.14	9.46	8.85	9.36	9.15	9.10	9.83
03/01/39	03/31/39	Mar 2039	87.27	81.80	86.51	83.55	87.46	80.13	88.56	84.97	87.80	81.67	8.30	8.29	8.02	8.03	8.30	8.14	8.48	8.08	8.38	8.17	8.12	8.85
04/01/39	04/30/39	Apr 2039	81.14	77.51	85.77	83.36	77.98	72.77	87.27	83.42	87.32	81.20	8.24	8.26	7.95	7.90	8.10	7.99	7.61	7.51	8.23	8.03	7.98	7.94
05/01/39	05/31/39	May 2039	77.43	72.18	86.89	83.51	72.16	67.56	87.28	83.19	87.77	81.64	8.28	8.34	7.83	7.81	8.03	7.71	7.62	7.41	8.15	7.95	7.90	7.95
06/01/39	06/30/39	Jun 2039	83.77	74.18	98.61	86.97	77.93	69.14	96.33	84.43	98.49	85.30	8.44	8.49	7.92	7.86	8.07	7.75	7.59	7.45	8.19	7.99	7.94	7.92
07/01/39	07/31/39	Jul 2039	98.09	85.74	108.91	94.02	91.60	79.99	110.48	91.85	110.39	93.37	8.53	8.91	8.06	7.97	8.16	7.80	7.72	7.50	8.30	8.10	8.05	8.05
08/01/39	08/31/39	Aug 2039	102.01	87.39	110.02	94.66	95.38	81.68	114.07	93.22	113.05	94.55	8.60	9.01	8.09	8.04	8.29	7.90	7.71	7.54	8.37	8.17	8.12	8.04
09/01/39	09/30/39	Sep 2039	95.48	84.42	100.27	91.45	89.55	79.78	105.43	90.90	102.52	90.09	8.54	9.00	8.14	8.09	8.35	7.95	7.76	7.59	8.42	8.22	8.17	8.08
10/01/39	10/31/39	Oct 2039	90.48	83.63	94.50	89.10	87.53	80.00	98.22	90.13	96.00	88.08	8.59	8.98	8.33	8.25	8.48	8.30	7.89	7.75	8.58	8.38	8.33	8.22
11/01/39	11/30/39	Nov 2039	101.38	95.95	96.47	92.82	97.32	91.70	103.11	95.99	99.83	92.46	9.16	9.64	8.96	9.01	9.58	9.43	9.75	8.93	9.35	9.14	9.09	10.11
12/01/39	12/31/39	Dec 2039	107.48	100.38	98.23	95.31	108.56	99.00	104.03	98.03	102.13	95.93	9.70	9.99	9.44	9.49	9.83	9.86	10.55	9.43	9.94	9.63	9.58	10.93
01/01/40	01/31/40	Jan 2040	108.99	100.05	102.03	98.53	108.48	97.36	104.59	98.02	104.32	97.42	9.79	10.16	9.55	9.47	9.66	9.75	10.59	9.33	9.82	9.61	9.56	10.97
02/01/40	02/29/40	Feb 2040	100.59	93.78	100.71	97.35	97.18	89.91	100.07	94.63	100.48	94.96	9.71	10.00	9.23	9.20	9.24	9.34	9.66	9.04	9.55	9.34	9.29	10.03
03/01/40	03/31/40	Mar 2040	89.17	84.04	88.66	85.87	89.31	82.25	90.71	87.54	89.33	83.60	8.48	8.46	8.18	8.20	8.48	8.31	8.66	8.24	8.55	8.34	8.28	9.03
04/01/40	04/30/40	Apr 2040	83.39	79.97	87.67	85.43	80.04	75.08	89.44	85.75	89.34	83.02	8.42	8.43	8.12	8.06	8.27	8.16	7.77	7.67	8.40	8.20	8.15	8.10
05/01/40	05/31/40	May 2040	79.78	74.32	90.05	85.84	74.37	69.52	89.74	85.32	90.27	83.38	8.45	8.51	7.99	7.98	8.20	7.87	7.78	7.57	8.31	8.11	8.06	8.11
06/01/40	06/30/40	Jun 2040	86.58	76.54	102.43	89.55	80.57	71.34	99.27	86.77	101.60	87.31	8.61	8.67	8.08	8.02	8.24	7.91	7.75	7.61	8.36	8.16	8.11	8.08
07/01/40	07/31/40	Jul 2040	101.16	88.66	112.65	96.53	94.49	82.73	113.70	94.32	113.45	95.60	8.71	9.10	8.23	8.13	8.33	7.96	7.88	7.65	8.47	8.27	8.22	8.20
08/01/40	08/31/40	Aug 2040	104.73	89.66	112.91	97.52	97.93	83.78	116.73	95.48	115.42	96.98	8.78	9.20	8.26	8.21	8.47	8.06	7.87	7.70	8.54	8.34	8.29	8.20
09/01/40	09/30/40	Sep 2040	97.08	86.40	102.54	93.95	90.96	81.71	106.27	93.09	103.67	91.96	8.72	9.19	8.31	8.26	8.53	8.12	7.92	7.75	8.59	8.39	8.34	8.25
10/01/40	10/31/40	Oct 2040	94.30	86.22	96.94	90.64	90.88	82.35	100.25	92.10	98.42	89.55	8.77	9.17	8.50	8.42	8.66	8.48	8.06	7.91	8.75	8.55	8.50	8.39
11/01/40	11/30/40	Nov 2040	104.49	98.60	98.91	95.20	100.39	94.42	104.64	98.25	101.51	94.33	9.36	9.85	9.15	9.20	9.78	9.63	9.95	9.11	9.54	9.33	9.28	10.32
12/01/40	12/31/40	Dec 2040	111.29	103.41	101.53	98.08	111.58	102.08	106.53	100.60	104.38	98.00	9.90	10.20	9.64	9.69	10.04	10.07	10.77	9.63	10.04	9.83	9.78	11.15
01/01/41	01/31/41	Jan 2041	112.23	103.03	104.55	101.16	110.95	99.91	107.22	100.64	106.60	99.88	10.00	10.37	9.75	9.67	9.86	9.95	10.81	9.53	10.02	9.81	9.76	11.19
02/01/41	02/28/41	Feb 2041	104.10	97.10	103.07	99.93	100.42	92.46	103.39	97.02	102.86	97.48	9.91	10.21	9.42	9.40	9.44	9.65	9.86	9.23	9.75	9.54	9.48	10.24
03/01/41	03/31/41	Mar 2041	92.40	86.71	90.45	88.79	92.07	85.09	93.22	89.71	91.73	85.90	8.66	8.64	8.36	8.37	8.66	8.49	8.84	8.42	8.72	8.51	8.46	9.21
04/01/41	04/30/41	Apr 2041	85.80	82.45	90.82	88.25	82.55	77.40	91.83	88.03	91.25	85.08	8.59	8.61	8.29	8.23	8.44	8.33	7.94	7.83	8.57	8.36	8.32	8.27
05/01/41	05/31/41	May 2041	81.75	76.31	92.52	88.42	76.44	71.66	91.61	87.52	92.23	85.50	8.63	8.69	8.16	8.15	8.37	8.04	7.95	7.72	8.48	8.28	8.23	8.28
06/01/41	06/30/41	Jun 2041	86.03	78.36	102.48	91.70	80.02	73.26	98.71	88.86	100.52	88.88	8.79	8.85	8.25	8.19	8.42	8.08	7.91	7.77	8.53	8.33	8.28	8.24
07/01/41	07/31/41	Jul 2041	103.11	90.17	116.01	98.21	96.31	84.09	115.89	95.63	115.44	96.82	8.90	9.29	8.40	8.30	8.51	8.13	8.05	7.82	8.64	8.44	8.39	8.38
08/01/41	08/31/41	Aug 2041	107.96	92.25	116.65	100.16	100.95	86.20	120.22	98.08	118.27	99.15	8.96	9.39	8.44	8.38	8.64	8.23	8.04	7.86	8.71	8.51	8.46	8.36
09/01/41	09/30/41	Sep 2041	102.01	89.61	107.21	96.93	95.40	84.22	112.09	96.69	109.11	95.34	8.91	9.38	8.49	8.43	8.71	8.29	8.09	7.91	8.76	8.56	8.52	8.41
10/01/41	10/31/41	Oct 2041	96.38	88.23	99.82	93.44	91.82	83.74	103.74	94.75	101.59	92.01	8.96	9.36	8.68	8.60	8.84	8.66	8.23	8.08	8.93	8.73	8.68	8.56
11/01/41	11/30/41	Nov 2041	105.75	100.60	102.67	97.88	101.06	95.73	106.37	100.63	103.64	96.60	9.55	10.05	9.34	9.39	9.98	9.83	10.16	9.31	9.73	9.53	9.48	10.53
12/01/41	12/31/41	Dec 2041	114.85	106.43	104.31	100.99	114.26	105.17	109.49	103.27	107.28	100.31	10.11	10.42	9.84	9.89	10.25	10.28	11.00	9.83	10.24	10.03	9.98	11.38
01/01/42	01/31/42	Jan 2042	115.33	106.27	107.73	104.21	113.74	103.12	110.11	103.23	109.36	102.50	10.21	10.59	9.95	9.87	10.06	10.16	11.04	9.73	10.22	10.01	9.96	11.42
02/01/42	02/28/42	Feb 2042	107.63	99.88	106.72	102.52	103.49	94.88	106.44	99.56	106.02	100.15	10.12	10.42	9.62	9.59	9.63	9.73	10.07	9.42	9.94	9.73	9.68	10.44
03/01/42	03/31/42	Mar 2042	94.56	89.06	93.19	90.93	94.06	87.29	95.77	92.29	94.17	88.17	8.84	8.82	8.53	8.55	8.84	8.67	9.02	8.59	8.89	8.68	8.63	9.40
04/01/42	04/30/42	Apr 2042	88.01	84.83	92.7																			

Quote Date	Data Type: Commodity:	POD:	COBHLH	COBLLH	Palo Verd	Palo Verd	Mid-Colum	Mid-Colum	NP 15HLH	NP 15LLH	SP 15HLH	SP 15LLH	Henry Hub Gas	SOCALBOR	SANJUAN	Opal Gas	Malin Gas	Stanfield Gas	SUMAS	AECO	GADSBY	Current Creek	Lakeside	Z CHEBRN*
			FPC ELEC	FPC ELEC	FPC ELEC	FPC ELEC	FPC ELEC	FPC ELEC	FPC ELEC	FPC ELEC	FPC ELEC	FPC ELEC	FPC ELEC	FPC ELEC	FPC ELEC	FPC ELEC	FPC ELEC	FPC ELEC	FPC ELEC	FPC ELEC	FPC ELEC	FPC ELEC	FPC ELEC	FPC ELEC
0314 Official Forward Price Curve: Blend of... Final March 2014 Aurora forecast 03/31/2014 forward market curve			COB N-S	COB N-S	PV	PV	MID-C	MID-C	NP15	NP15	SP15	SP15	HENRYHUB	SOCALBOR	SANJUAN	ROCKOPAL	MALINGAS	STANFLD5	SUMASS	AECO	GADSBY	CURRRCR	LAKESIDE	Z CHEBRN
Start	End	Peak Type:	COB		Palo Verde		Mid-Columbia		NP 15		SP 15		Henry Hub Gas	SOCALBOR	SANJUAN	Opal Gas	Malin Gas	Stanfield Gas	SUMAS	AECO	GADSBY	Current Creek	Lakeside	Z CHEBRN*
			HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price
04/01/14	04/30/14	Apr 2014	33.50	18.75	40.00	30.25	29.25	16.50	47.50	36.75	48.00	37.25	4.58	4.52	4.29	4.26	4.51	4.45	4.38	4.14	4.67	4.45	4.48	4.56
05/01/14	05/31/14	May 2014	29.25	8.25	40.50	28.50	24.25	5.75	45.75	33.75	47.00	34.50	4.37	4.52	4.26	4.30	4.42	4.38	4.15	4.16	4.62	4.42	4.38	4.42
06/01/14	06/30/14	Jun 2014	28.25	7.25	43.50	29.00	23.75	4.50	46.50	33.75	47.75	34.75	4.40	4.55	4.29	4.28	4.39	4.36	4.12	4.15	4.60	4.40	4.36	4.39
07/01/14	07/31/14	Jul 2014	43.94	20.16	51.76	35.45	39.13	16.96	53.11	41.65	55.29	43.07	4.44	4.67	4.37	4.37	4.52	4.48	4.24	4.14	4.70	4.49	4.45	4.52
08/01/14	08/31/14	Aug 2014	55.55	36.48	53.81	35.10	50.51	33.93	56.94	43.35	59.28	43.94	4.44	4.72	4.41	4.41	4.52	4.48	4.40	4.15	4.74	4.53	4.49	4.69
09/01/14	09/30/14	Sep 2014	52.02	39.36	48.18	33.71	46.87	35.36	54.20	42.50	56.43	43.50	4.42	4.67	4.39	4.35	4.51	4.47	4.45	4.17	4.68	4.47	4.43	4.74
10/01/14	10/31/14	Oct 2014	46.08	38.00	42.59	34.34	43.23	35.72	53.03	43.75	53.03	43.56	4.43	4.61	4.33	4.34	4.48	4.44	4.36	4.17	4.67	4.46	4.42	4.65
11/01/14	11/30/14	Nov 2014	48.50	39.20	41.33	34.00	43.68	36.86	51.98	43.31	51.98	42.68	4.48	4.72	4.45	4.53	4.65	4.61	4.95	4.27	4.87	4.66	4.62	5.30
12/01/14	12/31/14	Dec 2014	50.93	42.80	41.33	33.66	49.60	41.42	52.50	44.19	52.50	45.76	4.60	4.84	4.57	4.65	4.77	4.73	5.23	4.39	4.98	4.77	4.73	5.59
01/01/15	01/31/15	Jan 2015	47.97	39.11	42.17	33.84	45.21	37.18	51.76	43.94	54.08	44.81	4.68	4.92	4.65	4.73	4.85	4.81	5.15	4.47	5.08	4.86	4.82	5.50
02/01/15	02/28/15	Feb 2015	45.25	37.25	41.75	33.50	42.25	36.11	51.26	42.25	52.52	43.50	4.64	4.88	4.61	4.69	4.81	4.77	5.00	4.43	5.03	4.82	4.78	5.35
03/01/15	03/31/15	Mar 2015	42.54	35.39	41.33	33.17	39.29	33.96	47.74	40.56	49.40	42.20	4.53	4.77	4.50	4.59	4.70	4.66	4.93	4.32	4.92	4.71	4.67	5.27
04/01/15	04/30/15	Apr 2015	37.52	24.82	40.43	31.67	36.08	22.88	47.74	38.12	50.60	39.00	4.05	4.21	3.87	3.85	3.95	3.91	3.77	3.50	4.16	3.97	3.93	4.02
05/01/15	05/31/15	May 2015	31.83	15.51	36.75	24.21	24.98	9.62	40.98	30.24	44.00	30.88	4.01	4.17	3.83	3.74	3.91	3.88	3.69	3.47	4.05	3.85	3.82	3.93
06/01/15	06/30/15	Jun 2015	31.16	14.42	33.08	21.37	22.20	6.50	38.03	26.15	37.40	27.63	4.03	4.19	3.85	3.92	3.93	3.89	3.68	3.49	4.23	4.03	4.00	3.93
07/01/15	07/31/15	Jul 2015	46.56	24.10	49.29	30.50	40.66	20.83	50.00	37.83	53.30	38.32	4.06	4.22	3.88	3.87	3.96	3.92	3.88	3.52	4.18	3.99	3.96	4.13
08/01/15	08/31/15	Aug 2015	49.92	33.55	48.36	30.50	45.41	30.25	51.50	40.95	53.82	40.69	4.05	4.21	3.87	3.87	3.95	3.92	3.87	3.51	4.19	3.99	3.95	4.12
09/01/15	09/30/15	Sep 2015	47.52	33.86	41.85	30.50	43.68	31.63	48.50	38.22	49.64	39.50	4.02	4.18	3.84	3.79	3.82	3.89	3.86	3.48	4.10	3.90	3.87	4.11
10/01/15	10/31/15	Oct 2015	42.55	35.28	39.14	30.75	40.26	33.01	46.53	40.10	46.55	39.45	4.04	4.20	3.86	3.85	3.94	3.91	4.04	3.50	4.16	3.96	3.92	4.31
11/01/15	11/30/15	Nov 2015	45.29	36.02	38.38	30.14	41.09	33.71	46.53	39.69	47.50	39.45	4.08	4.26	3.93	4.02	4.21	4.17	4.66	3.67	4.33	4.14	4.10	4.99
12/01/15	12/31/15	Dec 2015	49.41	38.96	36.48	31.37	43.16	37.53	47.94	41.72	48.45	41.86	4.23	4.40	4.07	4.16	4.35	4.31	4.84	3.81	4.48	4.28	4.24	5.17
01/01/16	01/31/16	Jan 2016	48.72	39.11	40.67	33.34	43.21	36.43	50.26	43.19	51.58	43.31	4.36	4.54	4.21	4.29	4.49	4.45	4.65	3.94	4.62	4.41	4.37	4.98
02/01/16	02/29/16	Feb 2016	46.00	37.25	40.25	33.00	40.25	35.36	49.76	41.50	50.02	42.00	4.34	4.51	4.18	4.27	4.46	4.42	4.64	3.92	4.60	4.39	4.35	4.96
03/01/16	03/31/16	Mar 2016	43.29	35.39	39.83	32.67	37.29	33.21	46.24	39.81	46.90	40.70	4.28	4.45	4.12	4.21	4.40	4.36	4.57	3.86	4.53	4.33	4.29	4.90
04/01/16	04/30/16	Apr 2016	38.27	24.82	40.43	31.92	36.83	24.63	46.74	39.62	49.35	39.00	4.02	4.13	3.78	3.66	3.84	3.81	3.80	3.32	3.96	3.77	3.73	4.05
05/01/16	05/31/16	May 2016	32.58	15.51	36.75	24.46	25.73	11.37	39.98	31.74	42.75	30.88	4.03	4.14	3.78	3.66	3.85	3.82	3.79	3.33	3.97	3.77	3.74	4.04
06/01/16	06/30/16	Jun 2016	31.91	14.42	33.08	21.62	22.95	8.25	37.03	27.65	36.15	27.63	4.04	4.15	3.80	3.68	3.86	3.83	3.80	3.34	3.99	3.79	3.75	4.05
07/01/16	07/31/16	Jul 2016	47.31	24.10	49.29	30.75	40.41	21.63	49.50	37.83	52.02	38.07	4.06	4.17	3.82	3.70	3.88	3.85	3.81	3.36	4.01	3.81	3.77	4.06
08/01/16	08/31/16	Aug 2016	50.67	33.55	48.36	30.75	45.16	31.25	51.00	40.95	52.53	40.44	4.07	4.18	3.83	3.70	3.89	3.86	3.82	3.37	4.01	3.82	3.78	4.07
09/01/16	09/30/16	Sep 2016	48.27	33.86	41.85	30.75	43.43	32.63	48.00	38.22	48.45	39.25	4.06	4.17	3.82	3.70	3.88	3.85	3.78	3.36	4.01	3.81	3.77	4.03
10/01/16	10/31/16	Oct 2016	43.30	35.28	39.64	30.75	39.26	33.26	45.78	39.35	45.55	38.45	4.08	4.19	3.84	3.72	3.90	3.87	3.85	3.38	4.03	3.83	3.79	4.11
11/01/16	11/30/16	Nov 2016	46.04	36.02	38.88	30.14	40.09	33.96	45.78	38.94	46.50	38.45	4.15	4.25	3.94	3.96	4.11	4.08	4.50	3.65	4.28	4.07	4.04	4.82
12/01/16	12/31/16	Dec 2016	50.16	38.96	36.98	31.37	42.16	37.78	47.19	40.97	47.45	40.86	4.31	4.41	4.11	4.12	4.24	4.24	4.65	3.81	4.45	4.24	4.20	4.98
01/01/17	01/31/17	Jan 2017	50.72	40.86	42.67	35.09	45.21	38.18	51.26	44.19	52.33	44.31	4.45	4.55	4.25	4.28	4.42	4.38	4.80	3.95	4.60	4.40	4.36	5.14
02/01/17	02/28/17	Feb 2017	48.00	39.00	42.25	34.75	42.25	37.11	50.76	42.50	50.77	43.00	4.43	4.52	4.22	4.25	4.39	4.35	4.77	3.93	4.57	4.37	4.33	5.11
03/01/17	03/31/17	Mar 2017	45.29	37.14	41.83	34.42	39.29	34.96	47.24	40.81	47.65	41.70	4.37	4.46	4.16	4.19	4.33	4.29	4.73	3.87	4.51	4.31	4.27	5.06
04/01/17	04/30/17	Apr 2017	40.27	26.57	42.43	33.67	38.83	26.38	47.74	40.62	50.10	40.00	4.11	4.18	3.79	3.64	3.95	3.91	3.83	3.39	3.94	3.75	3.72	4.08
05/01/17	05/31/17	May 2017	34.58	17.26	38.75	26.21	27.73	13.12	40.98	32.74	43.50	31.88	4.12	4.19	3.80	3.65	3.96	3.92	3.82	3.40	3.95	3.76	3.73	4.08
06/01/17	06/30/17	Jun 2017	33.91	16.17	35.08	23.37	24.95	10.00	38.03	28.65	36.90	28.63	4.14	4.21	3.82	3.67	3.98	3.94	3.84	3.42	3.97	3.79	3.75	4.09
07/01/17	07/31/17	Jul 2017	49.31	25.85	51.29	32.50	42.41	23.38	50.50	38.83	52.77	39.07	4.16	4.24	3.85	3.70	4.00	3.97	3.84	3.45	4.00	3.81	3.78	4.10
08/01/17	08/31/17	Aug 2017	52.67	35.30	50.36	32.50	47.16	33.00	52.00	41.95	53.28	41.44	4.17	4.25	3.86	3.71	4.02	3.98	3.85	3.46	4.01	3.82	3.79	4.10
09/01/17	09/30/17	Sep 2017	50.27	35.61	43.85	32.50	45.43	34.38	49.00	39.22	49.20	40.25	4.17	4.24	3.85	3.70	4.01	3.98	3.85	3.46	4.00	3.82	3.78	4.11
10/01/17	10/31/17	Oct 2017	45.30	37.03	41.64	32.50	41.26	35.01	46.78	40.35	46.30	39.45	4.19	4.27	3.88	3.73	4.03	4.00	3.89	3.48	4.03	3.84	3.81	4.15
11/01/17	11/30/17	Nov 2017	48.04	37.77	40.88	31.89	42.09	35.71	46.78	39.94	47.25	39.45	4.27	4.40	4.08	4.08	4.22	4.18	4.69	3.84	4.39	4.20	4.16	5.02
12/01/17	12/31/17	Dec 2017	52.16	40.71	38																			

07/01/19	07/31/19	Jul 2019	54.06	30.10	55.79	36.50	47.16	27.63	53.60	40.08	55.77	42.07	4.38	4.57	4.07	4.13	4.29	4.26	4.07	3.89	4.44	4.25	4.21	4.33
08/01/19	08/31/19	Aug 2019	57.42	39.55	54.86	36.50	51.91	37.25	55.10	43.20	56.28	44.44	4.41	4.60	4.09	4.16	4.32	4.28	4.08	3.92	4.46	4.27	4.24	4.35
09/01/19	09/30/19	Sep 2019	55.02	39.86	48.35	36.50	50.18	38.63	52.10	40.47	52.20	43.25	4.41	4.61	4.10	4.16	4.33	4.29	4.11	3.93	4.47	4.28	4.24	4.38
10/01/19	10/31/19	Oct 2019	50.05	41.28	46.14	36.50	46.01	39.26	49.88	41.60	49.30	42.45	4.45	4.64	4.14	4.20	4.36	4.33	4.15	3.96	4.51	4.32	4.28	4.43
11/01/19	11/30/19	Nov 2019	52.79	42.02	45.38	35.89	46.84	39.96	49.88	41.19	50.25	42.45	4.56	4.82	4.36	4.44	4.56	4.52	4.83	4.19	4.76	4.56	4.52	5.17
12/01/19	12/31/19	Dec 2019	56.91	44.96	43.48	37.12	48.91	43.78	51.29	43.22	51.20	44.86	4.75	5.02	4.56	4.64	4.76	4.72	5.01	4.39	4.96	4.76	4.72	5.36
01/01/20	01/31/20	Jan 2020	58.72	47.11	50.17	41.09	53.21	44.43	56.86	47.19	57.83	49.06	4.87	5.13	4.66	4.77	4.87	4.83	5.07	4.50	5.10	4.90	4.86	5.42
02/01/20	02/29/20	Feb 2020	56.00	45.25	49.75	40.75	50.25	43.36	56.36	45.50	56.27	47.75	4.84	5.11	4.64	4.75	4.85	4.81	5.04	4.47	5.07	4.88	4.83	5.39
03/01/20	03/31/20	Mar 2020	53.29	43.39	49.33	40.42	47.29	41.21	52.84	43.81	53.15	46.45	4.78	5.04	4.57	4.68	4.78	4.74	4.98	4.41	5.01	4.81	4.77	5.32
04/01/20	04/30/20	Apr 2020	48.27	32.82	49.93	39.67	46.83	32.63	53.34	43.62	55.60	44.75	4.50	4.75	4.19	4.33	4.42	4.39	4.21	4.12	4.65	4.46	4.41	4.51
05/01/20	05/31/20	May 2020	40.07	28.36	43.61	35.97	34.97	24.75	47.12	39.98	47.74	39.91	4.79	4.88	4.46	4.49	4.66	4.57	4.45	4.27	4.80	4.61	4.57	4.75
06/01/20	06/30/20	Jun 2020	42.07	28.74	44.01	35.69	35.77	24.07	47.56	39.35	46.64	39.71	4.84	4.97	4.52	4.49	4.69	4.59	4.45	4.30	4.80	4.61	4.57	4.75
07/01/20	07/31/20	Jul 2020	53.03	37.06	55.15	41.98	47.67	34.09	57.15	46.19	57.70	46.87	4.88	5.08	4.56	4.54	4.73	4.62	4.44	4.29	4.86	4.66	4.62	4.75
08/01/20	08/31/20	Aug 2020	56.08	42.47	55.29	42.71	51.35	39.55	58.97	48.35	59.05	48.85	4.91	5.15	4.59	4.56	4.75	4.64	4.45	4.32	4.88	4.69	4.64	4.75
09/01/20	09/30/20	Sep 2020	53.66	42.28	49.34	41.66	49.38	39.94	55.57	46.54	54.72	47.10	4.90	5.10	4.58	4.58	4.78	4.68	4.47	4.34	4.90	4.71	4.66	4.78
10/01/20	10/31/20	Oct 2020	51.05	42.89	46.72	40.75	47.21	41.33	53.18	47.03	51.81	46.10	4.93	5.08	4.60	4.63	4.85	4.73	4.52	4.40	4.95	4.76	4.71	4.83
11/01/20	11/30/20	Nov 2020	53.39	44.20	46.75	40.77	48.46	41.38	53.60	47.52	52.55	46.71	5.07	5.27	4.81	4.85	5.11	5.06	5.30	4.68	5.18	4.98	4.94	5.64
12/01/20	12/31/20	Dec 2020	57.03	46.34	46.49	42.37	51.10	43.95	54.89	48.84	53.59	48.76	5.27	5.46	5.02	5.07	5.23	5.24	5.56	4.86	5.40	5.20	5.15	5.92
01/01/21	01/31/21	Jan 2021	60.65	50.03	52.86	46.88	56.11	46.85	58.08	50.88	58.60	52.40	5.31	5.49	5.05	5.11	5.17	5.19	5.44	4.85	5.45	5.25	5.20	5.80
02/01/21	02/28/21	Feb 2021	58.39	48.52	52.52	46.80	53.63	45.65	57.19	49.53	57.27	51.40	5.29	5.43	4.99	5.06	5.11	5.13	5.32	4.85	5.40	5.20	5.15	5.68
03/01/21	03/31/21	Mar 2021	53.86	45.40	50.88	45.16	48.89	42.48	54.12	48.00	54.32	49.48	5.10	5.24	4.82	4.88	5.03	4.96	5.14	4.73	5.22	5.01	4.97	5.49
04/01/21	04/30/21	Apr 2021	49.25	39.25	51.15	44.64	46.64	37.37	54.06	47.68	55.45	48.38	4.93	5.09	4.61	4.69	4.86	4.75	4.57	4.50	5.01	4.81	4.77	4.88
05/01/21	05/31/21	May 2021	40.81	35.21	43.97	41.74	37.46	32.10	50.15	45.97	49.99	44.94	5.26	5.24	4.91	4.90	4.94	4.94	4.87	4.70	5.22	5.03	4.99	5.17
06/01/21	06/30/21	Jun 2021	45.48	37.05	48.44	44.02	41.84	33.88	54.00	48.81	53.39	47.79	5.33	5.40	5.00	4.87	5.11	4.96	4.85	4.73	5.18	4.99	4.95	5.15
07/01/21	07/31/21	Jul 2021	52.00	44.02	54.52	47.47	48.18	40.55	60.70	52.30	59.64	51.67	5.39	5.59	5.05	4.95	5.16	4.98	4.82	4.70	5.27	5.07	5.03	5.12
08/01/21	08/31/21	Aug 2021	54.74	45.39	55.71	48.93	50.79	41.85	62.83	53.49	61.82	53.27	5.42	5.71	5.08	4.97	5.19	5.01	4.81	4.72	5.29	5.10	5.05	5.11
09/01/21	09/30/21	Sep 2021	52.30	44.70	50.33	46.81	48.57	41.25	59.03	52.62	57.24	50.94	5.38	5.59	5.07	5.00	5.24	5.06	4.84	4.75	5.32	5.13	5.08	5.14
10/01/21	10/31/21	Oct 2021	52.05	44.50	47.29	45.00	48.42	41.01	56.48	52.47	54.32	49.76	5.40	5.51	5.07	5.06	5.33	5.14	4.89	4.84	5.38	5.19	5.14	5.20
11/01/21	11/30/21	Nov 2021	53.98	46.38	48.13	45.66	50.08	42.80	57.32	53.84	54.86	50.98	5.59	5.72	5.25	5.27	5.66	5.60	5.77	5.16	5.59	5.40	5.35	6.11
12/01/21	12/31/21	Dec 2021	57.16	47.72	49.50	47.62	53.29	44.12	58.50	54.46	55.97	52.67	5.78	5.90	5.47	5.50	5.70	5.76	6.11	5.34	5.84	5.64	5.59	6.46
01/01/22	01/31/22	Jan 2022	62.59	52.95	55.55	52.67	59.01	49.26	59.31	54.56	59.37	55.75	5.75	5.85	5.44	5.45	5.47	5.54	5.80	5.20	5.79	5.59	5.54	6.16
02/01/22	02/28/22	Feb 2022	60.79	51.78	55.29	52.85	57.01	47.95	58.03	53.55	58.27	55.05	5.73	5.74	5.34	5.38	5.38	5.56	5.60	5.23	5.71	5.51	5.46	5.96
03/01/22	03/31/22	Mar 2022	54.44	47.41	52.44	49.90	50.48	43.75	55.40	52.19	55.50	52.51	5.42	5.45	5.06	5.08	5.29	5.19	5.30	5.05	5.41	5.21	5.16	5.65
04/01/22	04/30/22	Apr 2022	50.22	45.68	52.37	49.61	46.45	42.11	54.77	51.75	55.30	52.01	5.36	5.44	5.03	5.04	5.29	5.12	4.93	4.87	5.36	5.17	5.12	5.24
05/01/22	05/31/22	May 2022	46.61	42.79	52.92	49.74	42.99	39.34	54.59	50.88	55.29	51.72	5.40	5.39	5.07	5.03	5.28	5.08	5.02	4.83	5.35	5.16	5.11	5.32
06/01/22	06/30/22	Jun 2022	51.99	44.72	56.66	52.02	48.14	41.19	59.80	52.78	59.84	53.64	5.66	5.58	5.17	5.06	5.30	5.11	5.01	4.86	5.38	5.19	5.14	5.31
07/01/22	07/31/22	Jul 2022	58.87	49.80	62.73	54.72	54.71	46.04	66.78	56.63	66.53	56.83	5.55	5.79	5.22	5.09	5.34	5.14	5.04	4.88	5.41	5.22	5.17	5.34
08/01/22	08/31/22	Aug 2022	63.07	51.18	64.79	55.87	58.73	47.36	69.14	55.62	69.17	56.87	5.59	5.93	5.27	5.13	5.39	5.17	5.02	4.90	5.45	5.25	5.21	5.33
09/01/22	09/30/22	Sep 2022	61.39	51.69	58.79	53.67	57.33	47.91	63.01	55.50	62.85	56.06	5.52	5.77	5.22	5.15	5.46	5.24	5.05	4.93	5.47	5.28	5.23	5.36
10/01/22	10/31/22	Oct 2022	60.33	50.50	55.44	51.48	56.24	46.71	60.11	55.01	59.74	54.60	5.55	5.68	5.21	5.21	5.51	5.31	5.11	5.02	5.53	5.33	5.29	5.42
11/01/22	11/30/22	Nov 2022	63.90	53.81	56.26	52.95	59.80	49.89	61.33	57.02	60.70	56.18	5.88	5.90	5.55	5.58	5.95	5.89	6.04	5.43	5.91	5.71	5.67	6.38
12/01/22	12/31/22	Dec 2022	66.92	56.43	59.22	55.98	64.21	52.74	63.86	58.97	63.53	59.21	6.20	6.37	5.89	5.84	6.07	6.08	6.41	5.69	6.17	5.97	5.92	6.77
01/01/23	01/31/23	Jan 2023	64.40	54.89	57.65	54.33	61.02	51.13	61.35	56.15	61.43	57.45	5.85	6.07	5.58	5.56	5.68	5.61	6.04	5.39	5.90	5.70	5.65	6.40
02/01/23	02/28/23	Feb 2023	62.76	53.54	57.40	54.53	59.06	49.65	60.12	55.43	60.28	56.61	5.88	5.93	5.54	5.56	5.72	5.64	5.80	5.42	5.90	5.70	5.65	6.15
03/01/23	03/31/23	Mar 2023	56.25	49.41	54.47	52.16	52.19	45.64	57.34	54.07	57.36	54.16	5.63	5.57	5.24	5.37	5.62	5.48	5.48	5.29	5.71	5.51	5.46	5.83
04/01/23	04/30/23	Apr 2023	52.68	47.86	54.59	52.21	48.77	44.16	57.37	54.14	57.63	54.09	5.58	5.58	5.22	5.28	5.54	5.34	5.20	5.09	5.60	5.40	5.36	5.51
05/01/23	05/31/23	May 2023	49.00	44.99	55.15	52.16	45.25	41.41	56.86	53.36	57.32	53.75	5.62	5.62	5.28	5.19	5.42	5.26	5.17	4.97	5.51	5.32	5.28	5.47
06/01/23	06/30/23	Jun 2023	53.85	46.41	58.83	53.58	49.88	42.78	61.96	54.58	61.93	55.10	5.72	5.72	5.38	5.22	5.39	5.29	5.15	5.00	5.54	5.35	5.30	5.45
07/01/23	07/31/23	Jul 2023	61.04	51.49	65.23	56.71	56.76	47.63	69.26	57.58	69.00	58.76	5.76	6.00	5.41	5.25	5.41	5.30	5.22	5.01	5.57	5.38	5.34	5.52

08/01/25	08/31/25	Aug 2025	69.74	57.21	71.95	61.82	65.08	53.20	77.81	63.92	76.53	64.37	6.08	6.37	5.71	5.66	5.89	5.67	5.51	5.37	5.98	5.78	5.74	5.81	
09/01/25	09/30/25	Sep 2025	67.06	55.86	67.21	60.01	64.05	54.25	74.49	62.90	71.74	62.48	6.02	6.36	5.71	5.67	5.93	5.72	5.58	5.40	5.99	5.79	5.76	5.89	
10/01/25	10/31/25	Oct 2025	62.72	54.73	62.10	57.27	61.90	52.01	69.64	61.21	66.81	60.40	6.04	6.24	5.75	5.71	5.98	5.78	5.67	5.49	6.03	5.84	5.80	5.98	
11/01/25	11/30/25	Nov 2025	65.75	58.17	61.12	57.68	63.65	54.30	68.55	63.00	66.00	61.15	6.21	6.36	5.90	5.93	6.30	6.24	6.17	5.77	6.26	6.06	6.02	6.52	
12/01/25	12/31/25	Dec 2025	70.53	61.71	63.85	60.27	70.93	58.46	70.35	63.81	68.61	63.58	6.49	6.72	6.20	6.15	6.41	6.46	6.82	6.05	6.48	6.28	6.24	7.18	
01/01/26	01/31/26	Jan 2026	70.58	61.77	65.39	61.44	69.59	58.27	70.82	64.00	69.87	64.76	6.49	6.61	6.80	6.35	6.30	6.40	6.48	6.84	6.13	6.64	6.44	6.39	7.20
02/01/26	02/28/26	Feb 2026	68.80	61.33	64.80	61.84	67.34	57.61	68.74	62.60	68.21	64.16	6.55	6.63	6.23	6.22	6.29	6.23	6.59	6.09	6.56	6.36	6.31	6.95	
03/01/26	03/31/26	Mar 2026	62.00	55.86	60.19	57.80	58.07	51.88	64.28	59.72	63.77	59.82	6.09	6.10	5.79	5.83	6.08	5.93	6.01	5.76	6.16	5.96	5.91	6.37	
04/01/26	04/30/26	Apr 2026	58.54	52.84	60.35	57.63	54.57	49.12	63.42	58.95	63.46	59.26	6.03	6.05	5.75	5.76	5.97	5.79	5.68	5.54	6.08	5.88	5.84	5.99	
05/01/26	05/31/26	May 2026	53.20	49.75	60.27	57.46	49.43	45.99	62.19	58.62	62.93	58.81	6.07	6.09	5.69	5.69	5.88	5.70	5.64	5.44	6.00	5.81	5.77	5.94	
06/01/26	06/30/26	Jun 2026	59.16	51.27	64.62	58.53	55.03	47.46	68.81	60.03	68.21	60.33	6.17	6.15	5.74	5.72	5.91	5.73	5.63	5.48	6.03	5.84	5.80	5.94	
07/01/26	07/31/26	Jul 2026	69.34	57.52	73.39	62.57	64.60	53.31	79.50	64.72	77.50	64.99	6.25	6.48	5.86	5.79	6.00	5.79	5.71	5.51	6.11	5.92	5.87	6.01	
08/01/26	08/31/26	Aug 2026	72.23	59.28	74.85	64.08	67.45	55.16	81.56	66.71	79.60	66.79	6.29	6.58	5.89	5.82	6.04	5.82	5.66	5.54	6.14	5.95	5.91	5.97	
09/01/26	09/30/26	Sep 2026	68.88	57.71	68.02	61.40	65.67	56.02	76.86	65.07	73.59	64.52	6.22	6.59	5.88	5.84	6.11	5.87	5.74	5.57	6.15	5.96	5.92	6.04	
10/01/26	10/31/26	Oct 2026	64.88	56.85	63.40	58.95	63.32	53.84	71.74	63.44	68.67	62.40	6.25	6.42	5.97	5.97	6.18	6.08	5.79	5.66	6.28	6.09	6.05	6.10	
11/01/26	11/30/26	Nov 2026	68.75	60.62	64.56	60.42	66.74	56.88	72.36	65.36	69.44	63.95	6.39	6.71	6.15	6.13	6.50	6.43	6.40	6.01	6.46	6.26	6.21	6.75	
12/01/26	12/31/26	Dec 2026	72.99	64.18	66.26	62.88	73.71	60.83	72.84	66.61	71.27	66.13	6.66	6.95	6.43	6.38	6.69	6.68	7.11	6.28	6.72	6.52	6.47	7.47	
01/01/27	01/31/27	Jan 2027	73.15	64.78	68.53	64.73	72.21	61.46	74.49	68.21	73.09	67.98	6.92	7.19	6.63	6.58	6.73	6.78	7.18	6.44	6.92	6.72	6.67	7.54	
02/01/27	02/28/27	Feb 2027	71.22	63.80	68.91	65.36	69.15	59.75	72.81	65.68	72.10	67.15	6.89	7.12	6.44	6.41	6.46	6.43	6.82	6.32	6.75	6.55	6.50	7.18	
03/01/27	03/31/27	Mar 2027	64.36	57.73	62.24	59.74	60.62	53.57	66.27	61.97	65.68	61.71	6.27	6.27	6.01	5.97	6.25	6.13	6.22	6.02	6.31	6.11	6.06	6.58	
04/01/27	04/30/27	Apr 2027	60.60	54.63	61.89	59.00	56.46	50.83	65.83	61.01	65.46	60.99	6.21	6.25	5.94	5.90	6.15	6.07	5.78	5.67	6.22	6.03	5.98	6.09	
05/01/27	05/31/27	May 2027	55.27	51.31	62.37	59.32	51.38	47.45	64.43	60.39	65.07	60.85	6.26	6.33	5.92	5.89	6.10	5.88	5.83	5.61	6.20	6.01	5.97	6.13	
06/01/27	06/30/27	Jun 2027	61.88	52.98	67.68	61.09	57.55	49.10	71.81	61.85	71.22	62.85	6.38	6.44	6.00	5.93	6.13	5.92	5.82	5.65	6.24	6.05	6.01	6.12	
07/01/27	07/31/27	Jul 2027	71.16	58.99	75.12	64.07	66.32	54.68	81.40	66.24	79.22	66.53	6.44	6.58	6.05	5.99	6.18	5.95	5.89	5.67	6.30	6.11	6.07	6.20	
08/01/27	08/31/27	Aug 2027	74.61	61.22	77.48	66.23	69.66	56.96	84.25	68.89	82.17	68.81	6.48	6.79	6.10	6.02	6.24	5.98	5.84	5.70	6.34	6.14	6.10	6.14	
09/01/27	09/30/27	Sep 2027	70.50	59.59	70.97	63.69	67.15	57.76	78.91	66.89	75.49	66.16	6.41	6.71	6.13	6.06	6.28	6.02	5.92	5.74	6.37	6.18	6.14	6.23	
10/01/27	10/31/27	Oct 2027	67.43	59.08	66.72	61.95	65.35	55.87	74.35	65.67	71.25	64.83	6.44	6.69	6.16	6.14	6.40	6.29	5.99	5.84	6.46	6.27	6.23	6.29	
11/01/27	11/30/27	Nov 2027	72.14	63.73	67.78	63.21	70.77	59.93	75.93	68.80	72.53	66.68	6.73	6.98	6.53	6.53	6.93	6.82	6.82	6.40	6.86	6.66	6.62	7.16	
12/01/27	12/31/27	Dec 2027	76.08	67.28	69.00	65.36	77.61	64.05	76.41	70.06	74.15	68.81	6.99	7.25	6.76	6.78	7.01	7.03	7.51	6.64	7.12	6.92	6.87	7.86	
01/01/28	01/31/28	Jan 2028	76.22	67.09	71.65	67.12	75.38	63.67	77.70	70.22	76.02	70.32	7.20	7.48	6.92	6.81	6.90	6.97	7.39	6.63	7.14	6.94	6.89	7.75	
02/01/28	02/29/28	Feb 2028	73.60	66.52	71.43	68.03	71.10	62.25	75.63	68.48	74.47	69.60	7.14	7.39	6.70	6.69	6.71	6.62	7.04	6.52	7.03	6.83	6.78	7.39	
03/01/28	03/31/28	Mar 2028	66.04	59.22	63.88	61.18	62.25	54.92	68.63	63.72	67.52	63.16	6.44	6.44	6.18	6.16	6.42	6.26	6.35	6.12	6.49	6.29	6.24	6.70	
04/01/28	04/30/28	Apr 2028	62.58	56.52	63.56	60.81	58.28	52.46	67.79	62.73	67.24	62.74	6.39	6.44	6.10	6.07	6.31	6.23	5.93	5.84	6.39	6.19	6.15	6.24	
05/01/28	05/31/28	May 2028	57.35	52.85	64.65	61.20	53.34	48.85	66.79	62.04	67.26	62.53	6.43	6.51	6.09	6.07	6.24	6.03	5.96	5.79	6.38	6.19	6.15	6.26	
06/01/28	06/30/28	Jun 2028	64.69	54.70	70.51	63.01	60.16	50.68	74.88	63.80	73.98	64.66	6.54	6.61	6.15	6.08	6.29	6.07	5.94	5.82	6.39	6.20	6.16	6.25	
07/01/28	07/31/28	Jul 2028	73.45	61.48	77.65	66.58	68.47	57.03	83.97	69.03	81.71	69.09	6.60	6.76	6.22	6.13	6.32	6.10	6.00	5.82	6.45	6.26	6.22	6.31	
08/01/28	08/31/28	Aug 2028	76.96	62.90	79.85	67.97	71.88	58.50	87.05	70.80	84.59	70.53	6.63	6.97	6.25	6.17	6.41	6.13	5.99	5.86	6.48	6.29	6.25	6.30	
09/01/28	09/30/28	Sep 2028	71.81	61.95	72.31	65.80	68.30	59.66	80.30	68.96	76.67	68.06	6.58	6.90	6.27	6.20	6.45	6.18	6.03	5.89	6.52	6.33	6.29	6.33	
10/01/28	10/31/28	Oct 2028	70.49	61.62	68.14	63.41	68.13	58.61	76.95	67.77	73.16	66.58	6.61	6.87	6.39	6.33	6.56	6.47	6.11	6.02	6.65	6.45	6.41	6.42	
11/01/28	11/30/28	Nov 2028	77.21	68.72	70.81	66.37	76.35	64.92	80.28	72.96	76.17	70.10	7.12	7.41	6.96	7.00	7.31	7.01	6.81	7.33	7.13	7.08	7.08	7.95	
12/01/28	12/31/28	Dec 2028	81.32	72.15	73.33	70.29	83.32	69.17	81.06	75.00	78.37	73.47	7.49	7.77	7.29	7.35	7.56	7.61	8.12	7.30	7.68	7.48	7.43	8.48	
01/01/29	01/31/29	Jan 2029	79.47	69.83	74.50	70.05	79.09	66.15	80.36	72.83	79.06	73.32	7.48	7.78	7.22	7.15	7.29	7.33	7.64	6.90	7.48	7.28	7.23	8.00	
02/01/29	02/28/29	Feb 2029	77.70	70.57	74.41	70.86	75.72	66.63	78.47	70.77	77.58	72.58	7.43	7.67	7.04	6.98	7.13	7.22	7.40	6.94	7.32	7.12	7.07	7.76	
03/01/29	03/31/29	Mar 2029	70.35	62.86	67.06	64.49	67.22	58.45	71.38	66.48	70.62	66.32	6.74	6.74	6.50	6.47	6.67	6.59	6.76	6.49	6.81	6.61	6.56	7.12	
04/01/29	04/30/29	Apr 2029	65.94	59.66	67.27	64.27	61.54	55.51	70.34	65.44	70.40	65.41	6.68	6.73	6.43	6.40	6.57	6.38	6.25	6.14	6.72	6.53	6.48	6.56	
05/01/29	05/31/29	May 2029	59.83	55.51	67.22	63.93	55.81	51.36	69.28	64.80	70.06	65.22	6.72	6.79	6.43	6.40	6.56	6.35	6.31	6.10	6.71	6.52	6.48	6.61	
06/01/29	06/30/29	Jun 2029	65.06	56.87	71.75	65.32	60.63	52.92	75.24	66.01	75.16	66.87	6.83	6.90	6.42	6.39	6.60	6.38	6.26	6.13	6.71	6.51	6.47	6.56	
07/01/29	07/31/29	Jul 2029	76.90	64.29	81.59	69.57	71.73	59.68	87.45	71.34	85.56	72.12	6.91	7.07	6.51	6.49	6.71	6.46	6.38	6.16	6.80	6.61	6.57	6.68	
08/01/29	08/31/29	Aug 2029	81.61	66.68	84.66	71.77	76.27	62.03	91.64	74.17	89.41	74.39	6.97	7.33	6.64	6.55	6.76	6.51	6.37	6.19	6.86	6.67	6.63		

09/01/31	09/30/31	Sep 2031	80.84	69.69	82.63	73.65	76.17	66.33	90.62	76.23	87.44	75.86	7.26	7.65	6.92	6.88	7.10	6.76	6.60	6.45	7.20	7.00	6.96	6.90	
10/01/31	10/31/31	Oct 2031	77.11	68.20	76.27	70.91	73.04	64.50	84.86	74.63	81.48	74.04	7.31	7.63	7.08	7.01	7.21	7.06	6.71	6.59	7.33	7.14	7.09	7.02	
11/01/31	11/30/31	Nov 2031	83.29	75.53	78.60	73.66	81.29	71.48	87.23	80.20	83.80	77.47	7.79	8.20	7.62	7.66	8.14	8.02	8.29	7.59	7.99	7.79	7.74	8.63	
12/01/31	12/31/31	Dec 2031	89.23	79.32	81.06	76.57	92.26	77.09	89.42	81.54	86.78	80.21	8.24	8.49	8.03	8.07	8.62	8.36	8.39	8.97	8.02	8.40	8.20	9.33	
01/01/32	01/31/32	Jan 2032	88.97	79.43	83.07	78.41	90.28	76.17	89.08	80.75	88.16	81.63	8.31	8.63	8.11	8.04	8.20	8.28	8.99	7.93	8.38	8.18	8.13	9.35	
02/01/32	02/29/32	Feb 2032	84.39	78.67	82.54	79.24	82.26	74.31	85.48	78.37	85.74	80.48	8.24	8.49	7.84	7.82	8.75	7.93	8.20	7.68	8.15	7.95	7.90	8.56	
03/01/32	03/31/32	Mar 2032	75.17	67.97	72.55	70.29	73.65	64.04	76.38	71.47	75.99	71.47	7.20	7.18	6.95	6.96	7.20	7.06	7.35	7.00	7.30	7.10	7.05	7.71	
04/01/32	04/30/32	Apr 2032	69.68	64.13	72.06	70.08	66.18	60.06	75.04	70.08	75.59	70.68	7.15	7.16	6.90	6.85	7.02	6.93	6.60	6.51	7.17	6.98	6.93	6.91	
05/01/32	05/31/32	May 2032	64.23	59.93	72.94	69.69	59.80	55.85	74.12	69.65	75.41	70.36	7.18	7.23	6.79	6.78	6.96	6.68	6.61	6.43	7.09	6.90	6.86	6.91	
06/01/32	06/30/32	Jun 2032	71.56	61.73	79.66	71.41	66.59	57.37	82.54	71.10	83.09	72.74	7.32	7.36	6.87	6.82	7.00	6.72	6.58	6.46	7.13	6.94	6.90	6.88	
07/01/32	07/31/32	Jul 2032	83.77	70.43	90.02	76.54	78.21	65.46	95.09	77.29	93.92	78.98	7.40	7.73	6.99	6.91	7.08	6.76	6.69	6.50	7.22	7.03	6.99	7.00	
08/01/32	08/31/32	Aug 2032	86.69	72.82	91.33	78.31	81.01	67.84	97.63	79.84	96.14	81.07	7.45	7.81	7.02	6.97	7.19	6.85	6.69	6.54	7.29	7.10	7.05	6.99	
09/01/32	09/30/32	Sep 2032	81.84	71.33	82.59	74.77	76.98	67.88	91.23	77.25	88.15	77.59	7.41	7.81	7.06	7.02	7.24	6.90	6.73	6.58	7.33	7.14	7.10	7.03	
10/01/32	10/31/32	Oct 2032	78.48	70.31	77.42	72.53	74.30	66.38	85.58	76.27	83.00	75.84	7.45	7.79	7.22	7.15	7.35	7.20	6.84	6.72	7.47	7.28	7.23	7.15	
11/01/32	11/30/32	Nov 2032	86.00	78.18	80.61	75.63	83.95	74.28	89.34	81.27	86.11	79.38	7.95	8.36	7.77	7.81	8.30	8.18	8.45	7.74	8.14	7.94	7.90	8.80	
12/01/32	12/31/32	Dec 2032	91.36	81.77	82.64	79.20	94.27	79.43	90.25	83.42	88.51	82.69	8.41	8.66	8.19	8.23	8.53	8.55	9.15	8.18	8.56	8.36	8.31	9.51	
01/01/33	01/31/33	Jan 2033	91.50	82.24	85.28	80.66	92.51	79.18	90.57	82.38	90.02	83.66	8.48	8.80	8.27	8.21	8.36	8.44	9.17	8.08	8.54	8.34	8.29	9.53	
02/01/33	02/28/33	Feb 2033	86.58	80.69	84.51	81.19	84.04	76.25	86.82	79.63	87.42	82.24	8.41	8.66	7.99	7.97	8.01	8.09	8.36	7.83	8.31	8.11	8.06	8.72	
03/01/33	03/31/33	Mar 2033	76.89	70.00	74.14	72.03	75.59	66.23	77.53	73.15	77.32	82.80	7.34	7.33	7.09	7.10	7.35	7.20	7.50	7.14	7.44	7.24	7.19	7.85	
04/01/33	04/30/33	Apr 2033	71.20	65.72	73.63	71.08	67.86	61.70	76.16	71.71	76.99	72.00	7.29	7.31	7.04	6.99	7.16	7.07	6.73	6.64	7.31	7.11	7.07	7.04	
05/01/33	05/31/33	May 2033	66.10	61.68	74.60	70.86	61.41	57.33	75.75	71.34	77.02	71.74	7.32	7.38	6.92	6.91	7.10	6.82	6.74	6.55	7.23	7.04	6.99	7.04	
06/01/33	06/30/33	Jun 2033	73.51	63.48	82.46	73.29	68.40	59.02	84.71	72.72	85.52	74.36	7.46	7.51	7.00	6.95	7.14	6.86	6.71	6.59	7.27	7.08	7.03	7.01	
07/01/33	07/31/33	Jul 2033	85.71	72.85	92.37	79.13	80.01	67.74	96.97	79.39	96.14	81.44	7.55	7.88	7.13	7.00	7.65	7.22	6.90	6.83	7.36	7.17	7.13	7.13	
08/01/33	08/31/33	Aug 2033	88.81	74.42	93.87	79.91	83.01	69.37	99.74	80.53	98.47	82.63	7.60	7.97	7.16	7.11	7.34	6.98	6.82	6.67	7.43	7.23	7.19	7.13	
09/01/33	09/30/33	Sep 2033	83.66	73.19	85.45	77.39	78.57	69.66	96.63	80.53	78.74	80.23	79.48	7.56	7.96	7.20	7.16	7.39	7.04	6.86	6.71	7.47	7.28	7.24	7.17
10/01/33	10/31/33	Oct 2033	80.55	72.60	80.18	75.63	76.21	68.63	86.89	77.81	85.00	77.75	7.60	7.94	7.37	7.29	7.50	7.34	6.98	6.85	7.61	7.42	7.38	7.29	
11/01/33	11/30/33	Nov 2033	88.55	81.27	82.97	78.22	86.31	77.41	91.07	83.02	88.17	81.60	8.11	8.53	7.92	7.97	8.47	8.34	8.62	7.90	8.29	8.10	8.05	8.97	
12/01/33	12/31/33	Dec 2033	93.85	84.29	84.76	81.04	86.37	81.91	91.76	84.91	90.26	84.42	8.58	8.84	8.35	8.39	8.70	8.72	9.33	8.34	8.73	8.53	8.48	9.69	
01/01/34	01/31/34	Jan 2034	93.17	84.58	87.01	82.50	94.56	81.38	92.88	84.51	91.99	85.45	8.65	8.98	8.44	8.37	8.53	8.61	9.36	8.25	8.71	8.51	8.46	9.72	
02/01/34	02/28/34	Feb 2034	88.31	82.37	86.30	83.05	85.34	77.81	89.19	81.59	89.21	83.87	8.58	8.83	8.15	8.13	8.17	8.25	8.53	7.99	8.47	8.27	8.22	8.89	
03/01/34	03/31/34	Mar 2034	78.34	71.69	76.20	73.06	76.97	68.01	79.70	74.90	79.29	74.00	7.49	7.47	7.23	7.24	7.49	7.35	7.65	7.29	7.58	7.38	7.33	8.00	
04/01/34	04/30/34	Apr 2034	72.94	67.31	75.45	72.73	69.80	63.31	78.36	73.59	78.68	73.06	7.44	7.45	7.18	7.12	7.30	7.21	6.87	6.77	7.45	7.25	7.21	7.18	
05/01/34	05/31/34	May 2034	67.91	63.00	76.82	72.80	63.20	58.46	77.91	72.97	79.01	73.20	7.47	7.52	7.06	7.05	7.24	6.95	6.88	6.69	7.36	7.17	7.13	7.18	
06/01/34	06/30/34	Jun 2034	75.78	65.12	85.15	75.84	70.51	60.58	87.38	74.73	88.04	76.25	7.61	7.66	7.14	7.09	7.28	6.99	6.85	6.73	7.41	7.21	7.17	7.15	
07/01/34	07/31/34	Jul 2034	87.89	74.74	95.05	81.22	82.06	69.50	99.39	81.56	98.50	83.31	7.70	8.04	7.27	7.19	7.36	7.03	6.96	6.76	7.50	7.31	7.27	7.27	
08/01/34	08/31/34	Aug 2034	90.80	76.53	96.22	82.28	84.86	71.35	102.07	82.90	100.62	84.74	7.76	8.13	7.30	7.25	7.42	7.12	6.96	6.80	7.57	7.38	7.33	7.26	
09/01/34	09/30/34	Sep 2034	84.92	74.79	86.99	79.47	79.78	71.06	94.27	80.65	91.51	81.10	7.71	8.12	7.35	7.30	7.53	7.18	7.00	6.84	7.62	7.42	7.38	7.31	
10/01/34	10/31/34	Oct 2034	82.77	74.72	81.76	77.14	78.34	70.64	89.41	79.85	86.79	79.49	7.75	8.10	7.51	7.44	7.65	7.49	7.12	6.99	7.76	7.57	7.52	7.43	
11/01/34	11/30/34	Nov 2034	90.51	83.76	84.48	79.44	88.08	79.89	93.52	85.05	90.01	83.32	8.27	8.70	8.08	8.13	8.64	8.51	8.80	8.05	8.45	8.26	8.21	9.14	
12/01/34	12/31/34	Dec 2034	95.32	86.87	86.68	83.28	92.02	84.62	94.08	87.36	92.20	86.47	8.75	9.01	8.52	8.58	8.63	8.90	8.52	8.51	8.90	8.70	8.65	9.88	
01/01/35	01/31/35	Jan 2035	94.94	86.63	88.93	85.24	96.84	83.76	94.46	86.30	94.13	88.20	8.82	9.16	8.61	8.54	8.70	8.78	9.54	8.41	8.88	8.67	8.62	9.90	
02/01/35	02/28/35	Feb 2035	90.20	82.07	88.80	85.42	88.83	80.13	91.53	83.35	91.90	86.22	8.75	9.01	8.32	8.30	8.33	8.41	8.70	8.15	8.63	8.43	8.38	9.06	
03/01/35	03/31/35	Mar 2035	79.33	73.59	78.41	75.91	79.65	71.54	80.97	76.90	80.92	76.50	7.64	7.62	7.38	7.39	7.64	7.49	7.80	7.42	7.72	7.52	7.47	8.16	
04/01/35	04/30/35	Apr 2035	74.12	69.16	78.28	75.25	72.53	65.71	79.89	75.22	81.03	75.19	7.58	7.60	7.32	7.27	7.45	7.35	7.01	6.91	7.59	7.39	7.35	7.31	
05/01/35	05/31/35	May 2035	69.35	64.77	78.70	75.19	64.73	60.31	79.33	74.87	81.07	75.42	7.62	7.67	7.20	7.19	7.39	7.09	7.01	6.82	7.50	7.31	7.27	7.32	
06/01/35	06/30/35	Jun 2035	74.79	66.03	85.45	76.96	69.59	61.57	86.15	75.83	87.85	77.35	7.76	7.81	7.29	7.23	7.43	7.13	6.98	6.86	7.55	7.36	7.31	7.28	
07/01/35	07/31/35	Jul 2035	89.58	76.80	98.00	83.79	83.64	71.45	101.05	83.24	101.21	85.69	7.85	8.20	7.41	7.33	7.51	7.17	7.10	6.90	7.65	7.46	7.41	7.41	
08/01/35	08/31/35	Aug 2035	93.83	78.99	99.77	84.98	87.72	73.67	105.22	85.19	103.91	87.40	7.91	8.29	7.45	7.40	7.63	7.27	7.10	6.94	7.71	7.52	7.48	7.40	
09/01/35	09/30/35	Sep 2035	88.64	76.74	91.11	82.09	83.14	73.15	98.87	83.72	96.37	84.31	7.86	8.28	7.49	7.45	7.69	7.32	7.14	6.98	7.76	7.57	7.		

10/01/37	10/31/37	Oct 2037	86.25	78.79	89.77	83.85	83.56	76.04	94.84	85.39	93.43	85.00	8.24	8.61	7.99	7.91	8.13	7.97	7.57	7.43	8.23	8.04	7.99	7.88
11/01/37	11/30/37	Nov 2037	97.35	90.56	91.53	87.43	93.38	86.45	98.33	91.54	96.65	89.59	8.79	9.25	8.59	8.64	9.19	9.05	9.35	8.56	8.97	8.77	8.73	9.70
12/01/37	12/31/37	Dec 2037	102.98	94.98	93.34	90.04	104.87	93.57	99.91	93.38	98.98	92.92	9.30	9.58	9.06	9.10	9.43	9.46	10.12	9.05	9.44	9.24	9.19	10.48
01/01/38	01/31/38	Jan 2038	101.67	94.05	96.49	92.75	102.80	91.63	99.61	92.99	100.07	93.94	9.39	9.74	9.16	9.09	9.26	9.35	10.16	8.95	9.42	9.22	9.17	10.52
02/01/38	02/28/38	Feb 2038	95.52	88.81	96.07	92.14	93.41	85.70	96.09	89.73	97.10	91.43	9.31	9.59	8.85	8.83	8.87	8.96	9.26	8.67	9.17	8.96	8.91	9.62
03/01/38	03/31/38	Mar 2038	85.27	79.54	84.21	81.80	85.59	77.91	86.61	82.78	86.50	80.58	8.13	8.11	7.85	7.86	8.13	7.97	8.30	7.91	8.20	8.00	7.95	8.66
04/01/38	04/30/38	Apr 2038	79.08	75.37	84.08	81.64	76.86	70.85	85.00	81.15	86.28	80.22	8.07	8.09	7.79	7.73	7.93	7.83	7.46	7.35	8.06	7.86	7.82	7.77
05/01/38	05/31/38	May 2038	75.07	70.14	85.20	81.56	70.14	65.64	84.92	80.88	86.38	80.28	8.11	8.17	7.67	7.65	7.86	7.55	7.47	7.26	7.97	7.78	7.74	7.77
06/01/38	06/30/38	Jun 2038	81.60	72.09	95.31	84.56	75.91	67.20	93.52	82.26	96.09	83.78	8.26	8.31	7.75	7.70	7.91	7.59	7.43	7.30	8.01	7.82	7.78	7.73
07/01/38	07/31/38	Jul 2038	96.02	82.95	106.19	91.04	89.67	77.34	107.95	88.88	108.43	91.28	8.36	8.73	7.89	7.80	7.99	7.64	7.56	7.34	8.12	7.93	7.88	7.86
08/01/38	08/31/38	Aug 2038	99.62	85.56	107.49	92.96	93.15	79.99	111.19	91.41	110.74	93.54	8.42	8.83	7.93	7.87	8.12	7.73	7.55	7.38	8.19	8.00	7.95	7.86
09/01/38	09/30/38	Sep 2038	93.88	82.41	96.91	88.49	88.13	78.18	103.26	88.73	101.04	88.74	8.37	8.82	7.98	7.92	8.18	7.79	7.60	7.43	8.24	8.05	8.01	7.90
10/01/38	10/31/38	Oct 2038	87.60	81.21	91.28	86.07	85.55	78.05	95.38	87.49	94.08	86.42	8.42	8.79	8.16	8.08	8.30	8.13	7.73	7.59	8.40	8.20	8.16	8.04
11/01/38	11/30/38	Nov 2038	98.18	93.04	93.53	89.83	95.19	89.06	100.17	93.32	98.16	91.06	8.98	9.45	8.77	8.82	9.38	9.24	9.55	8.74	9.15	8.95	8.91	9.89
12/01/38	12/31/38	Dec 2038	104.70	97.66	95.76	92.47	106.87	96.07	101.74	95.59	100.56	94.69	9.50	9.79	9.25	9.30	9.63	9.66	10.34	9.24	9.63	9.43	9.38	10.69
01/01/39	01/31/39	Jan 2039	104.56	96.98	98.96	95.54	104.77	94.27	102.28	95.43	101.85	95.32	9.59	9.95	9.35	9.28	9.46	9.55	10.37	9.14	9.62	9.41	9.36	10.73
02/01/39	02/28/39	Feb 2039	97.67	91.21	98.21	94.68	94.57	87.63	98.57	92.32	98.71	92.94	9.51	9.51	9.04	9.01	9.05	9.14	9.46	8.85	9.35	9.15	9.10	9.82
03/01/39	03/31/39	Mar 2039	87.27	81.80	86.51	83.55	87.46	80.13	88.56	84.97	87.80	81.67	8.30	8.29	8.02	8.03	8.30	8.14	8.48	8.08	8.36	8.16	8.11	8.83
04/01/39	04/30/39	Apr 2039	81.14	77.51	85.77	83.36	77.98	72.77	87.27	83.42	87.32	81.20	8.24	8.26	7.95	7.90	8.10	7.99	7.61	7.51	8.22	8.02	7.98	7.92
05/01/39	05/31/39	May 2039	77.43	72.18	86.89	83.51	72.16	67.56	87.28	83.19	87.77	81.64	8.28	8.34	7.83	7.81	8.03	7.71	7.62	7.41	8.13	7.94	7.90	7.92
06/01/39	06/30/39	Jun 2039	83.77	74.18	98.61	86.97	77.93	69.14	96.33	84.43	98.49	85.30	8.44	8.49	7.92	7.86	8.07	7.75	7.59	7.45	8.17	7.98	7.94	7.89
07/01/39	07/31/39	Jul 2039	98.09	85.74	108.91	94.02	91.60	79.99	110.48	91.85	110.39	93.37	8.53	8.91	8.06	7.97	8.16	7.80	7.72	7.50	8.28	8.09	8.05	8.02
08/01/39	08/31/39	Aug 2039	102.01	87.39	110.02	94.66	95.38	81.68	114.07	93.22	113.05	94.55	8.60	9.01	8.09	8.04	7.97	7.90	7.71	7.54	8.36	8.16	8.12	8.02
09/01/39	09/30/39	Sep 2039	95.48	84.42	100.27	91.45	89.55	79.78	105.43	90.90	102.52	90.09	8.54	9.00	8.14	8.09	8.35	7.95	7.78	7.59	8.41	8.22	8.17	8.06
10/01/39	10/31/39	Oct 2039	90.48	83.63	94.50	89.10	87.53	80.00	98.22	90.13	96.00	88.08	8.59	8.98	8.33	8.25	8.48	8.30	7.89	7.75	8.57	8.37	8.33	8.20
11/01/39	11/30/39	Nov 2039	101.38	95.95	96.47	92.82	97.32	91.70	103.11	95.99	99.83	92.46	9.16	9.64	8.96	9.01	9.58	9.43	9.75	8.93	9.34	9.14	9.09	10.09
12/01/39	12/31/39	Dec 2039	107.48	100.38	98.23	95.31	108.56	99.00	104.03	98.03	102.13	95.93	9.70	9.99	9.44	9.49	9.83	9.86	10.55	9.43	9.82	9.62	9.58	10.91
01/01/40	01/31/40	Jan 2040	108.99	100.05	102.03	98.53	108.48	97.36	104.59	98.02	104.32	97.42	9.79	10.16	9.55	9.47	9.66	9.75	10.59	9.33	9.81	9.61	9.56	10.95
02/01/40	02/29/40	Feb 2040	100.59	93.78	100.71	97.35	97.18	89.91	100.07	94.63	100.48	94.96	9.71	10.00	9.23	9.20	9.24	9.34	9.66	9.04	9.54	9.34	9.29	10.01
03/01/40	03/31/40	Mar 2040	89.17	84.04	88.66	85.87	89.31	82.25	90.71	87.54	89.33	83.60	8.48	8.48	8.18	8.20	8.48	8.31	8.66	8.24	8.53	8.33	8.28	9.01
04/01/40	04/30/40	Apr 2040	83.39	79.97	87.67	85.43	80.04	75.08	89.44	85.75	89.34	83.02	8.42	8.43	8.12	8.06	8.27	8.16	7.77	7.67	8.39	8.19	8.15	8.08
05/01/40	05/31/40	May 2040	79.78	74.32	90.05	85.84	74.37	69.52	89.74	85.32	90.27	83.38	8.45	8.51	7.99	7.98	8.20	7.87	7.78	7.57	8.29	8.10	8.06	8.08
06/01/40	06/30/40	Jun 2040	86.58	76.54	102.43	89.55	80.57	71.34	99.27	86.77	101.60	87.31	8.61	8.67	8.08	8.02	8.24	7.91	7.75	7.61	8.34	8.15	8.11	8.05
07/01/40	07/31/40	Jul 2040	101.16	88.66	112.65	96.53	94.49	82.73	113.70	94.32	113.45	95.60	8.71	9.10	8.23	8.13	8.33	7.96	7.88	7.65	8.45	8.26	8.22	8.19
08/01/40	08/31/40	Aug 2040	104.73	89.66	112.91	97.52	97.93	83.78	116.73	95.48	115.42	96.98	8.78	9.20	8.26	8.21	8.47	8.06	7.87	7.70	8.52	8.33	8.29	8.18
09/01/40	09/30/40	Sep 2040	97.08	86.40	102.54	93.95	90.96	81.71	106.27	93.09	103.67	91.96	8.72	9.19	8.31	8.26	8.53	8.12	7.92	7.75	8.58	8.39	8.34	8.23
10/01/40	10/31/40	Oct 2040	94.30	86.22	96.94	90.64	90.88	82.35	100.25	92.10	98.42	89.55	8.77	9.17	8.50	8.42	8.66	8.48	8.06	7.91	8.74	8.55	8.50	8.37
11/01/40	11/30/40	Nov 2040	104.49	98.60	98.91	95.20	100.39	94.32	104.64	98.25	101.51	94.33	9.36	9.85	9.15	9.20	9.78	9.63	9.95	9.11	9.52	9.33	9.28	10.30
12/01/40	12/31/40	Dec 2040	111.29	103.41	101.53	98.08	111.58	102.08	106.53	100.60	104.38	98.00	9.90	10.20	9.64	9.69	10.04	10.07	10.77	9.63	10.02	9.82	9.77	11.13
01/01/41	01/31/41	Jan 2041	112.23	103.03	104.55	101.16	110.95	99.91	107.22	100.64	106.60	99.88	10.00	10.37	9.75	9.67	9.86	9.95	10.81	9.53	10.01	9.81	9.76	11.17
02/01/41	02/28/41	Feb 2041	104.10	97.10	103.07	99.93	100.42	92.46	103.39	97.02	102.86	97.48	9.91	10.21	9.42	9.40	9.44	9.53	9.86	9.23	9.73	9.53	9.48	10.22
03/01/41	03/31/41	Mar 2041	92.40	86.71	90.45	88.79	92.07	85.09	93.22	89.71	91.73	85.90	8.66	8.64	8.36	8.37	8.66	8.49	8.84	8.42	8.71	8.50	8.46	9.19
04/01/41	04/30/41	Apr 2041	85.80	82.45	90.82	88.25	82.55	77.40	91.83	88.03	91.25	85.08	8.59	8.61	8.29	8.23	8.44	8.33	7.94	7.83	8.55	8.36	8.32	8.25
05/01/41	05/31/41	May 2041	81.75	76.31	92.52	88.42	76.44	71.66	91.61	87.52	92.23	85.50	8.63	8.69	8.16	8.15	8.37	8.04	7.95	7.72	8.46	8.27	8.23	8.25
06/01/41	06/30/41	Jun 2041	86.03	78.36	102.48	91.70	80.02	73.26	98.71	88.86	100.52	88.88	8.79	8.85	8.25	8.19	8.42	8.08	7.91	7.77	8.51	8.32	8.28	8.21
07/01/41	07/31/41	Jul 2041	103.11	90.17	116.01	98.21	96.31	84.09	115.89	95.63	115.44	96.82	8.90	9.29	8.40	8.30	8.51	8.13	8.05	7.82	8.62	8.43	8.39	8.35
08/01/41	08/31/41	Aug 2041	107.96	92.25	116.65	100.16	100.95	86.20	120.22	98.08	118.27	99.15	8.96	9.39	8.44	8.38	8.64	8.23	8.04	7.86	8.70	8.50	8.46	8.34
09/01/41	09/30/41	Sep 2041	102.01	89.61	107.21	96.93	95.40	84.22	112.09	96.69	109.11	95.34	8.91	9.38	8.49	8.43	8.71	8.29	8.09	7.91	8.75	8.56	8.52	8.39
10/01/41	10/31/41	Oct 2041	96.38	88.23	99.82	93.44	91.82	83.74	103.74	94.														

11/01/43	11/30/43	Nov 2043	111.46	105.84	108.08	103.32	105.89	100.89	111.67	105.79	109.03	101.50	9.96	10.48	9.74	9.79	10.41	10.25	10.59	9.70	10.12	9.92	9.87	10.94
12/01/43	12/31/43	Dec 2043	120.83	111.68	109.54	105.81	119.55	110.63	114.44	107.99	112.46	105.18	10.54	10.86	10.26	10.31	10.69	10.72	11.47	10.25	10.65	10.45	10.40	11.82
01/01/44	01/31/44	Jan 2044	120.23	110.78	112.30	108.63	118.56	107.50	114.79	107.61	114.00	106.85	10.64	11.04	10.38	10.29	10.49	10.59	11.51	10.14	10.63	10.43	10.38	11.87
02/01/44	02/29/44	Feb 2044	112.19	104.11	111.25	106.88	107.89	98.91	110.95	103.79	110.52	104.40	10.55	10.86	10.03	10.00	10.04	10.15	10.49	9.82	10.34	10.14	10.09	10.85
03/01/44	03/31/44	Mar 2044	98.57	92.84	97.14	94.78	98.05	91.00	99.83	96.21	98.16	91.92	9.21	9.19	8.89	8.91	9.21	9.03	9.41	8.96	9.24	9.04	8.99	9.76

04/01/19	04/30/19	Apr 2019	43.83	28.81	41.03	31.80	35.56	21.46	41.84	36.16	42.88	37.09	4.13	4.32	3.85	3.92	3.95	3.91	3.76	4.23	4.03	4.00	4.00		
05/01/19	05/31/19	May 2019	39.04	21.51	41.03	30.23	34.40	20.70	42.25	34.20	43.73	35.44	4.15	4.34	3.87	3.94	3.97	3.93	3.67	3.47	4.25	4.05	4.02	3.91	
06/01/19	06/30/19	Jun 2019	39.38	22.43	43.20	30.23	33.24	20.85	43.87	34.20	45.84	35.77	4.18	4.37	3.89	3.97	3.99	3.96	3.62	3.49	4.28	4.08	4.04	3.85	
07/01/19	07/31/19	Jul 2019	52.09	31.08	53.44	34.75	43.88	27.83	51.15	39.69	54.92	41.43	4.21	4.40	3.93	4.00	4.03	3.99	3.61	3.53	4.32	4.12	4.08	3.85	
08/01/19	08/31/19	Aug 2019	55.38	40.93	52.54	34.75	51.57	34.50	52.60	42.79	55.43	43.77	4.24	4.43	3.95	4.02	4.05	4.02	3.59	3.55	4.34	4.14	4.10	3.82	
09/01/19	09/30/19	Sep 2019	53.03	41.24	46.28	34.75	49.01	41.17	49.70	40.08	51.35	42.60	4.24	4.43	3.95	4.02	4.05	4.02	3.66	3.55	4.34	4.14	4.10	3.90	
10/01/19	10/31/19	Oct 2019	48.12	40.80	44.13	35.50	45.16	39.46	46.94	40.46	46.98	41.07	4.27	4.46	3.99	4.06	4.09	4.05	3.72	3.59	4.37	4.17	4.13	3.96	
11/01/19	11/30/19	Nov 2019	50.80	41.53	43.38	34.90	45.99	40.15	46.94	40.07	47.90	41.07	4.36	4.58	4.15	4.22	4.33	4.29	4.49	3.80	4.55	4.34	4.30	4.81	
12/01/19	12/31/19	Dec 2019	54.83	44.43	41.49	36.11	48.06	41.89	48.32	42.03	48.83	43.42	4.54	4.77	4.34	4.41	4.51	4.47	4.68	3.98	4.74	4.53	4.49	5.00	
01/01/20	01/31/20	Jan 2020	53.09	44.73	45.88	38.83	48.76	42.07	52.10	45.55	52.68	46.14	4.63	4.86	4.40	4.53	4.60	4.56	4.76	4.07	4.87	4.65	4.61	5.09	
02/01/20	02/29/20	Feb 2020	49.20	41.74	45.59	39.41	46.59	40.28	52.03	46.79	52.82	47.05	5.05	5.11	4.76	4.80	4.83	4.81	5.10	4.42	5.14	4.93	4.88	5.43	
03/01/20	03/31/20	Mar 2020	46.25	40.28	41.60	37.74	42.38	37.97	48.92	44.86	49.27	45.44	4.83	4.91	4.56	4.62	4.75	4.72	4.90	4.33	4.96	4.74	4.70	5.22	
04/01/20	04/30/20	Apr 2020	43.76	35.02	43.93	36.40	38.10	30.75	47.30	42.91	47.77	43.45	4.67	4.79	4.38	4.40	4.57	4.48	4.31	4.10	4.72	4.52	4.48	4.59	
05/01/20	05/31/20	May 2020	41.33	30.46	43.46	35.85	37.53	28.17	47.65	42.14	48.66	42.55	4.70	4.77	4.41	4.43	4.52	4.44	4.31	4.09	4.75	4.55	4.51	4.58	
06/01/20	06/30/20	Jun 2020	41.77	31.94	45.91	36.03	38.92	30.23	48.24	42.36	50.27	43.56	4.75	4.87	4.47	4.42	4.54	4.47	4.27	4.11	4.74	4.54	4.50	4.54	
07/01/20	07/31/20	Jul 2020	53.39	37.51	57.25	40.31	50.68	35.47	57.38	46.76	59.64	47.91	4.80	4.98	4.51	4.48	4.58	4.49	4.25	4.11	4.80	4.60	4.56	4.52	
08/01/20	08/31/20	Aug 2020	56.87	43.07	57.22	40.60	55.90	39.92	59.37	48.55	61.00	49.98	4.83	5.05	4.53	4.50	4.61	4.52	4.23	4.14	4.82	4.62	4.58	4.50	
09/01/20	09/30/20	Sep 2020	53.28	42.49	50.33	39.16	52.03	42.34	55.23	46.24	56.03	47.81	4.81	4.99	4.53	4.52	4.64	4.55	4.29	4.15	4.84	4.64	4.60	4.56	
10/01/20	10/31/20	Oct 2020	48.94	41.71	46.11	38.86	46.59	40.80	51.23	45.96	50.99	46.38	4.84	4.97	4.54	4.56	4.70	4.60	4.34	4.21	4.89	4.69	4.64	4.62	
11/01/20	11/30/20	Nov 2020	54.97	45.12	47.02	39.91	52.73	44.29	52.32	47.12	52.29	47.10	4.97	5.13	4.72	4.75	4.98	4.95	5.18	4.48	5.09	4.88	4.83	5.50	
12/01/20	12/31/20	Dec 2020	57.46	46.53	44.13	40.75	54.81	45.21	53.22	48.54	53.01	48.95	5.16	5.32	4.92	4.96	5.09	5.12	5.44	4.66	5.31	5.09	5.04	5.78	
01/01/21	01/31/21	Jan 2021	57.70	47.55	50.88	45.34	54.51	46.15	55.99	50.01	56.10	50.50	5.19	5.34	4.94	4.99	5.02	5.06	5.32	4.64	5.34	5.13	5.08	5.66	
02/01/21	02/28/21	Feb 2021	48.81	42.97	48.17	43.27	48.24	41.57	55.48	51.58	56.05	51.50	5.62	5.69	5.29	5.28	5.27	5.25	5.60	5.05	5.62	5.41	5.36	5.93	
03/01/21	03/31/21	Mar 2021	46.29	41.79	42.83	41.76	43.35	39.34	53.41	50.11	52.70	49.48	5.27	5.26	4.95	4.99	5.17	5.14	5.27	4.93	5.33	5.12	5.07	5.60	
04/01/21	04/30/21	Apr 2021	43.68	41.23	46.84	41.00	40.63	40.04	52.76	49.66	52.65	49.81	5.22	5.25	4.91	4.88	5.20	5.05	4.86	4.76	5.20	5.00	4.96	5.14	
05/01/21	05/31/21	May 2021	43.63	39.41	45.90	41.47	40.66	35.85	53.05	50.08	53.59	49.65	5.26	5.20	4.95	4.92	5.06	4.95	4.94	4.70	5.24	5.04	4.99	5.22	
06/01/21	06/30/21	Jun 2021	44.15	41.45	48.61	41.84	44.80	39.62	52.61	50.53	54.70	51.34	5.33	5.37	5.04	4.88	5.09	4.97	4.93	4.73	5.20	5.00	4.96	5.20	
07/01/21	07/31/21	Jul 2021	54.68	43.93	61.07	45.86	57.48	43.11	63.60	53.84	64.35	54.39	5.39	5.55	5.09	4.96	5.14	4.99	4.90	4.70	5.28	5.08	5.04	5.17	
08/01/21	08/31/21	Aug 2021	58.36	45.22	61.89	46.45	60.23	45.33	66.14	54.32	66.57	54.98	5.42	5.67	5.12	4.98	5.16	5.02	4.88	4.72	5.30	5.10	5.06	5.15	
09/01/21	09/30/21	Sep 2021	53.53	43.73	54.39	43.56	55.06	43.51	60.75	52.41	60.70	53.01	5.38	5.55	5.10	5.01	5.22	5.07	4.91	4.75	5.33	5.13	5.09	5.19	
10/01/21	10/31/21	Oct 2021	49.76	42.61	48.09	42.21	48.03	42.14	55.51	51.46	55.01	51.70	5.40	5.48	5.10	5.07	5.31	5.15	4.97	4.84	5.39	5.19	5.15	5.24	
11/01/21	11/30/21	Nov 2021	59.13	48.71	50.66	44.92	59.47	48.42	57.70	54.18	56.67	53.14	5.59	5.68	5.28	5.28	5.64	5.61	5.86	5.16	5.62	5.40	5.36	6.18	
12/01/21	12/31/21	Dec 2021	60.08	48.64	46.76	45.40	61.56	48.53	58.12	55.05	57.20	54.47	5.78	5.86	5.51	5.52	5.67	5.77	6.21	5.34	5.86	5.65	5.60	6.54	
01/01/22	01/31/22	Jan 2022	62.30	50.38	55.87	51.84	60.25	50.23	59.88	54.46	59.51	54.86	5.75	5.81	5.48	5.46	5.43	5.55	5.88	5.20	5.81	5.60	5.55	6.22	
02/01/22	02/28/22	Feb 2022	56.06	48.78	57.07	51.58	54.88	47.71	57.97	53.56	58.72	54.06	5.73	5.71	5.37	5.39	5.35	5.47	5.67	5.23	5.73	5.52	5.47	6.00	
03/01/22	03/31/22	Mar 2022	53.68	47.68	50.53	49.06	54.88	47.57	55.75	52.45	55.16	52.10	5.42	5.41	5.10	5.09	5.25	5.20	5.37	5.27	5.05	5.43	5.22	5.17	5.69
04/01/22	04/30/22	Apr 2022	52.42	48.45	54.09	50.02	49.97	46.05	57.31	53.15	57.55	52.90	5.36	5.41	5.06	5.05	5.25	5.13	5.00	4.87	5.37	5.17	5.13	5.28	
05/01/22	05/31/22	May 2022	51.00	46.42	53.68	49.15	49.49	44.99	56.50	52.14	56.83	52.15	5.40	5.36	5.11	5.04	5.24	5.09	5.09	4.83	5.36	5.16	5.12	5.36	
06/01/22	06/30/22	Jun 2022	50.78	47.99	57.79	50.68	50.70	44.60	55.37	53.11	57.47	53.21	5.50	5.55	5.20	5.07	5.27	5.12	5.07	4.86	5.39	5.19	5.15	5.34	
07/01/22	07/31/22	Jul 2022	61.99	51.44	69.87	54.89	62.40	50.64	67.71	56.80	68.44	57.45	5.55	5.78	5.26	5.10	5.50	5.15	5.10	4.88	5.42	5.22	5.18	5.37	
08/01/22	08/31/22	Aug 2022	66.82	53.05	70.81	55.03	65.20	51.70	70.09	57.43	70.41	57.72	5.59	5.89	5.30	5.14	5.36	5.18	5.09	4.90	5.46	5.26	5.22	5.36	
09/01/22	09/30/22	Sep 2022	60.89	51.06	60.98	52.31	59.52	48.95	64.19	55.52	64.24	55.20	5.52	5.74	5.26	5.16	5.42	5.25	5.12	4.93	5.49	5.29	5.24	5.39	
10/01/22	10/31/22	Oct 2022	56.75	50.43	55.59	50.58	54.83	47.94	59.66	54.54	59.14	53.66	5.55	5.62	5.25	5.22	5.50	5.33	5.17	5.02	5.54	5.34	5.30	5.45	
11/01/22	11/30/22	Nov 2022	68.71	55.60	58.27	52.73	67.96	57.60	62.77	56.80	61.91	55.78	5.88	5.87	5.59	5.60	5.91	5.90	6.12	5.43	5.94	5.72	5.68	6.44	
12/01/22	12/31/22	Dec 2022	70.12	57.25	58.55	55.80	69.65	59.73	63.42	59.13	62.50	58.84	6.20	6.33	5.93	5.85	6.03	6.10	6.50	5.69	6.19	5.98	5.93	6.83	
01/01/23	01/31/23	Jan 2023	64.01	52.07	57.34	53.53	62.52	50.46	61.20	55.82	60.80	56.45	5.85	6.03	5.61	5.56	5.64	5.62	6.12	5.39	5.91	5.69	5.64	6.46	
02/01/23	02/28/23	Feb 2023	58.09	51.57	58.68	52.94	56.37	49.36	59.69	55.53	60.31	55.57	5.88	5.89	5.56	5.56	5.68	5.66	5.87	5.42	5.90	5.69	5.64	6.20	
03/01/23	03/31/23	Mar 2023	56.18	50.54	51.92	50.43	57.57	49.42	56.53	54.42	55.67	53.46	5.63	5.54	5.27	5.37	5.59	5.49	5.55	5.29	5.71	5.50	5.46	5.88	
04/01/23	04/30/23	Apr 2023	53.08	50.62	54.51	51.25	51.46	47.94	57.48	55.06	57.68	54.27	5.58	5.55	5.24	5.28	5.50	5.36	5.27	5.09	5.50	5.40	5.35	5.55	

05/01/25	05/31/25	May 2025	56.06	52.88	58.51	53.83	55.49	50.89	60.74	55.94	61.34	56.32	5.87	5.87	5.56	5.50	5.70	5.61	5.56	5.28	5.82	5.62	5.58	5.84
06/01/25	06/30/25	Jun 2025	55.48	52.25	61.88	55.09	54.36	48.42	59.98	57.62	61.54	57.41	5.96	5.95	5.60	5.51	5.70	5.61	5.55	5.31	5.83	5.63	5.59	5.83
07/01/25	07/31/25	Jul 2025	67.64	55.92	74.72	59.40	68.29	55.00	73.44	61.28	74.10	61.70	6.04	6.25	5.69	5.60	5.82	5.67	5.63	5.34	5.93	5.73	5.68	5.90
08/01/25	08/31/25	Aug 2025	70.33	57.15	74.94	59.45	69.82	55.26	75.03	62.24	75.20	62.14	6.08	6.32	5.72	5.63	5.85	5.70	5.58	5.37	5.96	5.76	5.71	5.85
09/01/25	09/30/25	Sep 2025	65.42	55.83	65.78	57.50	64.74	53.38	69.47	60.89	69.32	60.40	6.02	6.31	5.72	5.64	5.90	5.74	5.65	5.40	5.97	5.77	5.72	5.92
10/01/25	10/31/25	Oct 2025	60.40	54.80	59.41	55.77	57.15	51.91	63.50	59.55	62.86	58.88	6.04	6.19	5.76	5.69	5.94	5.81	5.74	5.49	6.01	5.81	5.77	6.02
11/01/25	11/30/25	Nov 2025	70.97	59.01	61.15	56.54	70.99	60.53	65.38	60.74	64.47	59.79	6.21	6.31	5.92	5.91	6.26	6.27	6.25	5.77	6.25	6.03	5.99	6.57
12/01/25	12/31/25	Dec 2025	72.65	60.09	61.02	58.74	73.70	63.10	66.63	62.46	65.61	61.99	6.49	6.66	6.21	6.12	6.37	6.49	6.91	6.05	6.47	6.25	6.21	7.24
01/01/26	01/31/26	Jan 2026	68.75	58.17	63.07	59.49	68.18	58.15	67.08	62.03	66.50	62.67	6.61	6.75	6.37	6.27	6.36	6.50	6.91	6.13	6.62	6.41	6.36	7.25
02/01/26	02/28/26	Feb 2026	62.78	56.63	64.20	58.99	61.29	53.88	65.04	60.87	65.64	61.29	6.55	6.58	6.25	6.19	6.25	6.26	6.66	6.09	6.54	6.32	6.27	6.99
03/01/26	03/31/26	Mar 2026	59.63	55.12	56.96	55.12	57.99	53.71	61.64	59.12	60.75	58.22	6.09	6.05	5.81	5.80	6.04	5.96	6.07	5.76	6.14	5.93	5.88	6.40
04/01/26	04/30/26	Apr 2026	58.17	54.84	58.28	55.47	56.02	52.54	61.45	59.38	61.73	58.45	6.03	6.00	5.76	5.73	5.94	5.81	5.74	5.54	6.05	5.85	5.81	6.02
05/01/26	05/31/26	May 2026	56.57	53.21	59.86	55.36	55.51	51.41	61.71	57.84	62.25	58.04	6.07	6.04	5.70	5.66	5.84	5.72	5.70	5.44	5.98	5.78	5.74	5.98
06/01/26	06/30/26	Jun 2026	56.85	54.36	63.43	56.51	55.71	50.39	61.66	59.05	62.63	58.66	6.17	6.10	5.75	5.69	5.87	5.75	5.69	5.48	6.01	5.81	5.77	5.96
07/01/26	07/31/26	Jul 2026	69.96	57.59	77.20	61.44	70.35	56.40	75.73	63.03	76.33	63.36	6.25	6.43	5.87	5.77	5.96	5.81	5.77	5.51	6.09	5.89	5.84	6.04
08/01/26	08/31/26	Aug 2026	73.38	59.29	77.32	61.61	72.55	57.65	77.42	63.74	77.68	63.92	6.29	6.53	5.91	5.80	6.01	5.84	5.72	5.54	6.12	5.92	5.88	5.99
09/01/26	09/30/26	Sep 2026	68.26	57.54	68.47	59.27	67.49	54.93	72.29	62.70	72.11	62.27	6.22	6.54	5.90	5.81	6.07	5.80	5.80	5.57	6.13	5.93	5.89	6.07
10/01/26	10/31/26	Oct 2026	62.60	56.64	61.53	57.54	58.92	53.94	65.78	61.29	65.02	60.55	6.25	6.37	5.99	5.94	6.14	6.11	5.86	5.66	6.26	6.06	6.02	6.13
11/01/26	11/30/26	Nov 2026	74.25	61.07	63.69	58.91	75.22	62.66	68.18	63.00	67.19	62.01	6.39	6.66	6.17	6.10	6.45	6.46	6.47	6.01	6.44	6.23	6.18	6.79
12/01/26	12/31/26	Dec 2026	75.06	62.70	63.36	60.64	75.32	65.70	68.96	64.58	67.95	64.07	6.66	6.90	6.45	6.36	6.65	6.71	7.19	6.28	6.70	6.49	6.44	7.52
01/01/27	01/31/27	Jan 2027	72.62	60.95	66.54	62.53	72.31	60.91	70.30	65.42	69.71	65.68	6.92	7.14	6.63	6.55	6.69	6.81	7.26	6.44	6.90	6.69	6.64	7.59
02/01/27	02/28/27	Feb 2027	66.03	58.79	67.21	62.21	64.72	56.48	69.04	63.92	69.61	64.57	6.89	7.07	6.44	6.39	6.42	6.45	6.89	6.32	6.73	6.51	6.47	7.22
03/01/27	03/31/27	Mar 2027	62.66	56.72	58.72	56.93	61.15	55.62	63.24	60.51	62.48	59.86	6.27	6.22	6.01	5.95	6.21	6.16	6.29	6.02	6.29	6.07	6.03	6.61
04/01/27	04/30/27	Apr 2027	59.77	56.52	60.67	57.13	58.24	54.35	63.55	61.11	63.92	60.22	6.21	6.20	5.94	5.87	6.12	6.09	5.84	5.67	6.19	5.99	5.95	6.12
05/01/27	05/31/27	May 2027	58.99	56.07	62.40	57.66	57.84	54.15	63.91	59.88	64.73	60.34	6.26	6.28	5.92	5.87	6.06	5.91	5.89	5.61	6.19	5.99	5.94	6.16
06/01/27	06/30/27	Jun 2027	59.72	56.44	65.80	58.76	58.20	52.45	64.68	60.93	65.44	60.81	6.38	6.39	6.00	5.90	6.10	5.94	5.88	5.65	6.22	6.02	5.98	6.15
07/01/27	07/31/27	Jul 2027	71.36	59.57	78.61	62.77	71.74	57.58	77.15	64.70	77.63	64.80	6.44	6.53	6.05	5.96	6.14	5.97	5.95	5.67	6.28	6.08	6.04	6.22
08/01/27	08/31/27	Aug 2027	76.04	60.82	79.70	63.26	75.03	58.56	79.78	65.75	80.01	65.55	6.48	6.73	6.10	5.99	6.20	6.01	5.90	5.70	6.31	6.11	6.07	6.17
09/01/27	09/30/27	Sep 2027	69.54	59.33	69.26	60.73	68.74	56.72	73.10	64.03	72.83	63.57	6.41	6.66	6.13	6.03	6.24	6.04	5.98	5.74	6.35	6.15	6.11	6.25
10/01/27	10/31/27	Oct 2027	64.27	58.49	63.57	59.18	61.21	56.09	67.74	63.49	67.02	62.57	6.44	6.64	6.16	6.12	6.36	6.32	6.05	5.84	6.44	6.24	6.20	6.32
11/01/27	11/30/27	Nov 2027	76.64	64.44	66.22	61.67	76.11	66.11	70.73	66.10	69.62	65.09	6.73	6.92	6.53	6.51	6.89	6.85	6.89	6.40	6.85	6.63	6.59	7.21
12/01/27	12/31/27	Dec 2027	77.92	65.91	66.25	63.22	75.87	68.70	71.79	67.70	70.73	66.76	6.99	7.19	6.76	6.75	6.97	7.06	7.59	6.64	7.10	6.88	6.84	7.92
01/01/28	01/31/28	Jan 2028	77.36	63.05	69.00	64.80	76.40	63.48	72.56	67.42	72.01	67.87	7.20	7.42	6.91	6.76	6.88	7.01	7.47	6.63	7.11	6.90	6.85	7.81
02/01/28	02/29/28	Feb 2028	69.47	61.23	70.11	64.34	68.75	58.82	71.72	66.12	72.33	66.80	7.14	7.33	6.68	6.65	6.68	6.67	7.11	6.52	6.99	6.78	6.73	7.44
03/01/28	03/31/28	Mar 2028	66.13	58.60	60.29	58.39	67.16	57.61	64.79	62.37	63.88	61.61	6.44	6.39	6.17	6.12	6.40	6.30	6.41	6.12	6.46	6.24	6.20	6.47
04/01/28	04/30/28	Apr 2028	61.44	58.45	62.30	59.24	60.21	56.24	65.21	63.23	65.60	62.21	6.39	6.39	6.09	6.03	6.29	6.27	5.99	5.84	6.35	6.15	6.11	6.24
05/01/28	05/31/28	May 2028	60.35	56.60	63.76	58.99	59.84	55.36	64.97	60.84	65.60	61.07	6.43	6.46	6.08	6.03	6.21	6.07	6.02	5.79	6.35	6.15	6.11	6.29
06/01/28	06/30/28	Jun 2028	61.38	57.88	68.01	60.59	59.92	53.96	66.28	62.39	67.33	62.14	6.54	6.56	6.13	6.04	6.26	6.10	6.00	5.82	6.36	6.16	6.12	6.28
07/01/28	07/31/28	Jul 2028	73.48	61.19	80.55	64.94	73.71	59.05	79.27	66.47	79.72	66.22	6.60	6.71	6.21	6.10	6.30	6.14	6.06	5.82	6.42	6.22	6.17	6.33
08/01/28	08/31/28	Aug 2028	78.96	62.50	81.53	64.92	77.59	59.81	82.03	67.24	82.11	66.90	6.63	6.92	6.24	6.13	6.30	6.17	6.05	5.86	6.45	6.25	6.21	6.32
09/01/28	09/30/28	Sep 2028	71.48	61.53	71.05	62.62	70.54	58.55	75.02	66.33	74.64	65.62	6.58	6.85	6.26	6.17	6.43	6.22	6.09	5.89	6.49	6.29	6.24	6.36
10/01/28	10/31/28	Oct 2028	66.64	60.60	65.83	61.78	63.38	58.18	70.16	64.26	69.38	64.08	6.61	6.82	6.38	6.29	6.54	6.51	6.17	6.02	6.61	6.41	6.37	6.45
11/01/28	11/30/28	Nov 2028	81.72	68.13	70.48	65.28	80.50	70.64	75.25	69.54	74.22	68.78	7.12	7.35	6.95	6.96	7.38	7.36	7.69	6.91	7.30	7.08	7.04	8.01
12/01/28	12/31/28	Dec 2028	82.16	70.72	70.22	67.53	80.51	73.31	76.34	71.87	75.18	71.01	7.49	7.71	7.27	7.30	7.53	7.66	8.21	7.30	7.65	7.43	7.38	8.54
01/01/29	01/31/29	Jan 2029	79.82	65.78	71.79	67.46	80.41	65.97	76.07	70.74	74.33	70.35	7.48	7.73	7.21	7.09	7.25	7.36	7.70	6.90	7.44	7.22	7.17	8.04
02/01/29	02/28/29	Feb 2029	71.58	64.79	72.50	66.98	70.34	62.73	74.05	69.12	74.51	69.67	7.43	7.62	7.02	6.93	7.09	7.25	7.46	6.94	7.27	7.05	7.01	7.79
03/01/29	03/31/29	Mar 2029	67.64	60.83	62.48	61.66	68.72	60.06	67.18	63.97	66.24	63.92	6.74	6.69	6.49	6.42	6.63	6.62	6.82	6.49	6.76	6.55	6.50	7.14
04/01/29	04/30/29	Apr 2029	63.32	60.49	64.42	61.23	61.82	58.63	66.84	65.04	67.26	64.16	6.68	6.68	6.42	6.35	6.53	6.41	6.30	6.14	6.66	6.46	6.42	6.58
05/01/29	05/31/29	May 2029	62.89	60.22	66.73	61.52	62.85	57.96	67.29	63.05	68.38	63.12	6.72	6.74	6.41	6.35	6.52	6.37	6.36	6.10	6.66	6.47	6.43	6.63

06/01/31	06/30/31	Jun 2031	66.35	63.01	73.82	66.59	65.57	59.42	71.51	68.07	72.42	67.75	7.17	7.16	6.70	6.62	6.83	6.63	6.49	6.34	6.94	6.74	6.69	6.76
07/01/31	07/31/31	Jul 2031	80.91	66.85	88.24	71.56	81.20	65.14	86.64	72.22	87.30	72.53	7.25	7.52	6.82	6.71	6.90	6.67	6.60	6.37	7.03	6.83	6.78	6.87
08/01/31	08/31/31	Aug 2031	83.38	67.41	88.85	71.37	83.02	65.12	88.11	73.54	88.40	73.10	7.21	7.61	6.85	6.77	7.01	6.75	6.59	6.41	7.09	6.89	6.85	6.86
09/01/31	09/30/31	Sep 2031	76.78	67.29	77.37	68.94	75.54	64.23	80.84	72.50	80.78	71.80	7.26	7.60	6.90	6.81	7.06	6.80	6.63	6.45	7.13	6.93	6.89	6.91
10/01/31	10/31/31	Oct 2031	71.87	66.50	70.65	67.68	68.38	63.89	75.09	71.33	74.32	70.32	7.31	7.58	7.05	6.94	7.17	7.10	6.75	6.59	7.27	7.06	7.02	7.03
11/01/31	11/30/31	Nov 2031	87.55	75.00	76.32	71.67	85.08	76.52	81.49	75.81	80.42	75.03	7.79	8.14	7.59	7.58	8.09	8.06	8.34	7.59	7.92	7.71	7.66	8.66
12/01/31	12/31/31	Dec 2031	89.31	76.73	76.48	73.74	86.68	79.83	82.68	77.66	81.69	76.77	8.24	8.43	8.00	7.99	8.31	8.43	9.02	8.02	8.34	8.12	8.07	9.36
01/01/32	01/31/32	Jan 2032	86.32	73.88	78.99	74.37	87.80	73.94	82.20	78.17	81.35	77.22	8.31	8.56	8.08	7.97	8.15	8.33	9.04	7.93	8.31	8.10	8.05	9.38
02/01/32	02/29/32	Feb 2032	77.64	70.94	78.84	73.11	75.59	68.95	80.19	75.66	80.68	75.04	8.24	8.43	7.81	7.74	8.10	7.98	8.25	7.68	8.08	7.87	7.82	8.58
03/01/32	03/31/32	Mar 2032	73.31	66.24	67.07	65.20	71.24	64.58	72.04	69.66	71.03	68.69	7.20	7.13	6.92	6.89	7.16	7.10	7.39	7.00	7.23	7.02	6.97	7.72
04/01/32	04/30/32	Apr 2032	66.82	65.29	69.20	65.56	66.20	62.18	70.87	69.28	71.36	68.27	7.15	7.11	6.87	6.78	6.98	6.97	6.64	6.51	7.10	6.90	6.86	6.92
05/01/32	05/31/32	May 2032	66.14	63.65	71.31	66.32	65.28	61.09	71.32	67.40	72.02	67.51	7.18	7.18	6.76	6.71	6.92	6.72	6.65	6.43	7.03	6.83	6.79	6.92
06/01/32	06/30/32	Jun 2032	67.64	64.45	75.60	68.20	66.79	61.82	72.75	68.37	73.74	68.57	7.32	7.31	6.84	6.75	6.96	6.76	6.62	6.46	7.07	6.87	6.83	6.89
07/01/32	07/31/32	Jul 2032	82.11	67.98	90.23	73.23	82.49	66.85	88.07	73.80	88.74	74.08	7.40	7.67	6.96	6.84	7.03	6.80	6.73	6.50	7.16	6.96	6.92	7.00
08/01/32	08/31/32	Aug 2032	85.82	69.05	91.35	72.88	85.32	67.28	90.40	74.81	90.50	74.52	7.45	7.76	6.99	6.90	7.15	6.89	6.73	6.54	7.22	7.02	6.98	7.00
09/01/32	09/30/32	Sep 2032	79.41	68.92	79.56	70.65	77.04	65.63	82.98	74.06	82.93	73.41	7.41	7.75	7.03	6.95	7.20	6.94	6.77	6.58	7.27	7.07	7.03	7.04
10/01/32	10/31/32	Oct 2032	73.85	68.13	73.03	69.14	69.82	65.16	77.39	72.95	76.71	71.98	7.45	7.73	7.19	7.08	7.31	7.24	6.88	6.72	7.40	7.20	7.16	7.16
11/01/32	11/30/32	Nov 2032	89.03	76.47	77.75	73.40	86.43	78.51	82.59	77.29	81.56	76.48	7.95	8.30	7.74	7.73	8.26	8.23	8.50	7.74	8.07	7.86	7.82	8.83
12/01/32	12/31/32	Dec 2032	91.19	78.48	78.22	75.52	88.57	81.48	84.58	79.16	83.51	78.46	8.41	8.60	8.16	8.15	8.48	8.60	9.20	8.18	8.50	8.28	8.23	9.54
01/01/33	01/31/33	Jan 2033	89.01	75.78	80.53	75.68	90.38	75.50	84.13	79.84	83.20	78.90	8.48	8.74	8.24	8.13	8.32	8.49	9.23	8.08	8.47	8.26	8.21	9.56
02/01/33	02/28/33	Feb 2033	79.96	72.80	81.23	74.93	70.00	70.49	82.65	77.80	83.03	77.34	8.41	8.60	7.96	7.89	7.96	8.14	8.41	7.83	8.24	8.02	7.98	8.74
03/01/33	03/31/33	Mar 2033	75.45	67.88	68.94	66.89	73.62	66.37	73.86	71.26	72.86	70.26	7.34	7.27	7.06	7.03	7.30	7.24	7.54	7.14	7.37	7.16	7.11	7.87
04/01/33	04/30/33	Apr 2033	68.61	66.69	71.09	67.46	68.07	64.06	72.98	70.93	73.45	69.93	7.29	7.25	7.01	6.92	7.10	7.11	6.77	6.64	7.24	7.04	6.99	7.05
05/01/33	05/31/33	May 2033	68.92	66.23	73.28	67.92	68.80	63.88	72.95	68.77	74.01	69.00	7.32	7.32	6.89	6.84	7.06	6.86	6.78	6.55	7.16	6.96	6.92	7.05
06/01/33	06/30/33	Jun 2033	69.91	66.18	77.92	69.65	69.71	62.59	74.95	71.07	75.78	70.62	7.46	7.45	6.98	6.88	7.10	6.90	6.75	6.59	7.20	7.00	6.96	7.02
07/01/33	07/31/33	Jul 2033	84.55	69.63	92.57	74.95	84.83	68.44	90.58	76.14	91.20	76.03	7.55	7.82	7.10	6.98	7.18	6.94	6.87	6.63	7.30	7.10	7.06	7.14
08/01/33	08/31/33	Aug 2033	88.15	70.15	92.95	74.32	87.47	68.40	92.53	76.63	92.51	76.16	7.60	7.91	7.13	7.04	7.29	7.02	6.86	6.67	7.36	7.16	7.12	7.13
09/01/33	09/30/33	Sep 2033	80.95	70.55	80.63	72.27	88.70	67.24	84.28	75.55	84.06	74.91	7.56	7.90	7.17	7.09	7.34	7.08	6.90	6.71	7.41	7.21	7.16	7.18
10/01/33	10/31/33	Oct 2033	75.82	69.69	74.45	70.80	72.16	67.04	78.72	74.27	78.02	73.27	7.60	7.88	7.34	7.22	7.46	7.39	7.02	6.85	7.55	7.35	7.30	7.30
11/01/33	11/30/33	Nov 2033	90.90	78.63	79.42	74.90	88.09	80.83	84.34	78.97	83.35	78.01	8.11	8.47	7.89	7.89	8.42	8.39	8.67	7.90	8.23	8.02	7.97	9.00
12/01/33	12/31/33	Dec 2033	92.68	80.82	79.85	77.23	90.26	83.52	86.27	81.10	85.24	80.32	8.58	8.77	8.32	8.31	8.65	8.78	9.39	8.34	8.66	8.44	8.39	9.72
01/01/34	01/31/34	Jan 2034	91.77	77.55	82.20	77.69	91.92	77.48	86.16	81.80	85.17	80.85	8.65	8.91	8.40	8.29	8.48	8.66	9.41	8.25	8.64	8.42	8.37	9.75
02/01/34	02/28/34	Feb 2034	81.53	74.72	82.35	76.49	80.26	72.02	83.96	79.46	84.41	78.75	8.58	8.77	8.12	8.05	8.12	8.30	8.58	7.99	8.39	8.18	8.13	8.91
03/01/34	03/31/34	Mar 2034	77.42	69.65	70.67	68.90	75.43	68.17	75.47	73.00	74.48	71.99	7.49	7.42	7.20	7.17	7.45	7.39	7.69	7.29	7.51	7.30	7.25	8.02
04/01/34	04/30/34	Apr 2034	70.10	68.40	72.77	69.18	69.76	65.27	74.50	73.22	75.04	72.22	7.44	7.40	7.15	7.05	7.26	7.25	6.91	6.77	7.37	7.17	7.13	7.19
05/01/34	05/31/34	May 2034	69.62	66.97	74.74	69.76	68.65	64.30	74.21	69.84	75.16	70.12	7.47	7.47	7.03	6.98	7.20	7.00	6.92	6.69	7.30	7.10	7.06	7.19
06/01/34	06/30/34	Jun 2034	70.32	67.28	78.98	71.25	70.60	65.52	75.09	70.97	76.46	71.26	7.61	7.60	7.12	7.02	7.24	7.03	6.88	6.73	7.34	7.14	7.10	7.16
07/01/34	07/31/34	Jul 2034	86.02	71.12	94.01	76.44	86.44	70.06	91.85	77.50	92.53	77.53	7.70	7.98	7.24	7.12	7.32	7.07	7.01	6.76	7.44	7.24	7.19	7.28
08/01/34	08/31/34	Aug 2034	90.13	72.72	94.48	75.77	89.35	70.49	94.13	78.17	94.21	77.89	7.76	8.07	7.27	7.18	7.44	7.16	7.00	6.80	7.50	7.30	7.26	7.27
09/01/34	09/30/34	Sep 2034	82.57	72.26	82.61	73.95	78.68	69.51	86.01	77.09	85.81	76.51	7.71	8.06	7.32	7.23	7.49	7.22	7.04	6.84	7.55	7.35	7.31	7.31
10/01/34	10/31/34	Oct 2034	77.37	71.46	75.66	72.25	73.59	68.78	80.09	75.83	79.32	74.85	7.75	8.04	7.48	7.37	7.61	7.54	7.16	6.99	7.69	7.49	7.45	7.44
11/01/34	11/30/34	Nov 2034	92.62	79.98	81.07	76.26	89.76	82.18	86.24	80.45	85.22	79.47	8.27	8.64	8.05	8.05	8.59	8.56	8.85	8.05	8.39	8.17	8.13	9.17
12/01/34	12/31/34	Dec 2034	94.20	82.55	81.61	78.53	92.21	85.52	88.09	82.46	87.11	81.64	8.75	8.95	8.49	8.48	8.82	8.95	9.58	8.51	8.82	8.61	8.56	9.91
01/01/35	01/31/35	Jan 2035	92.39	79.44	84.50	79.00	93.61	79.03	87.36	83.01	86.65	82.06	8.82	9.09	8.57	8.45	8.65	8.84	9.60	8.41	8.80	8.59	8.54	9.94
02/01/35	02/28/35	Feb 2035	83.85	76.62	85.02	78.18	83.04	73.89	86.94	81.17	86.53	80.52	8.75	8.94	8.28	8.21	8.28	8.46	8.75	8.15	8.85	8.34	8.29	9.08
03/01/35	03/31/35	Mar 2035	78.85	71.46	72.19	70.33	76.51	70.00	77.07	74.43	76.08	73.43	7.64	7.57	7.35	7.32	7.60	7.54	7.85	7.43	7.66	7.44	7.40	8.17
04/01/35	04/30/35	Apr 2035	72.52	70.29	74.41	70.89	70.99	66.80	75.61	74.02	76.11	73.01	7.58	7.55	7.29	7.20	7.41	7.40	7.05	6.91	7.51	7.31	7.27	7.33
05/01/35	05/31/35	May 2035	70.86	68.42	76.87	71.50	70.86	66.41	75.85	71.37	76.88	71.69	7.62	7.62	7.17	7.12	7.35	7.13	7.06	6.82	7.44	7.24	7.20	7.33
06/01/35	06/30/35	Jun 2035	71.83	69.08	80.87	72.95	72.13	66.70	76.89	73.34	78.20	73.33	7.76	7.75	7.26	7.16	7.39	7.17	7.02	6.86	7.48	7.28	7.24	7.29

07/01/37	07/31/37	Jul 2037	92.25	75.46	100.16	81.63	92.22	73.13	97.54	82.51	98.28	82.16	8.19	8.49	7.70	7.57	7.78	7.52	7.45	7.19	7.89	7.69	7.65	7.72
08/01/37	08/31/37	Aug 2037	94.26	77.22	101.15	81.67	94.31	74.65	99.73	83.62	100.04	83.24	8.25	8.58	7.73	7.64	7.91	7.62	7.44	7.23	7.96	7.76	7.71	7.71
09/01/37	09/30/37	Sep 2037	86.98	77.24	88.27	79.20	86.14	73.81	90.79	81.56	90.98	80.83	8.20	8.57	7.78	7.69	7.97	7.68	7.49	7.28	8.01	7.81	7.76	7.76
10/01/37	10/31/37	Oct 2037	82.93	76.67	81.29	77.84	79.87	73.49	85.45	79.96	84.69	79.03	8.24	8.55	7.97	7.83	8.09	8.01	7.62	7.43	8.16	7.96	7.91	7.89
11/01/37	11/30/37	Nov 2037	98.34	86.07	86.24	81.37	95.32	86.37	91.69	85.59	90.66	84.58	8.79	9.18	8.56	8.56	9.13	9.10	9.41	8.56	8.90	8.68	8.64	9.73
12/01/37	12/31/37	Dec 2037	100.62	88.30	87.65	83.88	97.53	90.50	93.99	87.86	92.83	86.86	9.30	9.51	9.02	9.02	9.38	9.52	10.18	9.05	9.36	9.15	9.10	10.52
01/01/38	01/31/38	Jan 2038	101.16	86.14	90.86	84.78	101.29	86.27	94.31	88.58	93.33	87.57	9.39	9.67	9.12	9.00	9.21	9.40	10.22	8.95	9.35	9.13	9.08	10.55
02/01/38	02/28/38	Feb 2038	90.25	82.72	90.94	84.07	93.36	82.08	91.61	86.92	92.18	86.04	9.31	9.52	8.82	8.74	8.81	9.01	9.32	8.67	9.08	8.87	8.82	9.65
03/01/38	03/31/38	Mar 2038	82.86	77.11	78.27	75.77	85.80	76.24	83.02	79.43	82.02	78.39	8.13	8.06	7.82	7.79	8.09	8.02	8.35	7.91	8.13	7.91	7.87	8.68
04/01/38	04/30/38	Apr 2038	75.96	74.19	81.83	76.72	75.60	70.49	80.75	77.81	81.27	77.16	8.07	8.03	7.76	7.66	7.88	7.87	7.50	7.35	7.98	7.78	7.74	7.78
05/01/38	05/31/38	May 2038	75.33	72.74	83.61	77.70	74.26	68.97	81.27	76.64	82.22	76.49	8.11	8.11	7.64	7.58	7.82	7.59	7.51	7.26	7.90	7.70	7.66	7.78
06/01/38	06/30/38	Jun 2038	77.80	72.99	87.81	79.20	77.04	71.85	82.87	77.51	83.91	77.91	8.26	8.25	7.72	7.62	7.86	7.64	7.47	7.30	7.94	7.74	7.70	7.74
07/01/38	07/31/38	Jul 2038	94.67	77.73	103.11	84.18	94.60	75.98	99.88	84.65	100.53	84.32	8.36	8.66	7.86	7.73	7.95	7.68	7.61	7.34	8.05	7.85	7.80	7.88
08/01/38	08/31/38	Aug 2038	99.13	79.23	104.83	83.88	98.48	77.89	103.40	85.43	103.53	85.06	8.42	8.76	7.90	7.80	8.08	7.78	7.60	7.38	8.12	7.92	7.87	7.87
09/01/38	09/30/38	Sep 2038	91.56	79.05	91.24	81.47	89.83	76.93	94.46	84.05	94.25	83.32	8.37	8.75	7.95	7.85	8.13	7.84	7.64	7.43	8.17	7.97	7.93	7.92
10/01/38	10/31/38	Oct 2038	88.75	78.89	83.92	80.05	86.21	76.45	87.94	81.98	87.14	81.04	8.42	8.73	8.12	8.00	8.26	8.18	7.78	7.59	8.32	8.12	8.08	8.05
11/01/38	11/30/38	Nov 2038	100.12	88.19	88.46	83.17	98.69	89.86	93.45	87.35	92.40	86.32	8.98	9.38	8.74	8.74	9.32	9.29	9.60	8.74	9.08	8.86	8.82	9.93
12/01/38	12/31/38	Dec 2038	102.70	90.39	90.34	85.79	100.13	93.26	96.03	89.80	94.89	88.77	9.50	9.71	9.21	9.20	9.58	9.72	10.40	9.24	9.55	9.33	9.29	10.73
01/01/39	01/31/39	Jan 2039	102.31	88.62	92.56	86.63	101.96	88.37	95.95	90.31	95.07	89.32	9.59	9.88	9.32	9.19	9.40	9.60	10.43	9.14	9.54	9.32	9.27	10.77
02/01/39	02/28/39	Feb 2039	91.32	84.85	93.79	85.92	93.16	82.90	93.85	88.77	94.43	87.91	9.51	9.72	9.00	8.93	9.00	9.20	9.51	8.85	9.27	9.05	9.01	9.84
03/01/39	03/31/39	Mar 2039	84.66	79.17	80.51	77.51	86.75	78.18	85.00	81.30	84.12	80.26	8.30	8.22	7.98	7.95	8.26	8.19	8.53	8.08	8.29	8.08	8.03	8.85
04/01/39	04/30/39	Apr 2039	78.31	76.45	83.58	78.86	77.93	72.41	83.11	80.09	83.65	79.20	8.24	8.20	7.92	7.82	8.05	8.04	7.66	7.51	8.14	7.94	7.90	7.94
05/01/39	05/31/39	May 2039	78.52	74.66	85.67	79.62	77.80	72.42	84.18	78.87	85.09	79.30	8.28	8.28	7.80	7.74	7.98	7.75	7.67	7.41	8.06	7.86	7.82	7.94
06/01/39	06/30/39	Jun 2039	80.52	75.87	90.31	81.45	81.00	74.19	85.66	80.21	86.74	80.16	8.44	8.43	7.89	7.78	8.03	7.80	7.63	7.45	8.10	7.90	7.86	7.90
07/01/39	07/31/39	Jul 2039	97.01	79.82	106.09	86.62	97.54	78.10	102.63	86.79	103.29	86.53	8.53	8.85	8.03	7.89	8.11	7.84	7.76	7.50	8.21	8.01	7.97	8.04
08/01/39	08/31/39	Aug 2039	102.27	82.07	107.21	85.89	102.09	80.23	106.22	87.06	106.23	86.83	8.60	8.95	8.06	7.96	8.25	7.94	7.76	7.54	8.28	8.08	8.04	8.03
09/01/39	09/30/39	Sep 2039	93.11	80.72	92.90	83.58	91.27	79.21	95.71	85.70	95.61	85.01	8.54	8.94	8.11	8.01	8.30	8.00	7.80	7.59	8.33	8.13	8.09	8.08
10/01/39	10/31/39	Oct 2039	88.56	80.62	85.52	82.16	86.44	78.17	89.40	83.41	88.57	82.45	8.59	8.91	8.30	8.17	8.43	8.35	7.94	7.75	8.49	8.29	8.25	8.22
11/01/39	11/30/39	Nov 2039	102.43	90.20	90.59	85.13	100.58	92.04	95.53	89.40	94.47	88.31	9.16	9.57	8.92	8.92	9.52	9.49	9.81	8.93	9.26	9.05	9.00	10.13
12/01/39	12/31/39	Dec 2039	104.57	92.80	91.99	87.95	102.10	96.03	97.98	91.80	96.77	90.81	9.70	9.92	9.41	9.40	9.78	9.92	10.61	9.43	9.74	9.53	9.48	10.95
01/01/40	01/31/40	Jan 2040	105.76	90.73	95.29	88.72	102.98	90.94	98.92	92.53	97.88	91.52	9.79	10.08	9.51	9.38	9.60	9.80	10.65	9.33	9.73	9.51	9.46	10.99
02/01/40	02/29/40	Feb 2040	93.98	87.11	95.93	87.69	95.51	85.98	95.84	90.69	96.33	89.75	9.71	9.92	9.19	9.11	9.19	9.39	9.75	9.11	9.04	9.45	9.24	10.04
03/01/40	03/31/40	Mar 2040	86.91	81.40	82.59	79.83	87.86	80.13	87.18	83.93	86.32	82.95	8.48	8.40	8.15	8.12	8.43	8.36	8.71	8.24	8.46	8.24	8.20	9.03
04/01/40	04/30/40	Apr 2040	80.43	77.83	85.05	80.62	80.57	75.67	85.18	81.69	85.89	81.84	8.42	8.37	8.09	7.98	8.22	8.21	7.82	7.67	8.27	8.10	8.06	8.10
05/01/40	05/31/40	May 2040	79.63	75.75	87.87	81.62	77.87	72.18	85.69	80.55	86.47	80.11	8.45	8.45	7.96	7.90	8.15	7.92	7.83	7.57	8.22	8.02	7.98	8.10
06/01/40	06/30/40	Jun 2040	81.56	76.86	92.34	83.61	81.18	75.76	86.75	81.55	88.07	81.92	8.61	8.60	8.05	7.95	8.20	7.96	7.79	7.61	8.27	8.07	8.02	8.06
07/01/40	07/31/40	Jul 2040	100.38	81.79	108.58	88.88	100.43	80.38	105.39	88.90	106.03	88.67	8.71	9.03	8.19	8.05	8.28	8.01	7.93	7.65	8.37	8.17	8.13	8.20
08/01/40	08/31/40	Aug 2040	105.05	84.06	109.82	88.10	104.65	82.43	108.75	89.62	108.76	89.23	8.78	9.13	8.23	8.13	8.42	8.11	7.92	7.70	8.45	8.25	8.20	8.19
09/01/40	09/30/40	Sep 2040	95.16	83.26	95.19	86.13	93.52	81.90	98.41	87.90	98.17	87.25	8.72	9.12	8.28	8.18	8.48	8.17	7.97	7.75	8.50	8.30	8.26	8.24
10/01/40	10/31/40	Oct 2040	92.19	82.64	87.71	84.40	90.17	80.28	91.59	85.86	90.73	84.96	8.77	9.10	8.47	8.34	8.61	8.53	8.11	7.91	8.66	8.46	8.42	8.38
11/01/40	11/30/40	Nov 2040	104.80	92.60	93.35	87.40	102.79	94.22	98.22	91.87	97.15	90.87	9.36	9.77	9.11	9.11	9.72	9.69	10.01	9.11	9.45	9.23	9.19	10.34
12/01/40	12/31/40	Dec 2040	106.68	95.27	94.38	89.95	104.55	98.39	100.43	94.06	98.28	93.06	9.90	10.13	9.60	9.60	9.98	10.13	10.84	9.63	9.94	9.73	9.68	11.17
01/01/41	01/31/41	Jan 2041	107.82	93.39	97.59	90.79	105.14	93.21	101.15	94.39	100.11	93.38	10.00	10.30	9.71	9.58	9.80	10.01	10.87	9.53	9.93	9.71	9.66	11.21
02/01/41	02/28/41	Feb 2041	96.00	89.38	98.42	90.38	98.02	87.71	98.32	93.01	98.78	92.07	9.91	10.13	9.39	9.30	9.38	9.59	9.92	9.23	9.65	9.43	9.39	10.25
03/01/41	03/31/41	Mar 2041	88.97	83.56	84.58	81.36	91.29	82.03	89.00	85.19	88.20	84.20	8.66	8.57	8.32	8.29	8.61	8.54	8.89	8.42	8.63	8.41	8.37	9.21
04/01/41	04/30/41	Apr 2041	82.43	79.88	88.51	83.84	82.19	76.80	87.09	83.72	87.73	83.30	8.59	8.55	8.26	8.15	8.39	8.38	7.98	7.83	8.47	8.27	8.23	8.26
05/01/41	05/31/41	May 2041	82.22	78.17	90.60	84.03	80.54	74.82	88.10	74.82	88.10	83.05	8.63	8.63	8.13	8.07	8.32	8.08	7.99	7.72	8.39	8.19	8.14	8.27
06/01/41	06/30/41	Jun 2041	83.52	78.90	93.65	85.71	83.11	77.32	88.61	83.69	89.78	83.74	8.79	8.78	8.22	8.11	8.37	8.13	7.96	7.77	8.43	8.23	8.19	8.23
07/01/41	07/31/41	Jul 2041	101.74	83.75	109.86	90.92	102.06	82.68	106.64	89.70	107.28	89.77	8.90	9.22	8.37									

08/01/43	08/31/43	Aug 2043	111.24	90.11	117.09	95.63	111.56	88.29	115.39	96.09	115.59	95.61	9.34	9.72	8.76	8.65	8.96	8.63	8.43	8.19	8.97	8.77	8.73	8.70
09/01/43	09/30/43	Sep 2043	101.62	88.96	102.21	92.79	99.73	87.04	104.69	93.45	104.54	92.69	9.29	9.71	8.82	8.71	9.02	8.69	8.48	8.24	9.03	8.83	8.78	8.75
10/01/43	10/31/43	Oct 2043	97.43	87.83	94.31	90.97	95.67	85.34	97.58	91.69	96.55	90.56	9.34	9.68	9.01	8.87	9.16	9.08	8.63	8.42	9.20	9.00	8.95	8.90
11/01/43	11/30/43	Nov 2043	110.65	99.62	99.26	94.41	109.19	100.92	104.11	97.95	102.96	96.49	9.96	10.40	9.70	9.69	10.35	10.31	10.66	9.70	10.03	9.82	9.77	10.98
12/01/43	12/31/43	Dec 2043	114.08	101.82	101.32	96.47	111.54	104.76	107.33	100.53	106.04	99.48	10.54	10.78	10.22	10.21	10.63	10.78	11.53	10.25	10.56	10.34	10.29	11.87

Quote Date		Data Type:		Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	Endur	
11/8/2013		Commodity:		ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	
		POD:		COB N-S	COB N-S	PV	PV	MID-C	MID-C	NP15	NP15	SP15	SP15	HENRYHUB	SOCALBOR	SANJUAN	ROCKOPAL	MALINGAS	STANFLDS	SUMAS5	AECO	GADSBY	CURRCRK	LAKESIDE	Z_CHEBRN
		COB		Palo Verde		Mid-Columbia		NP 15		SP 15		Henry Hub Gas		SOCALBOR	SANJUAN	Opal Gas	Malin Gas	Stanfield Gas	SUMAS	AECO	GADSBY	Currant Creek	Lakeside	Z_CHEBRN	
Start	End	Peak Type:	Forward Prices		Forward Prices		Forward Prices		Forward Prices		Forward Prices		Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price
			HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat
01/01/14	01/31/14	Jan 2014	38.96	31.24	32.59	26.51	35.70	30.23	40.91	35.54	42.67	35.25	3.62	3.70	3.50	3.54	3.60	3.57	3.86	3.19	3.86	3.63	3.65	4.12	
02/01/14	02/28/14	Feb 2014	37.12	30.05	33.25	26.25	34.00	28.53	40.91	34.85	43.10	35.25	3.62	3.70	3.52	3.54	3.60	3.57	3.73	3.18	3.86	3.63	3.65	3.99	
03/01/14	03/31/14	Mar 2014	34.18	27.97	33.92	25.99	32.30	25.99	39.69	33.12	40.98	35.25	3.62	3.67	3.45	3.46	3.56	3.52	3.66	3.17	3.78	3.55	3.57	3.91	
04/01/14	04/30/14	Apr 2014	34.88	21.48	34.25	22.73	29.14	18.12	37.49	30.50	40.69	31.30	3.60	3.62	3.40	3.33	3.44	3.41	3.34	3.07	3.63	3.43	3.39	3.56	
05/01/14	05/31/14	May 2014	30.72	14.68	33.57	22.05	25.46	10.80	36.38	27.36	38.71	27.50	3.63	3.64	3.42	3.35	3.47	3.44	3.35	3.08	3.66	3.45	3.42	3.57	
06/01/14	06/30/14	Jun 2014	30.40	10.20	34.94	22.73	24.15	7.08	37.12	27.65	39.11	28.96	3.66	3.68	3.46	3.38	3.50	3.47	3.33	3.10	3.69	3.48	3.45	3.55	
07/01/14	07/31/14	Jul 2014	42.48	21.92	44.29	25.68	38.56	18.94	43.86	33.47	48.23	34.92	3.70	3.72	3.49	3.43	3.54	3.51	3.38	3.13	3.74	3.53	3.50	3.60	
08/01/14	08/31/14	Aug 2014	46.46	30.80	43.43	27.55	42.14	28.03	46.54	36.23	49.18	37.08	3.72	3.73	3.51	3.45	3.56	3.53	3.54	3.15	3.75	3.55	3.51	3.77	
09/01/14	09/30/14	Sep 2014	43.81	30.53	40.85	27.02	38.56	28.79	43.86	33.81	45.84	36.00	3.71	3.73	3.50	3.44	3.55	3.52	3.54	3.19	3.75	3.54	3.51	3.78	
10/01/14	10/31/14	Oct 2014	38.36	31.83	36.05	27.50	35.96	29.85	41.33	35.16	42.00	36.38	3.72	3.74	3.52	3.45	3.56	3.53	3.57	3.21	3.76	3.55	3.52	3.81	
11/01/14	11/30/14	Nov 2014	40.84	32.83	35.35	26.95	38.25	31.12	41.33	36.25	43.75	35.65	3.79	3.83	3.61	3.60	3.73	3.69	4.03	3.25	3.93	3.71	3.67	4.32	
12/01/14	12/31/14	Dec 2014	44.55	35.85	33.60	28.05	40.55	34.29	42.59	37.34	45.50	38.22	3.93	3.97	3.74	3.77	3.86	3.83	4.24	3.38	4.10	3.88	3.84	4.54	
01/01/15	01/31/15	Jan 2015	41.86	34.39	36.82	30.16	39.11	32.50	44.36	38.74	45.50	38.37	4.01	4.05	3.82	3.89	3.94	3.91	4.15	3.46	4.22	4.00	3.96	4.45	
02/01/15	02/28/15	Feb 2015	41.06	32.75	36.47	29.29	38.00	31.56	43.10	37.62	44.63	37.25	4.00	4.04	3.82	3.85	3.94	3.90	4.15	3.44	4.19	3.96	3.93	4.44	
03/01/15	03/31/15	Mar 2015	37.84	31.11	33.96	27.55	34.64	29.69	39.29	35.39	41.13	36.13	3.96	4.00	3.78	3.78	3.90	3.86	4.12	3.41	4.11	3.89	3.85	4.41	
04/01/15	04/30/15	Apr 2015	35.70	21.88	35.53	24.70	28.60	14.94	37.00	31.98	39.29	32.19	3.81	3.85	3.57	3.47	3.60	3.57	3.58	3.12	3.77	3.57	3.53	3.82	
05/01/15	05/31/15	May 2015	31.11	14.88	35.53	23.28	27.50	14.21	37.37	30.14	40.10	30.63	3.82	3.86	3.58	3.48	3.61	3.58	3.46	3.13	3.79	3.58	3.55	3.69	
06/01/15	06/30/15	Jun 2015	31.44	15.75	37.70	23.28	26.40	14.36	38.88	30.14	42.12	30.94	3.85	3.88	3.60	3.50	3.64	3.61	3.39	3.16	3.81	3.60	3.57	3.62	
07/01/15	07/31/15	Jul 2015	44.88	24.29	46.11	29.50	38.25	21.56	45.50	35.65	49.47	36.38	3.87	3.91	3.63	3.53	3.66	3.63	3.48	3.18	3.84	3.63	3.60	3.71	
08/01/15	08/31/15	Aug 2015	48.86	33.83	45.24	29.50	45.90	28.00	46.87	38.59	49.96	38.63	3.88	3.92	3.64	3.54	3.67	3.64	3.65	3.19	3.85	3.64	3.61	3.88	
09/01/15	09/30/15	Sep 2015	46.21	34.13	39.15	29.50	43.35	34.44	44.14	36.02	46.08	37.50	3.88	3.92	3.64	3.54	3.67	3.64	3.62	3.19	3.85	3.64	3.61	3.86	
10/01/15	10/31/15	Oct 2015	39.99	33.60	38.11	30.00	38.56	32.50	43.07	37.13	43.37	37.24	3.90	3.94	3.66	3.56	3.69	3.66	3.62	3.21	3.87	3.66	3.63	3.86	
11/01/15	11/30/15	Nov 2015	42.57	34.30	37.37	29.40	39.35	33.17	43.07	36.75	44.25	37.24	3.97	4.01	3.77	3.73	3.84	3.81	4.03	3.29	4.06	3.84	3.80	4.31	
12/01/15	12/31/15	Dec 2015	46.44	37.10	35.52	30.60	41.34	34.84	44.37	38.63	45.14	39.52	4.11	4.15	3.92	3.95	3.99	3.95	4.16	3.43	4.29	4.06	4.02	4.46	
01/01/16	01/31/16	Jan 2016	43.46	35.89	38.07	31.66	40.61	34.00	45.11	39.74	45.75	39.12	4.20	4.24	4.00	4.02	4.07	4.04	4.24	3.52	4.36	4.13	4.09	4.54	
02/01/16	02/29/16	Feb 2016	42.66	34.25	37.72	30.79	39.50	33.06	43.85	38.62	44.88	38.00	4.18	4.22	3.99	4.00	4.06	4.02	4.23	3.50	4.34	4.11	4.07	4.53	
03/01/16	03/31/16	Mar 2016	39.44	32.61	35.21	29.05	36.14	31.19	40.04	36.39	41.38	36.88	4.12	4.16	3.93	3.91	4.00	3.96	4.17	3.44	4.25	4.03	3.99	4.47	
04/01/16	04/30/16	Apr 2016	37.30	23.38	36.03	25.95	29.85	15.69	38.10	32.73	39.54	32.69	3.93	3.97	3.69	3.55	3.67	3.64	3.73	3.15	3.87	3.65	3.62	3.97	
05/01/16	05/31/16	May 2016	32.71	16.38	36.03	24.53	28.75	14.96	38.47	30.89	40.35	31.13	3.94	3.98	3.70	3.56	3.68	3.65	3.68	3.16	3.88	3.67	3.63	3.92	
06/01/16	06/30/16	Jun 2016	33.04	17.25	38.20	24.53	27.65	15.11	39.98	30.89	42.37	31.44	3.96	4.00	3.73	3.59	3.70	3.67	3.67	3.18	3.90	3.69	3.66	3.91	
07/01/16	07/31/16	Jul 2016	46.48	25.79	48.61	31.25	41.00	23.31	47.00	37.15	52.02	37.63	3.99	4.03	3.76	3.62	3.73	3.70	3.67	3.21	3.93	3.72	3.69	3.91	
08/01/16	08/31/16	Aug 2016	50.46	35.33	47.74	31.25	48.65	29.75	48.37	40.09	52.53	39.88	4.00	4.04	3.77	3.63	3.75	3.71	3.66	3.22	3.95	3.73	3.70	3.90	
09/01/16	09/30/16	Sep 2016	47.81	35.63	41.65	31.25	46.10	36.19	45.64	37.52	48.45	38.75	4.00	4.04	3.77	3.63	3.74	3.71	3.70	3.22	3.95	3.73	3.70	3.94	
10/01/16	10/31/16	Oct 2016	41.59	35.10	39.86	32.00	40.06	35.75	43.82	39.13	43.87	39.24	4.03	4.07	3.79	3.65	3.77	3.74	3.74	3.25	3.97	3.76	3.72	3.98	
11/01/16	11/30/16	Nov 2016	44.17	35.80	39.12	31.40	40.85	36.42	43.82	38.75	44.75	39.24	4.09	4.16	3.93	3.90	3.93	3.90	4.20	3.40	4.24	4.01	3.97	4.49	
12/01/16	12/31/16	Dec 2016	48.04	38.60	37.27	32.60	42.84	38.09	45.12	40.63	45.64	41.52	4.26	4.32	4.09	4.07	4.10	4.06	4.36	3.57	4.41	4.18	4.14	4.67	

01/01/19	01/31/19	Jan 2019	52.04	42.96	46.13	37.68	48.79	41.06	52.19	45.92	53.16	45.29	4.84	5.03	4.69	4.74	4.75	4.71	4.98	4.18	5.06	4.86	4.81	5.31
02/01/19	02/28/19	Feb 2019	51.20	41.25	45.75	36.80	47.63	40.08	50.88	44.78	52.26	44.15	4.82	5.01	4.67	4.71	4.73	4.69	4.96	4.16	5.04	4.84	4.79	5.28
03/01/19	03/31/19	Mar 2019	47.82	39.54	43.13	35.03	44.14	38.11	46.94	42.50	48.64	43.01	4.75	4.94	4.60	4.64	4.66	4.62	4.88	4.09	4.97	4.77	4.72	5.20
04/01/19	04/30/19	Apr 2019	42.98	28.88	44.01	32.93	37.74	21.73	45.45	37.08	47.08	40.63	4.50	4.72	4.31	4.33	4.36	4.32	4.25	3.83	4.65	4.45	4.40	4.51
05/01/19	05/31/19	May 2019	38.50	21.88	44.01	31.54	36.60	20.93	45.85	35.31	47.93	39.00	4.52	4.74	4.33	4.35	4.38	4.34	4.20	3.85	4.67	4.47	4.43	4.46
06/01/19	06/30/19	Jun 2019	38.82	22.75	46.24	31.54	35.46	21.99	47.45	35.31	50.04	39.33	4.55	4.77	4.36	4.38	4.41	4.37	4.18	3.88	4.70	4.50	4.46	4.44
07/01/19	07/31/19	Jul 2019	53.21	30.90	53.63	34.25	46.80	29.14	52.50	42.53	56.85	40.77	4.59	4.81	4.40	4.42	4.45	4.41	4.19	3.92	4.74	4.54	4.50	4.45
08/01/19	08/31/19	Aug 2019	56.46	40.28	52.75	34.25	54.54	35.75	53.89	45.51	57.34	43.03	4.62	4.84	4.42	4.45	4.48	4.44	4.19	3.95	4.76	4.57	4.52	4.45
09/01/19	09/30/19	Sep 2019	54.14	40.58	46.63	34.25	51.96	42.36	51.11	42.91	53.36	41.90	4.62	4.84	4.42	4.45	4.48	4.44	4.24	3.95	4.77	4.57	4.53	4.50
10/01/19	10/31/19	Oct 2019	49.49	41.80	46.90	37.50	47.87	40.71	51.05	45.01	51.43	43.88	4.66	4.88	4.46	4.49	4.52	4.48	4.30	3.99	4.81	4.61	4.56	4.56
11/01/19	11/30/19	Nov 2019	51.51	43.22	47.92	39.93	50.81	41.62	55.04	48.74	55.91	48.06	5.15	5.24	4.95	4.98	5.01	4.95	5.07	4.55	5.31	5.11	5.06	5.39
12/01/19	12/31/19	Dec 2019	56.07	45.69	46.32	41.21	52.09	44.01	57.15	50.51	57.02	49.87	5.35	5.45	5.15	5.19	5.22	5.17	5.27	4.75	5.53	5.32	5.27	5.61
01/01/20	01/31/20	Jan 2020	50.86	43.80	48.11	40.97	49.06	42.12	55.11	49.69	55.61	49.37	5.31	5.37	5.11	5.16	5.19	5.14	5.25	4.72	5.50	5.29	5.24	5.59
02/01/20	02/29/20	Feb 2020	49.60	42.76	47.08	40.46	47.11	41.57	53.59	48.97	54.72	48.63	5.31	5.37	5.11	5.15	5.19	5.13	5.24	4.71	5.49	5.29	5.23	5.58
03/01/20	03/31/20	Mar 2020	46.41	40.79	44.44	38.84	44.65	38.79	49.69	46.70	50.82	46.67	5.11	5.17	4.91	4.95	4.98	4.93	5.05	4.52	5.29	5.09	5.03	5.39
04/01/20	04/30/20	Apr 2020	43.75	34.99	44.54	36.95	41.75	30.45	49.06	43.14	50.32	44.94	4.97	4.96	4.68	4.70	4.74	4.68	4.64	4.31	5.03	4.83	4.78	4.94
05/01/20	05/31/20	May 2020	40.96	30.53	45.46	36.00	39.34	28.88	49.70	42.52	51.28	44.74	5.00	4.95	4.68	4.69	4.73	4.69	4.61	4.35	5.02	4.82	4.77	4.91
06/01/20	06/30/20	Jun 2020	40.92	31.66	48.21	36.15	39.81	30.32	49.22	42.51	51.84	45.05	5.05	4.99	4.72	4.71	4.77	4.73	4.62	4.40	5.04	4.84	4.79	4.92
07/01/20	07/31/20	Jul 2020	54.45	37.04	58.56	39.13	52.39	36.18	58.22	47.23	61.87	46.90	5.09	5.03	4.76	4.79	4.81	4.76	4.64	4.43	5.12	4.92	4.87	4.94
08/01/20	08/31/20	Aug 2020	57.37	42.60	58.23	39.26	57.25	40.59	60.01	49.08	63.30	48.19	5.12	5.09	4.80	4.80	4.85	4.79	4.66	4.46	5.13	4.93	4.88	4.96
09/01/20	09/30/20	Sep 2020	53.07	41.79	49.62	38.30	53.03	42.26	55.32	47.23	56.66	46.97	5.11	5.10	4.81	4.83	4.88	4.82	4.71	4.47	5.16	4.96	4.91	5.02
10/01/20	10/31/20	Oct 2020	49.95	42.20	49.53	40.01	50.37	41.37	54.71	48.12	55.40	48.02	5.14	5.16	4.87	4.89	4.93	4.87	4.78	4.50	5.22	5.02	4.97	5.08
11/01/20	11/30/20	Nov 2020	53.36	45.91	52.21	44.96	55.43	43.83	61.29	54.76	61.72	54.14	5.78	5.77	5.52	5.55	5.60	5.52	5.49	5.25	5.88	5.68	5.63	5.81
12/01/20	12/31/20	Dec 2020	58.47	47.95	50.91	46.30	55.94	46.88	64.15	56.35	63.02	55.44	5.97	5.98	5.72	5.77	5.81	5.74	5.69	5.44	6.10	5.90	5.85	6.03
01/01/21	01/31/21	Jan 2021	49.67	44.64	50.10	44.26	49.33	43.17	58.03	53.45	58.05	53.44	5.78	5.70	5.53	5.58	5.63	5.56	5.52	5.26	5.92	5.72	5.66	5.86
02/01/21	02/28/21	Feb 2021	48.01	44.27	48.41	44.13	46.59	43.06	56.31	53.16	57.19	53.11	5.79	5.72	5.55	5.59	5.65	5.58	5.53	5.26	5.93	5.73	5.67	5.87
03/01/21	03/31/21	Mar 2021	45.01	42.04	45.75	42.65	45.16	39.47	52.45	50.89	53.00	50.32	5.48	5.40	5.22	5.26	5.31	5.23	5.22	4.95	5.60	5.40	5.34	5.56
04/01/21	04/30/21	Apr 2021	44.52	41.11	45.08	40.96	45.76	39.16	52.66	49.20	53.55	49.26	5.43	5.20	5.05	5.08	5.11	5.03	5.03	4.78	5.40	5.20	5.15	5.33
05/01/21	05/31/21	May 2021	43.42	39.18	46.91	40.46	42.08	36.82	53.54	49.72	54.64	50.48	5.48	5.16	5.03	5.04	5.08	5.03	5.01	4.85	5.36	5.16	5.11	5.31
06/01/21	06/30/21	Jun 2021	43.01	40.56	50.18	40.77	44.16	39.54	50.99	49.71	53.64	50.77	5.55	5.20	5.09	5.04	5.08	5.03	5.07	4.91	5.37	5.17	5.12	5.37
07/01/21	07/31/21	Jul 2021	55.70	43.19	63.50	44.00	57.97	43.22	63.94	51.93	66.89	53.04	5.59	5.25	5.13	5.17	5.17	5.12	5.09	4.94	5.50	5.30	5.25	5.39
08/01/21	08/31/21	Aug 2021	58.27	44.92	63.70	44.27	59.96	45.42	66.13	52.65	69.25	53.34	5.63	5.34	5.18	5.16	5.22	5.14	5.13	4.97	5.49	5.29	5.24	5.43
09/01/21	09/30/21	Sep 2021	52.00	43.01	52.62	42.34	54.09	42.16	59.53	51.55	59.96	52.04	5.60	5.37	5.20	5.22	5.27	5.20	5.18	4.99	5.55	5.35	5.30	5.49
10/01/21	10/31/21	Oct 2021	50.42	42.59	52.16	42.51	52.87	42.03	58.38	51.22	59.37	52.15	5.63	5.41	5.28	5.30	5.35	5.26	5.26	5.01	5.63	5.43	5.38	5.56
11/01/21	11/30/21	Nov 2021	52.64	44.30	52.29	43.86	53.65	43.33	60.26	52.96	60.46	52.40	5.68	5.61	5.41	5.44	5.50	5.42	5.39	5.12	5.76	5.56	5.52	5.71
12/01/21	12/31/21	Dec 2021	59.36	47.06	49.99	45.25	57.97	46.62	61.69	54.48	60.98	53.92	5.85	5.79	5.59	5.66	5.74	5.67	5.67	5.35	6.00	5.80	5.74	6.00
01/01/22	01/31/22	Jan 2022	57.19	51.34	59.73	52.73	55.96	49.81	61.34	54.27	61.30	54.73	5.86	5.79	5.60	5.67	5.76	5.68	5.63	5.36	6.01	5.80	5.75	5.98
02/01/22	02/28/22	Feb 2022	56.81	51.35	58.07	52.37	54.50	48.38	59.23	54.11	59.53	54.78	5.89	5.82	5.62	5.68	5.77	5.70	5.65	5.38	6.02	5.82	5.76	6.00
03/01/22	03/31/22	Mar 2022	52.83	49.60	52.85	50.34	50.67	48.08	56.85	52.75	56.26	53.17	5.69	5.61	5.41	5.46	5.52	5.45	5.42	5.15	5.80	5.60	5.55	5.76
04/01/22	04/30/22	Apr 2022	53.32	48.69	54.97	49.90	52.53	46.83	57.06	52.95	57.70	52.83	5.65	5.42	5.25	5.28	5.32	5.24	5.24	4.98	5.60	5.40	5.35	5.54
05/01/22	05/31/22	May 2022	50.19	44.05	56.09	49.10	50.53	46.01	55.10	50.37	56.51	51.61	5.70	5.38	5.22	5.24	5.28	5.23	5.20	5.04	5.56	5.36	5.32	5.50
06/01/22	06/30/22	Jun 2022	50.57	47.22	58.76	50.09	50.50	45.80	55.41	51.50	56.83	52.33	5.78	5.46	5.30	5.31	5.36	5.30	5.29	5.12	5.63	5.43	5.38	5.59
07/01/22	07/31/22	Jul 2022	63.57	52.36	73.76	54.20	63.16	49.41	68.16	56.28	71.44	55.91	5.83	5.52	5.37	5.37	5.43	5.35	5.34	5.17	5.70	5.50	5.45	5.64
08/01/22	08/31/22	Aug 2022	64.90	52.95	73.35	53.58	65.05	50.79	69.84	56.53	74.09	56.04	5.87	5.59	5.43	5.44	5.50	5.40	5.38	5.21	5.77	5.57	5.52	5.68
09/01/22	09/30/22	Sep 2022	59.93	51.18	61.05	51.79	59.68	49.23	64.18	54.46	64.63	54.58	5.83	5.64	5.46	5.49	5.55	5.47	5.43	5.24	5.82	5.62	5.57	5.73
10/01/22	10/31/22	Oct 2022	58.99	50.67	63.45	51.85	58.60	48.46	63.43	53.39	64.10	53.87	5.85	5.68	5.51	5.53	5.59	5.50	5.50	5.24	5.86	5.66	5.61	5.80
11/01/22	11/30/22	Nov 2022	62.80	53.22	62.58	53.19	62.40	54.95	65.87	56.04	65.54	55.93	6.01	5.95	5.75	5.81	5.90	5.82	5.78	5.51	6.14	5.94	5.89	6.10
12/01/22	12/31/22	Dec 2022	71.53	57.94	62.67	56.00	70.71	59.41	66.67	59.15	65.87	59.07	6.43	6.37	6.18	6.28	6.37	6.29	6.24	5.91	6.61	6.41	6.36	6.57
01/01/23	01/31/23	Jan 2023	61.44	55.26	63.47	56.24	60.19	53.46	64.18	58.31	63.70	58.39	6.35	6.29	6.08	6.19	6.28	6.20	6.13	5.84	6.53	6.33	6.27	6.48

02/01/25	02/28/25	Feb 2025	63.31	58.57	65.45	59.93	62.23	55.89	66.98	63.20	67.54	63.15	6.86	6.86	6.59	6.75	6.88	6.79	6.79	6.36	7.09	6.89	6.84	7.13
03/01/25	03/31/25	Mar 2025	59.62	57.10	59.33	57.18	56.64	54.43	63.61	59.78	63.02	60.16	6.43	6.42	6.17	6.29	6.39	6.29	6.29	5.95	6.63	6.42	6.37	6.63
04/01/25	04/30/25	Apr 2025	59.64	55.94	61.09	56.48	58.79	53.06	63.32	59.82	63.90	59.49	6.37	6.24	6.03	6.11	6.17	6.08	6.08	5.79	6.43	6.23	6.18	6.38
05/01/25	05/31/25	May 2025	58.19	52.84	62.88	55.95	57.41	52.57	62.47	57.43	63.51	58.27	6.41	6.20	6.00	6.07	6.13	6.05	6.02	5.84	6.39	6.19	6.15	6.32
06/01/25	06/30/25	Jun 2025	57.96	53.63	65.82	57.32	57.33	52.22	62.47	58.72	63.70	59.25	6.51	6.29	6.08	6.15	6.22	6.12	6.11	5.94	6.48	6.28	6.23	6.41
07/01/25	07/31/25	Jul 2025	72.32	58.78	82.25	61.26	71.83	56.33	77.15	63.43	79.80	63.05	6.58	6.41	6.21	6.26	6.32	6.23	6.17	6.00	6.59	6.39	6.34	6.47
08/01/25	08/31/25	Aug 2025	73.77	60.06	81.79	61.40	73.22	58.08	78.67	63.80	82.03	63.54	6.62	6.48	6.27	6.33	6.40	6.30	6.29	6.03	6.66	6.46	6.41	6.59
09/01/25	09/30/25	Sep 2025	67.37	58.37	68.33	58.83	66.94	56.03	71.54	61.82	71.89	61.48	6.56	6.48	6.26	6.33	6.42	6.30	6.30	6.04	6.66	6.46	6.41	6.61
10/01/25	10/31/25	Oct 2025	64.79	57.51	68.46	58.32	64.14	54.55	69.23	60.79	69.74	60.95	6.59	6.52	6.29	6.37	6.46	6.36	6.34	6.05	6.70	6.50	6.45	6.65
11/01/25	11/30/25	Nov 2025	68.65	59.56	67.59	59.13	69.13	60.90	71.53	62.29	70.99	62.04	6.64	6.66	6.39	6.51	6.64	6.55	6.55	6.16	6.84	6.64	6.59	6.87
12/01/25	12/31/25	Dec 2025	76.39	62.60	65.74	60.08	75.17	63.54	71.64	63.88	70.72	63.47	6.85	6.88	6.61	6.75	6.87	6.78	6.81	6.33	7.07	6.88	6.83	7.14
01/01/26	01/31/26	Jan 2026	66.35	60.60	67.48	61.09	65.63	58.35	69.17	63.63	68.50	63.51	6.85	6.85	6.58	6.73	6.86	6.77	6.84	6.34	7.07	6.87	6.82	7.19
02/01/26	02/28/26	Feb 2026	64.59	59.34	66.63	60.29	63.14	57.33	67.16	63.36	67.69	63.51	6.84	6.85	6.58	6.72	6.87	6.77	6.77	6.33	7.06	6.85	6.80	7.12
03/01/26	03/31/26	Mar 2026	59.47	57.37	59.09	57.00	57.24	54.64	63.58	59.94	62.84	60.28	6.40	6.39	6.12	6.25	6.37	6.28	6.28	5.91	6.59	6.39	6.34	6.62
04/01/26	04/30/26	Apr 2026	59.25	55.93	60.30	56.02	58.06	53.46	62.82	59.31	63.17	58.85	6.34	6.19	5.98	6.07	6.13	6.04	6.04	5.75	6.39	6.19	6.14	6.34
05/01/26	05/31/26	May 2026	57.17	51.22	63.32	56.30	57.22	52.19	62.38	57.57	63.34	58.56	6.38	6.19	5.98	6.05	6.11	6.02	6.02	5.82	6.38	6.18	6.13	6.32
06/01/26	06/30/26	Jun 2026	57.87	54.47	66.06	57.55	57.25	53.63	62.34	58.99	63.93	59.34	6.49	6.29	6.07	6.15	6.21	6.13	6.10	5.92	6.47	6.27	6.22	6.40
07/01/26	07/31/26	Jul 2026	72.98	59.49	83.10	61.54	72.62	56.69	77.78	63.75	80.61	63.28	6.55	6.39	6.17	6.24	6.31	6.19	6.19	5.96	6.57	6.37	6.32	6.49
08/01/26	08/31/26	Aug 2026	74.74	60.77	82.53	61.65	74.18	58.24	79.11	64.24	82.66	63.85	6.59	6.46	6.24	6.30	6.38	6.28	6.26	6.00	6.63	6.43	6.38	6.56
09/01/26	09/30/26	Sep 2026	68.32	58.58	69.53	59.13	68.06	56.59	72.64	62.17	73.07	62.06	6.54	6.48	6.23	6.33	6.43	6.31	6.31	6.03	6.66	6.46	6.41	6.61
10/01/26	10/31/26	Oct 2026	65.39	58.33	69.02	58.75	64.65	55.63	69.84	61.13	70.22	61.23	6.57	6.51	6.26	6.35	6.46	6.34	6.01	6.68	6.48	6.43	6.64	
11/01/26	11/30/26	Nov 2026	70.07	60.40	68.29	59.51	70.16	61.61	72.09	62.65	71.50	62.05	6.63	6.67	6.40	6.51	6.67	6.58	6.58	6.15	6.83	6.63	6.58	6.90
12/01/26	12/31/26	Dec 2026	76.96	62.94	66.50	60.61	76.41	64.83	72.21	64.55	71.29	64.08	6.83	6.91	6.62	6.77	6.91	6.82	6.82	6.31	7.10	6.90	6.85	7.16
01/01/27	01/31/27	Jan 2027	67.81	62.33	69.09	62.33	67.52	59.89	70.35	65.04	69.76	64.78	6.91	6.96	6.67	6.84	7.01	6.92	6.92	6.41	7.18	6.97	6.92	7.27
02/01/27	02/28/27	Feb 2027	66.48	61.31	67.64	61.80	64.56	58.45	68.56	64.98	69.06	64.88	6.94	6.99	6.69	6.86	7.04	6.94	6.94	6.44	7.20	6.99	6.94	7.28
03/01/27	03/31/27	Mar 2027	62.54	58.83	60.61	58.10	58.89	56.10	65.24	61.68	64.32	61.41	6.48	6.51	6.23	6.32	6.48	6.42	6.42	6.02	6.72	6.52	6.46	6.76
04/01/27	04/30/27	Apr 2027	61.34	57.51	62.45	57.87	60.12	55.06	64.93	61.15	65.40	60.79	6.42	6.33	6.10	6.19	6.27	6.18	6.18	5.86	6.51	6.31	6.26	6.48
05/01/27	05/31/27	May 2027	60.01	54.09	64.96	57.86	59.78	54.82	64.45	59.27	65.47	59.98	6.47	6.31	6.09	6.17	6.23	6.14	6.13	5.90	6.49	6.29	6.25	6.43
06/01/27	06/30/27	Jun 2027	59.68	56.71	68.02	58.87	59.19	54.14	64.41	61.06	65.65	60.71	6.59	6.40	6.18	6.26	6.32	6.24	6.21	6.02	6.58	6.38	6.33	6.50
07/01/27	07/31/27	Jul 2027	74.01	60.73	84.55	63.00	73.57	57.91	78.89	64.90	81.83	64.39	6.65	6.47	6.27	6.35	6.41	6.31	6.24	6.05	6.68	6.48	6.43	6.54
08/01/27	08/31/27	Aug 2027	76.78	61.82	84.69	62.91	75.83	59.20	80.99	65.19	84.52	64.78	6.69	6.58	6.35	6.39	6.49	6.37	6.37	6.09	6.72	6.52	6.47	6.67
09/01/27	09/30/27	Sep 2027	68.64	60.04	69.70	60.31	68.20	57.92	72.93	63.60	73.27	63.25	6.62	6.61	6.37	6.44	6.56	6.45	6.43	6.13	6.77	6.57	6.52	6.73
10/01/27	10/31/27	Oct 2027	67.19	59.67	71.41	60.22	66.50	57.18	71.51	62.33	71.89	61.93	6.66	6.65	6.39	6.47	6.59	6.47	6.46	6.12	6.80	6.60	6.55	6.77
11/01/27	11/30/27	Nov 2027	71.49	61.39	69.41	60.55	69.83	63.09	72.92	63.93	72.30	63.17	6.75	6.79	6.52	6.60	6.78	6.68	6.68	6.26	6.93	6.73	6.68	7.00
12/01/27	12/31/27	Dec 2027	78.81	64.44	67.89	61.89	77.72	66.35	73.51	66.00	72.63	65.50	6.94	7.05	6.76	6.87	7.05	6.94	6.94	6.41	7.20	7.00	6.95	7.28
01/01/28	01/31/28	Jan 2028	69.43	63.66	70.59	63.63	69.69	61.42	71.55	66.45	70.97	65.92	6.99	7.06	6.76	6.91	7.14	7.04	7.04	6.53	7.24	7.04	6.99	7.38
02/01/28	02/29/28	Feb 2028	68.14	62.76	69.87	63.16	66.55	60.25	70.14	66.19	70.67	65.87	7.01	7.08	6.77	6.93	7.12	7.02	7.02	6.56	7.27	7.06	7.01	7.36
03/01/28	03/31/28	Mar 2028	60.90	59.68	61.03	58.85	59.75	57.06	65.66	62.25	64.87	62.27	6.51	6.56	6.27	6.40	6.55	6.45	6.45	6.03	6.73	6.53	6.48	6.79
04/01/28	04/30/28	Apr 2028	62.16	58.37	62.85	58.48	60.65	56.08	65.49	61.84	65.78	61.48	6.44	6.37	6.14	6.22	6.31	6.22	6.22	5.88	6.54	6.34	6.29	6.52
05/01/28	05/31/28	May 2028	59.15	53.54	65.50	58.41	59.28	54.72	64.28	59.39	65.35	60.01	6.49	6.36	6.13	6.21	6.28	6.18	6.18	5.93	6.64	6.34	6.29	6.48
06/01/28	06/30/28	Jun 2028	59.86	57.30	68.47	59.52	59.58	54.52	64.36	61.46	66.35	61.26	6.59	6.45	6.22	6.29	6.36	6.26	6.23	6.03	6.62	6.42	6.37	6.53
07/01/28	07/31/28	Jul 2028	74.99	61.50	85.21	63.65	74.65	58.97	79.88	65.29	82.83	65.13	6.66	6.52	6.32	6.38	6.46	6.33	6.26	6.07	6.71	6.51	6.46	6.56
08/01/28	08/31/28	Aug 2028	77.46	62.81	84.98	63.14	76.73	60.16	81.95	65.44	85.12	65.24	6.70	6.63	6.39	6.43	6.54	6.41	6.41	6.10	6.76	6.56	6.51	6.71
09/01/28	09/30/28	Sep 2028	69.83	61.14	70.53	61.11	69.16	59.37	73.91	64.48	74.04	64.03	6.64	6.66	6.39	6.48	6.60	6.47	6.47	6.16	6.81	6.61	6.56	6.77
10/01/28	10/31/28	Oct 2028	68.86	60.64	73.36	60.81	68.28	58.59	73.16	63.30	73.49	63.15	6.67	6.69	6.42	6.51	6.64	6.50	6.50	6.14	6.84	6.64	6.59	6.80
11/01/28	11/30/28	Nov 2028	73.70	62.99	70.97	61.95	73.29	63.92	74.51	65.62	73.93	65.00	6.80	6.88	6.57	6.71	6.95	6.82	6.82	6.37	7.03	6.83	6.79	7.15
12/01/28	12/31/28	Dec 2028	79.32	66.20	68.84	63.42	78.49	67.65	74.49	67.63	73.56	66.97	7.00	7.17	6.85	6.92	7.23	7.11	7.11	6.51	7.25	7.05	7.00	7.45
01/01/29	01/31/29	Jan 2029	71.95	66.77	72.54	65.97	70.77	64.39	74.15	69.06	73.53	68.29	7.29	7.35	7.04	7.19	7.50	7.38	7.38	6.82	7.53	7.33	7.27	7.73
02/01/29	02/28/29	Feb 2029	70.59	66.53	72.74	66.02	68.81	63.33	73.06	69.42	72.98	68.76	7.29	7.40	7.08	7.21	7.52	7.40	7.40	6.84	7.57	7.35	7.29	7.74
03/0																								

03/01/31	03/31/31	Mar 2031	66.22	65.16	66.51	64.38	65.20	63.02	71.01	67.80	70.30	67.44	7.15	7.13	6.83	6.95	7.10	6.97	6.97	6.48	7.29	7.09	7.03	7.30
04/01/31	04/30/31	Apr 2031	68.28	64.12	69.25	64.04	66.88	62.26	71.85	67.52	72.17	66.90	7.09	7.02	6.77	6.85	6.93	6.83	6.83	6.45	7.18	6.98	6.93	7.14
05/01/31	05/31/31	May 2031	66.75	61.53	72.18	64.61	65.88	61.25	70.94	65.49	72.07	66.05	7.12	6.99	6.74	6.83	6.90	6.80	6.80	6.48	7.16	6.96	6.91	7.10
06/01/31	06/30/31	Jun 2031	66.92	63.94	75.13	65.73	65.64	61.05	71.16	67.46	72.38	66.96	7.24	7.07	6.84	6.92	6.99	6.90	6.90	6.57	7.25	7.05	7.00	7.20
07/01/31	07/31/31	Jul 2031	83.01	67.34	93.58	69.74	82.59	65.38	87.34	71.05	90.35	70.97	7.33	7.17	6.95	7.03	7.11	6.99	6.97	6.65	7.36	7.16	7.11	7.27
08/01/31	08/31/31	Aug 2031	84.51	68.29	92.36	69.50	83.77	66.43	88.79	71.66	91.71	71.37	7.37	7.24	6.98	7.04	7.11	7.01	6.99	6.66	7.37	7.17	7.12	7.29
09/01/31	09/30/31	Sep 2031	76.02	67.36	76.73	66.99	75.33	65.49	79.78	70.15	80.18	69.57	7.32	7.29	7.03	7.09	7.23	7.09	7.05	6.72	7.43	7.22	7.17	7.35
10/01/31	10/31/31	Oct 2031	73.56	66.61	76.93	66.58	72.55	64.07	77.70	69.09	78.05	68.40	7.36	7.34	7.06	7.14	7.28	7.13	7.13	6.73	7.47	7.27	7.22	7.43
11/01/31	11/30/31	Nov 2031	80.23	69.98	77.06	68.52	79.76	70.63	80.63	71.94	79.99	71.06	7.57	7.61	7.27	7.42	7.68	7.54	7.54	7.04	7.74	7.54	7.49	7.86
12/01/31	12/31/31	Dec 2031	92.75	78.41	80.41	74.88	94.12	79.75	86.81	78.22	85.88	77.59	8.42	8.60	8.19	8.37	8.70	8.59	8.59	7.80	8.70	8.50	8.45	8.93
01/01/32	01/31/32	Jan 2032	76.70	72.13	77.70	70.79	76.60	69.79	78.64	73.71	77.93	72.96	7.78	7.82	7.48	7.68	7.95	7.83	7.83	7.17	8.02	7.82	7.76	8.17
02/01/32	02/29/32	Feb 2032	75.69	70.40	76.27	70.25	72.85	67.47	77.02	73.25	77.05	72.45	7.76	7.80	7.46	7.63	7.87	7.73	7.73	7.15	7.97	7.77	7.71	8.08
03/01/32	03/31/32	Mar 2032	67.86	66.75	67.65	65.07	66.32	64.34	71.95	69.14	71.18	68.25	7.29	7.28	6.96	7.09	7.24	7.11	7.11	6.61	7.43	7.23	7.17	7.44
04/01/32	04/30/32	Apr 2032	69.34	65.59	70.05	65.51	67.08	64.10	72.85	68.81	72.90	68.14	7.23	7.16	6.91	6.99	7.07	6.97	6.97	6.58	7.31	7.11	7.06	7.27
05/01/32	05/31/32	May 2032	67.46	61.64	73.08	66.23	66.62	62.06	71.15	66.41	72.16	66.81	7.26	7.13	6.88	6.97	7.04	6.94	6.94	6.61	7.30	7.10	7.05	7.24
06/01/32	06/30/32	Jun 2032	68.34	64.83	76.07	67.02	66.89	62.45	72.26	68.40	73.38	67.92	7.38	7.21	6.97	7.06	7.13	7.04	7.04	6.70	7.39	7.19	7.14	7.34
07/01/32	07/31/32	Jul 2032	84.27	68.83	93.81	71.00	83.63	66.86	88.50	72.44	91.04	72.17	7.48	7.31	7.09	7.17	7.25	7.12	7.11	6.78	7.50	7.30	7.25	7.41
08/01/32	08/31/32	Aug 2032	86.34	69.37	93.60	70.53	85.51	67.54	90.71	72.75	93.16	72.35	7.52	7.38	7.12	7.18	7.29	7.15	7.13	6.80	7.51	7.31	7.26	7.43
09/01/32	09/30/32	Sep 2032	76.94	68.59	77.61	68.29	76.27	66.66	80.80	71.53	81.15	70.91	7.46	7.44	7.17	7.24	7.38	7.23	7.19	6.85	7.57	7.37	7.32	7.49
10/01/32	10/31/32	Oct 2032	75.88	68.30	79.64	68.24	75.24	66.18	79.91	70.55	80.24	69.86	7.50	7.48	7.21	7.28	7.42	7.28	7.27	6.87	7.61	7.41	7.36	7.58
11/01/32	11/30/32	Nov 2032	82.22	71.54	78.34	69.42	80.38	71.45	81.68	73.10	81.03	72.99	7.72	7.76	7.42	7.56	7.83	7.69	7.69	7.18	7.89	7.69	7.64	8.01
12/01/32	12/31/32	Dec 2032	94.07	80.17	81.53	76.55	95.51	81.04	88.34	80.51	87.39	79.60	8.59	8.78	8.35	8.53	8.88	8.76	8.76	7.95	8.87	8.67	8.61	9.10
01/01/33	01/31/33	Jan 2033	77.81	73.57	79.39	72.41	76.49	71.50	80.24	75.23	79.53	74.42	7.94	7.98	7.63	7.83	7.99	7.99	7.99	7.31	8.17	7.97	7.92	8.33
02/01/33	02/28/33	Feb 2033	77.00	72.25	77.74	71.61	74.34	69.30	78.02	74.85	78.34	74.05	7.92	7.95	7.61	7.79	8.03	7.89	7.89	7.29	8.12	7.92	7.87	8.23
03/01/33	03/31/33	Mar 2033	69.00	68.45	69.31	67.16	68.33	65.84	72.95	70.87	72.77	70.01	7.44	7.42	7.10	7.23	7.39	7.25	7.25	6.74	7.57	7.37	7.32	7.59
04/01/33	04/30/33	Apr 2033	70.49	67.19	71.48	67.16	68.34	65.80	74.28	70.05	74.27	69.19	7.38	7.31	7.05	7.13	7.21	7.11	7.11	6.71	7.45	7.25	7.20	7.41
05/01/33	05/31/33	May 2033	69.17	64.66	75.33	67.99	68.77	64.12	73.35	68.48	74.75	69.14	7.41	7.27	7.01	7.11	7.18	7.08	7.08	6.74	7.44	7.24	7.19	7.38
06/01/33	06/30/33	Jun 2033	70.28	67.36	78.79	69.01	68.64	64.07	74.25	70.18	75.72	69.79	7.53	7.36	7.11	7.20	7.28	7.18	7.18	6.84	7.53	7.33	7.28	7.48
07/01/33	07/31/33	Jul 2033	85.54	69.94	96.82	73.11	84.90	68.54	89.93	74.10	93.18	73.63	7.63	7.46	7.23	7.31	7.40	7.27	7.25	6.91	7.64	7.44	7.39	7.55
08/01/33	08/31/33	Aug 2033	87.85	70.45	96.16	72.20	87.21	68.97	92.20	73.83	94.72	73.53	7.67	7.53	7.27	7.33	7.43	7.30	7.27	6.93	7.66	7.45	7.40	7.57
09/01/33	09/30/33	Sep 2033	77.25	70.10	78.70	70.03	76.92	68.36	81.37	72.84	81.91	72.13	7.61	7.58	7.31	7.38	7.52	7.38	7.34	6.99	7.71	7.51	7.46	7.64
10/01/33	10/31/33	Oct 2033	76.56	69.99	80.18	70.00	75.91	67.76	80.44	71.59	80.71	70.80	7.65	7.63	7.35	7.43	7.57	7.42	7.42	7.01	7.76	7.56	7.51	7.72
11/01/33	11/30/33	Nov 2033	81.19	73.14	79.66	71.20	80.13	72.34	82.48	74.51	82.30	73.54	7.87	7.91	7.57	7.72	7.99	7.84	7.84	7.32	8.04	7.84	7.79	8.17
12/01/33	12/31/33	Dec 2033	94.42	81.80	82.56	78.04	96.34	82.73	89.23	81.72	88.29	80.84	8.76	8.95	8.52	8.71	9.06	8.94	8.94	8.11	9.04	8.84	8.79	9.27
01/01/34	01/31/34	Jan 2034	79.90	75.63	81.25	74.02	77.97	72.93	81.45	76.77	81.12	76.03	8.10	8.14	7.78	7.99	8.27	8.15	8.15	7.46	8.33	8.13	8.07	8.49
02/01/34	02/28/34	Feb 2034	78.20	74.38	79.11	73.47	75.19	70.96	79.47	76.62	79.87	75.08	8.07	8.11	7.76	7.94	8.19	8.04	8.04	7.43	8.28	8.08	8.02	8.39
03/01/34	03/31/34	Mar 2034	70.93	70.10	71.24	69.25	70.23	67.76	74.85	72.56	74.85	72.17	7.58	7.57	7.24	7.38	7.54	7.39	7.39	6.88	7.72	7.51	7.46	7.73
04/01/34	04/30/34	Apr 2034	72.00	68.88	73.40	68.99	70.16	66.95	75.74	71.77	75.87	71.03	7.53	7.45	7.19	7.27	7.36	7.25	7.25	6.84	7.60	7.40	7.35	7.55
05/01/34	05/31/34	May 2034	69.21	63.34	76.66	68.69	68.47	64.42	73.51	68.45	74.70	69.28	7.56	7.42	7.15	7.25	7.32	7.22	7.22	6.87	7.58	7.38	7.33	7.52
06/01/34	06/30/34	Jun 2034	70.54	68.80	79.08	70.66	69.33	65.20	74.70	71.54	75.87	70.76	7.68	7.50	7.25	7.35	7.42	7.32	7.32	6.97	7.68	7.48	7.43	7.62
07/01/34	07/31/34	Jul 2034	87.15	71.90	97.98	74.59	86.82	70.51	91.52	75.43	94.27	75.00	7.78	7.61	7.38	7.46	7.55	7.41	7.40	7.05	7.79	7.59	7.54	7.70
08/01/34	08/31/34	Aug 2034	89.70	72.35	96.89	73.54	89.01	71.10	93.99	75.52	95.83	75.08	7.83	7.68	7.41	7.47	7.58	7.44	7.42	7.07	7.80	7.60	7.55	7.72
09/01/34	09/30/34	Sep 2034	79.76	72.30	80.89	71.92	79.20	70.87	83.48	74.47	83.96	73.74	7.77	7.74	7.46	7.53	7.68	7.52	7.48	7.13	7.86	7.66	7.61	7.78
10/01/34	10/31/34	Oct 2034	78.08	71.76	81.65	71.47	77.77	69.58	82.50	73.32	82.85	72.62	7.81	7.78	7.50	7.58	7.72	7.57	7.56	7.15	7.91	7.71	7.66	7.87
11/01/34	11/30/34	Nov 2034	82.88	74.69	81.10	72.41	82.57	74.14	84.53	75.82	84.07	74.87	8.03	8.07	7.72	7.87	8.15	8.00	8.00	7.47	8.20	8.00	7.95	8.32
12/01/34	12/31/34	Dec 2034	97.71	84.32	84.53	79.29	98.53	85.10	91.55	83.28	90.55	82.38	8.94	9.13	8.69	8.88	9.24	9.12	9.12	8.27	9.21	9.01	8.96	9.45
01/01/35	01/31/35	Jan 2035	82.50	77.53	83.39	75.19	80.26	75.11	82.90	78.11	82.44	77.16	8.26	8.30	7.94	8.15	8.44	8.31	8.31	7.61	8.49	8.29	8.23	8.65
02/01/35	02/28/35	Feb 2035	80.37	76.70	81.02	74.81	77.43	73.60	81.20	77.83	81.45	76.87	8.24	8.28	7.91	8.10	8.36	8.21	8.21	7.58	8.44	8.23	8.18	8.55
03/01/35	03/31/35	Mar 2035	72.38	71.93	72.11	70.08	71.82	69.61	76.03	74.06	75.77	73.12	7.74	7.72	7.39	7.53	7.69	7.54	7.54	7.02	7.86	7.66	7.61	7.88

04/01/37	04/30/37	Apr 2037	77.01	74.19	79.59	74.68	75.16	71.48	80.73	76.24	80.97	75.25	7.99	7.91	7.63	7.71	7.81	7.69	7.69	7.26	8.04	7.84	7.79	8.00
05/01/37	05/31/37	May 2037	76.32	71.85	83.05	75.44	75.79	69.74	80.13	74.12	81.21	74.49	8.02	7.87	7.59	7.69	7.77	7.66	7.66	7.29	8.02	7.82	7.77	7.96
06/01/37	06/30/37	Jun 2037	76.56	73.04	86.10	76.43	74.80	69.26	80.83	76.76	81.76	76.23	8.15	7.96	7.70	7.80	7.88	7.77	7.77	7.40	8.13	7.93	7.88	8.07
07/01/37	07/31/37	Jul 2037	93.74	76.52	105.70	80.71	93.66	74.97	97.99	80.52	100.86	80.00	8.26	8.07	7.83	7.92	8.01	7.87	7.85	7.48	8.25	8.04	7.99	8.15
08/01/37	08/31/37	Aug 2037	95.83	77.83	104.30	79.94	95.46	76.49	100.05	80.96	102.36	80.44	8.30	8.15	7.86	7.93	8.05	7.90	7.87	7.50	8.26	8.06	8.01	8.17
09/01/37	09/30/37	Sep 2037	85.79	77.26	86.95	77.34	84.98	75.28	89.37	79.47	89.86	78.58	8.24	8.21	7.91	7.99	8.15	7.99	7.94	7.57	8.32	8.12	8.07	8.24
10/01/37	10/31/37	Oct 2037	84.44	77.18	87.54	77.24	83.79	74.54	88.34	77.88	88.65	76.95	8.29	8.26	7.95	8.04	8.20	8.03	8.03	7.58	8.37	8.17	8.12	8.33
11/01/37	11/30/37	Nov 2037	89.25	80.75	87.30	78.41	87.19	80.23	90.50	81.61	89.81	80.59	8.52	8.57	8.19	8.35	8.64	8.49	8.49	7.93	8.68	8.48	8.43	8.81
12/01/37	12/31/37	Dec 2037	103.00	89.80	90.20	84.78	104.10	89.15	96.92	88.82	95.92	87.82	9.48	9.69	9.22	9.42	9.64	9.68	9.68	8.78	9.76	9.55	9.50	10.01
01/01/38	01/31/38	Jan 2038	91.74	83.64	89.85	81.67	89.72	81.87	88.72	83.42	88.32	82.45	8.76	8.81	8.42	8.65	8.95	8.82	8.82	8.07	8.99	8.79	8.73	9.16
02/01/38	02/28/38	Feb 2038	87.11	82.78	87.79	80.71	84.84	79.66	87.35	83.42	87.61	82.46	8.74	8.78	8.40	8.60	8.87	8.71	8.71	8.05	8.99	8.73	8.68	9.05
03/01/38	03/31/38	Mar 2038	77.97	77.55	78.11	76.12	78.18	75.16	81.80	78.68	81.68	77.71	8.21	8.20	7.84	7.99	8.16	8.00	7.45	8.32	8.12	8.07	8.34	
04/01/38	04/30/38	Apr 2038	77.69	75.94	82.05	76.22	76.79	72.82	81.81	78.24	82.22	77.24	8.15	8.07	7.78	7.87	7.96	7.85	7.85	7.41	8.19	8.00	7.95	8.15
05/01/38	05/31/38	May 2038	76.93	70.64	85.19	77.40	76.28	70.62	80.69	75.14	81.69	75.72	8.18	8.03	7.74	7.85	7.93	7.81	7.81	7.44	8.17	7.98	7.93	8.11
06/01/38	06/30/38	Jun 2038	78.17	74.47	88.42	78.44	76.56	70.99	82.55	78.01	83.66	77.59	8.31	8.12	7.85	7.95	8.03	7.92	7.92	7.55	8.28	8.08	8.03	8.22
07/01/38	07/31/38	Jul 2038	95.74	78.65	108.11	82.68	95.24	76.90	99.85	82.26	102.91	81.81	8.42	8.23	7.98	8.07	8.17	8.02	8.01	7.63	8.40	8.20	8.15	8.31
08/01/38	08/31/38	Aug 2038	98.72	79.65	107.77	81.92	98.59	78.61	103.04	82.66	105.61	82.17	8.47	8.32	8.02	8.09	8.21	8.06	8.03	7.65	8.42	8.22	8.17	8.33
09/01/38	09/30/38	Sep 2038	88.44	79.57	89.25	79.36	87.21	77.95	91.75	81.53	92.22	80.72	8.41	8.37	8.07	8.15	8.31	8.15	8.10	7.72	8.48	8.28	8.23	8.40
10/01/38	10/31/38	Oct 2038	88.80	79.25	91.02	79.10	87.32	76.98	92.01	79.73	92.03	78.84	8.45	8.43	8.11	8.20	8.36	8.19	8.19	7.74	8.53	8.33	8.28	8.49
11/01/38	11/30/38	Nov 2038	93.42	83.08	89.29	80.21	91.84	84.21	91.47	82.78	91.27	81.77	8.69	8.74	8.35	8.52	8.82	8.66	8.66	8.09	8.85	8.65	8.60	8.98
12/01/38	12/31/38	Dec 2038	105.00	91.83	92.77	86.72	105.21	93.03	99.51	90.68	91.51	89.68	9.67	9.88	9.40	9.61	10.00	9.87	9.87	8.95	9.95	9.74	9.69	10.21
01/01/39	01/31/39	Jan 2039	92.16	85.64	91.32	83.85	89.47	83.28	90.23	84.94	89.97	84.01	8.94	8.98	8.59	8.82	9.13	9.00	9.00	8.24	9.16	8.96	8.90	9.34
02/01/39	02/28/39	Feb 2039	89.03	84.53	89.47	82.55	85.42	81.44	89.03	85.26	89.29	84.27	8.92	8.96	8.57	8.77	9.04	8.88	8.88	8.21	9.11	8.90	8.85	9.22
03/01/39	03/31/39	Mar 2039	79.95	79.51	79.98	77.75	79.74	77.21	83.72	79.98	83.53	79.08	8.37	8.36	8.00	8.15	8.32	8.16	8.16	7.59	8.48	8.28	8.23	8.50
04/01/39	04/30/39	Apr 2039	79.75	77.64	83.67	78.13	78.47	74.26	84.06	79.42	84.36	78.46	8.31	8.23	7.93	8.03	8.12	8.00	8.00	7.56	8.35	8.15	8.10	8.31
05/01/39	05/31/39	May 2039	78.49	75.21	87.43	79.04	78.65	72.67	82.67	78.50	85.62	78.73	8.34	8.19	7.90	8.10	8.09	7.97	7.97	7.59	8.33	8.13	8.08	8.27
06/01/39	06/30/39	Jun 2039	80.76	76.60	90.89	80.43	79.16	72.53	84.96	80.04	86.14	79.55	8.48	8.28	8.01	8.11	8.20	8.08	8.08	7.70	8.44	8.24	8.19	8.38
07/01/39	07/31/39	Jul 2039	98.00	80.59	110.80	84.85	97.57	78.55	102.19	84.25	105.55	83.78	8.59	8.40	8.14	8.24	8.33	8.18	8.17	7.79	8.57	8.36	8.31	8.47
08/01/39	08/31/39	Aug 2039	100.81	81.15	110.05	83.63	100.63	80.11	105.21	84.44	107.52	83.89	8.64	8.48	8.18	8.25	8.37	8.22	8.19	7.81	8.58	8.38	8.33	8.49
09/01/39	09/30/39	Sep 2039	89.56	81.45	90.61	81.24	88.28	79.47	92.89	83.04	93.25	82.14	8.57	8.54	8.23	8.31	8.47	8.31	8.26	7.87	8.64	8.44	8.39	8.56
10/01/39	10/31/39	Oct 2039	88.79	81.06	92.18	81.02	87.99	78.60	92.44	80.98	92.65	79.98	8.62	8.59	8.28	8.36	8.53	8.36	8.35	7.89	8.70	8.50	8.44	8.66
11/01/39	11/30/39	Nov 2039	94.55	85.04	91.27	82.12	92.97	85.08	93.35	84.46	93.15	83.45	8.87	8.91	8.52	8.69	8.99	8.83	8.83	8.25	9.02	8.82	8.77	9.15
12/01/39	12/31/39	Dec 2039	106.34	93.75	94.44	88.54	106.90	95.04	100.57	92.39	99.58	91.39	9.87	10.08	9.59	9.80	10.20	10.07	10.07	9.13	10.14	9.94	9.88	10.40
01/01/40	01/31/40	Jan 2040	94.37	87.66	94.16	85.74	92.27	85.03	92.41	86.82	91.94	85.85	9.12	9.16	8.77	9.00	9.18	9.18	9.18	8.40	9.34	9.14	9.08	9.52
02/01/40	02/29/40	Feb 2040	89.48	86.62	91.25	84.28	87.31	83.47	91.14	86.75	91.22	85.74	9.09	9.14	8.74	8.94	9.23	9.06	9.06	8.37	9.28	9.08	9.02	9.40
03/01/40	03/31/40	Mar 2040	82.02	81.59	81.78	79.24	82.38	79.38	85.66	82.59	85.42	81.71	8.54	8.54	8.16	8.31	8.53	8.49	8.32	7.75	8.65	8.44	8.39	8.66
04/01/40	04/30/40	Apr 2040	82.77	79.64	86.31	80.01	81.40	76.23	87.07	82.05	87.44	81.12	8.48	8.39	8.09	8.19	8.28	8.16	8.16	7.71	8.51	8.31	8.26	8.47
05/01/40	05/31/40	May 2040	80.20	75.65	89.12	80.99	79.47	74.29	83.92	78.64	86.35	79.26	8.51	8.36	8.06	8.17	8.25	8.13	8.13	7.74	8.49	8.29	8.24	8.43
06/01/40	06/30/40	Jun 2040	82.11	78.31	92.25	82.44	81.08	74.90	86.29	81.82	87.43	81.35	8.65	8.45	8.17	8.28	8.36	8.24	8.24	7.85	8.60	8.40	8.35	8.54
07/01/40	07/31/40	Jul 2040	101.08	82.54	113.71	86.94	100.88	80.81	105.13	86.33	108.37	85.85	8.76	8.57	8.31	8.40	8.57	8.35	8.33	7.94	8.83	8.53	8.48	8.63
08/01/40	08/31/40	Aug 2040	103.30	83.39	112.45	85.80	103.48	82.64	107.77	86.63	109.96	86.03	8.81	8.65	8.35	8.41	8.54	8.38	8.35	7.96	8.74	8.54	8.49	8.65
09/01/40	09/30/40	Sep 2040	93.06	83.82	93.55	83.85	91.53	82.29	96.01	85.32	96.31	84.43	8.75	8.71	8.40	8.48	8.64	8.47	8.43	8.03	8.81	8.61	8.56	8.73
10/01/40	10/31/40	Oct 2040	90.69	83.13	93.27	80.70	90.18	80.57	94.66	83.17	94.94	82.23	8.79	8.77	8.44	8.53	8.70	8.53	8.52	8.05	8.86	8.66	8.61	8.82
11/01/40	11/30/40	Nov 2040	97.97	87.19	93.72	84.12	96.25	87.56	96.53	87.23	95.95	86.22	9.05	9.09	8.69	8.86	9.17	9.01	9.01	8.41	9.19	8.99	8.94	9.33
12/01/40	12/31/40	Dec 2040	109.44	96.43	96.88	90.48	109.02	97.85	103.78	94.50	102.78	93.47	10.06	10.28	9.78	10.00	10.40	10.27	10.27	9.32	10.33	10.13	10.08	10.60
01/01/41	01/31/41	Jan 2041	97.01	89.95	96.38	87.47	94.71	87.25	94.88	88.95	94.32	87.96	9.31	9.35	8.95	9.19	9.51	9.37	9.37	8.58	9.53	9.32	9.27	9.71
02/01/41	02/28/41	Feb 2041	91.96	88.08	93.62	86.37	89.68	85.76	93.65	89.18	93.93	88.20	9.28	9.33	8.92	9.13	9.42	9.25	9.25	8.55	9.47	9.27	9.21	9.59
03/01/41	03/31/41	Mar 2041	84.14	83.72	84.07	81.11	84.15	81.15	87.71	84.22	87.54	83.33	8.72	8.71	8.33	8.49	8.67	8.50	8.50	7.91	8.82	8.62	8.57	8.84
04/01/41	04/30/41	Apr 2041	83.95	81.64	89.13	82.87	81.55	78.07	88.08	82.23	88.22	81.36	8.65	8.57	8.26	8.36	8.46	8.34	8.34</					

05/01/43	05/31/43	May 2043	85.39	81.59	94.80	86.49	84.92	79.58	89.75	84.48	91.48	84.87	9.06	8.89	8.58	8.69	8.78	8.65	8.65	8.24	9.02	8.82	8.77	8.95
06/01/43	06/30/43	Jun 2043	87.83	84.06	98.83	88.67	86.79	80.70	92.14	87.07	93.29	86.62	9.21	8.99	8.69	8.81	8.90	8.77	8.77	8.36	9.14	8.94	8.89	9.07
07/01/43	07/31/43	Jul 2043	107.16	88.18	120.19	92.99	106.93	85.63	111.22	91.89	114.35	91.32	9.32	9.12	8.84	8.94	9.05	8.88	8.87	8.45	9.27	9.07	9.02	9.17
08/01/43	08/31/43	Aug 2043	109.62	89.98	118.96	92.44	109.64	88.76	113.91	92.85	116.21	92.24	9.38	9.21	8.88	8.96	9.09	8.92	8.89	8.48	9.29	9.08	9.03	9.19
09/01/43	09/30/43	Sep 2043	98.02	89.83	99.96	89.89	97.43	87.74	101.92	90.55	102.36	89.58	9.31	9.27	8.94	9.02	9.20	9.02	8.97	8.55	9.36	9.15	9.10	9.27

10/01/18	10/31/18	Oct 2018	48.60	41.72	48.63	37.75	45.46	39.92	54.54	45.81	54.30	44.55	4.85	5.08	4.69	4.71	4.69	4.65	4.59	4.24	5.07	4.83	4.80	4.87
11/01/18	11/30/18	Nov 2018	51.09	42.41	47.88	37.17	47.75	40.25	54.54	46.98	56.75	45.33	4.98	5.17	4.85	4.88	4.86	4.82	5.18	4.44	5.24	5.01	4.97	5.52
12/01/18	12/31/18	Dec 2018	54.82	45.17	46.00	38.33	50.05	40.58	56.92	50.46	59.20	49.62	5.21	5.40	5.08	5.11	5.09	5.04	5.41	4.67	5.48	5.24	5.20	5.76
01/01/19	01/31/19	Jan 2019	51.97	43.14	48.46	37.50	49.42	40.76	54.42	47.29	57.68	46.00	5.34	5.53	5.21	5.28	5.25	5.21	5.55	4.87	5.65	5.42	5.37	5.91
02/01/19	02/28/19	Feb 2019	50.12	41.91	48.10	37.50	48.39	39.00	54.42	46.60	57.68	46.00	5.33	5.52	5.20	5.27	5.24	5.20	5.54	4.80	5.64	5.41	5.36	5.90
03/01/19	03/31/19	Mar 2019	47.16	39.76	46.69	37.50	46.34	37.25	53.16	44.86	54.89	46.00	5.26	5.45	5.13	5.20	5.17	5.13	5.45	4.73	5.56	5.33	5.29	5.81
04/01/19	04/30/19	Apr 2019	47.90	32.03	45.91	34.96	40.45	25.81	51.58	41.01	56.46	43.63	5.05	5.33	4.89	4.97	4.89	4.85	4.87	4.57	5.33	5.10	5.06	5.17
05/01/19	05/31/19	May 2019	43.71	28.53	46.28	31.53	37.21	22.50	51.58	38.08	55.08	38.83	5.07	5.35	4.91	5.00	4.92	4.88	4.85	4.59	5.36	5.13	5.09	5.14
06/01/19	06/30/19	Jun 2019	43.39	24.50	48.81	32.51	35.59	19.45	52.84	38.67	56.46	39.79	5.11	5.39	4.95	5.03	4.95	4.91	4.85	4.85	5.39	5.17	5.12	5.14
07/01/19	07/31/19	Jul 2019	56.16	34.95	60.39	37.76	50.37	30.93	61.25	45.91	66.59	46.60	5.15	5.43	4.99	5.08	5.00	4.96	4.87	4.67	5.44	5.21	5.17	5.17
08/01/19	08/31/19	Aug 2019	59.61	45.20	62.74	43.43	58.98	41.86	65.08	51.91	69.45	52.51	5.43	5.48	5.20	5.15	5.21	5.15	5.09	4.93	5.52	5.28	5.24	5.39
09/01/19	09/30/19	Sep 2019	58.54	45.41	58.19	42.10	56.85	44.71	62.99	50.31	67.28	51.80	5.42	5.51	5.22	5.18	5.23	5.18	5.13	4.88	5.55	5.31	5.27	5.43
10/01/19	10/31/19	Oct 2019	53.45	44.73	53.30	42.38	51.26	43.43	60.01	51.52	60.38	51.71	5.45	5.68	5.28	5.24	5.28	5.23	5.20	4.88	5.61	5.37	5.33	5.50
11/01/19	11/30/19	Nov 2019	54.55	45.29	51.34	41.00	53.18	43.65	59.64	51.72	60.85	51.26	5.53	5.55	5.33	5.30	5.40	5.36	5.57	5.06	5.68	5.44	5.40	5.94
12/01/19	12/31/19	Dec 2019	58.37	47.90	51.41	42.54	54.88	45.19	60.23	54.68	61.48	54.71	5.74	5.84	5.57	5.53	5.63	5.57	5.88	5.23	5.92	5.68	5.63	6.26
01/01/20	01/31/20	Jan 2020	53.10	45.28	50.63	41.63	51.03	43.73	57.94	51.56	59.61	51.36	5.71	5.77	5.52	5.49	5.61	5.56	5.80	5.21	5.88	5.64	5.59	6.18
02/01/20	02/29/20	Feb 2020	49.53	44.52	47.14	41.04	47.17	41.92	56.64	51.09	57.66	51.36	5.71	5.77	5.52	5.49	5.61	5.56	5.73	5.21	5.87	5.64	5.59	6.12
03/01/20	03/31/20	Mar 2020	47.00	42.00	46.21	39.47	45.22	39.34	53.62	48.79	54.50	49.82	5.51	5.50	5.26	5.23	5.35	5.30	5.49	4.96	5.61	5.37	5.32	5.87
04/01/20	04/30/20	Apr 2020	47.79	38.46	46.19	38.84	43.17	34.05	53.67	47.16	56.27	48.86	5.38	5.47	5.15	5.13	5.23	5.18	5.22	4.91	5.50	5.27	5.22	5.56
05/01/20	05/31/20	May 2020	45.76	35.83	48.24	37.04	42.44	31.93	54.49	45.20	56.64	46.03	5.41	5.43	5.14	5.12	5.20	5.15	5.13	4.90	5.49	5.26	5.21	5.47
06/01/20	06/30/20	Jun 2020	45.33	34.22	52.33	38.02	41.98	30.72	53.91	45.50	56.56	46.56	5.47	5.47	5.20	5.18	5.24	5.20	5.15	4.94	5.49	5.52	5.27	5.49
07/01/20	07/31/20	Jul 2020	58.26	40.96	64.34	42.51	56.41	39.06	64.76	50.76	68.97	51.64	5.51	5.59	5.28	5.27	5.29	5.23	5.18	4.98	5.64	5.41	5.36	5.53
08/01/20	08/31/20	Aug 2020	62.67	48.24	68.72	48.44	64.78	48.72	70.46	57.24	74.52	58.36	6.06	5.93	5.77	5.64	5.77	5.70	5.69	5.67	6.01	5.77	5.73	5.98
09/01/20	09/30/20	Sep 2020	62.77	48.37	65.78	46.37	64.50	48.10	69.19	56.59	74.52	58.10	6.03	5.98	5.80	5.69	5.81	5.74	5.72	5.56	6.06	5.82	5.78	6.02
10/01/20	10/31/20	Oct 2020	58.30	47.74	57.98	47.01	57.07	46.94	65.48	57.23	66.45	58.86	6.06	6.28	5.88	5.77	5.88	5.80	5.80	5.52	6.14	5.90	5.86	6.10
11/01/20	11/30/20	Nov 2020	58.01	48.16	54.80	44.83	58.60	47.04	64.74	56.47	64.94	57.18	6.08	5.94	5.81	5.73	5.95	5.91	5.97	5.88	6.11	5.86	5.82	6.33
12/01/20	12/31/20	Dec 2020	61.91	50.63	56.81	46.75	59.71	49.81	64.54	58.89	63.76	59.79	6.28	6.29	6.07	5.96	6.17	6.10	6.36	5.79	6.34	6.10	6.05	6.73
01/01/21	01/31/21	Jan 2021	54.23	47.42	52.80	45.75	52.64	46.71	61.46	55.82	61.53	56.71	6.07	6.01	5.83	5.71	5.97	5.90	6.04	5.61	6.09	5.86	5.81	6.43
02/01/21	02/28/21	Feb 2021	48.94	47.13	46.17	44.57	45.95	44.83	56.85	55.59	57.64	56.71	6.09	6.02	5.84	5.71	5.98	5.91	5.93	5.62	6.09	5.86	5.81	6.32
03/01/21	03/31/21	Mar 2021	46.84	44.25	45.72	41.44	44.11	41.43	54.08	52.71	54.11	53.64	5.76	5.55	5.38	5.25	5.52	5.46	5.52	5.63	5.40	5.35	5.90	
04/01/21	04/30/21	Apr 2021	47.67	44.89	46.46	42.72	45.88	42.28	55.75	53.31	56.08	54.09	5.71	5.62	5.42	5.29	5.57	5.51	5.56	5.26	5.66	5.43	5.38	5.90
05/01/21	05/31/21	May 2021	47.81	43.13	50.20	42.54	47.67	41.35	57.40	52.31	58.21	53.23	5.75	5.50	5.37	5.24	5.47	5.43	5.41	5.20	5.56	5.38	5.33	5.75
06/01/21	06/30/21	Jun 2021	47.28	43.94	55.85	43.53	48.36	41.99	54.99	52.34	56.65	53.33	5.83	5.56	5.45	5.32	5.53	5.48	5.45	5.25	5.69	5.46	5.41	5.79
07/01/21	07/31/21	Jul 2021	60.36	46.97	68.29	47.25	62.45	47.20	68.27	55.62	71.36	56.69	5.88	5.74	5.57	5.45	5.58	5.51	5.49	5.29	5.83	5.59	5.55	5.84
08/01/21	08/31/21	Aug 2021	62.71	48.47	68.00	47.10	64.76	50.49	69.82	55.87	73.87	56.54	5.91	5.80	5.63	5.50	5.64	5.57	5.54	5.33	5.87	5.63	5.59	5.84
09/01/21	09/30/21	Sep 2021	61.92	47.37	63.13	45.33	64.33	47.02	68.13	55.42	71.71	56.38	5.88	5.84	5.65	5.53	5.68	5.61	5.59	5.37	5.90	5.67	5.62	5.89
10/01/21	10/31/21	Oct 2021	58.70	47.23	58.31	47.19	59.68	46.70	66.60	56.73	66.96	58.58	5.91	6.34	5.72	5.59	5.77	5.69	5.69	5.41	5.96	5.72	5.68	5.99
11/01/21	11/30/21	Nov 2021	58.32	47.29	54.61	43.96	57.43	47.32	63.71	55.30	63.40	55.47	5.97	5.85	5.72	5.61	5.86	5.82	5.92	5.99	5.57	5.70	6.28	
12/01/21	12/31/21	Dec 2021	62.74	50.70	55.53	46.06	63.01	49.82	62.65	57.33	61.97	57.86	6.14	6.14	5.92	5.80	6.06	6.00	5.85	5.72	6.19	5.94	5.89	6.23
01/01/22	01/31/22	Jan 2022	60.79	53.92	61.54	54.52	59.33	52.12	62.70	56.76	62.21	56.75	6.21	6.17	5.98	5.86	6.12	6.07	5.97	5.78	6.24	6.00	5.95	6.35
02/01/22	02/28/22	Feb 2022	56.25	53.53	54.23	53.34	52.59	50.16	57.93	56.23	58.16	56.53	6.24	6.20	6.01	5.89	6.15	6.10	6.04	5.82	6.27	6.03	5.98	6.42
03/01/22	03/31/22	Mar 2022	54.97	51.75	53.68	51.63	51.87	49.71	57.82	54.31	57.08	54.64	6.03	5.85	5.68	5.55	5.82	5.76	5.83	5.50	5.93	5.69	5.64	6.21
04/01/22	04/30/22	Apr 2022	55.41	52.69	56.13	52.26	52.89	50.09	58.15	56.01	58.49	55.33	5.99	5.90	5.69	5.56	5.85	5.79	5.84	5.54	5.93	5.70	5.65	6.18
05/01/22	05/31/22	May 2022	53.81	47.42	59.78	51.90	53.08	48.58	58.16	53.48	59.17	54.37	6.04	5.81	5.66	5.52	5.78	5.74	5.72	5.50	5.60	5.66	5.62	6.06
06/01/22	06/30/22	Jun 2022	54.30	49.47	63.09	52.88	54.22	49.61	59.02	54.65	60.16	54.78	6.13	5.85	5.74	5.61	5.84	5.79	5.77	5.56	5.99	5.75	5.70	6.12
07/01/22	07/31/22	Jul 2022	67.40	55.10	78.93	57.10	66.74	52.40	72.19	59.37	75.65	59.00	6.18	6.06	5.88	5.74	5.91	5.84	5.82	5.60	6.11	5.88	5.83	6.16
08/01/22	08/31/22	Aug 2022	69.18	55.52	78.44	56.55	68.87	53.29	73.86	59.08	77.44	58.69	6.22	6.11	5.93	5.78	5.95	5.86	5.86	5.64	6.15	5.91	5.87	6.16
09/01/22	09/30/22	Sep 2022	68.56	54.43	72.99	55.48	68.29	52.55	73.12	58.36	75.87	58.43	6.17	6.16	5.95	5.82	5.99	5.92	5.90	5.69	6.19	5.95	5.91	6.20
10/01/22	10/31/22	Oct 2022	65.46	54.55	66.97	56.49	65.26	51.92	69.97	59.18	70.83	59.67	6.20	6.61	6.03	5.87	6.11	6.03	6.05	5.74	6.24	6.00	5.96	6.35
11/01/22																								

11/01/24	11/30/24	Nov 2024	75.28	62.82	70.42	61.23	75.09	64.88	73.96	64.57	73.51	64.04	7.19	7.13	6.93	6.79	7.08	7.07	7.18	6.83	7.17	6.93	6.88	7.54
12/01/24	12/31/24	Dec 2024	80.71	65.49	71.57	64.08	80.48	66.74	74.91	67.14	74.26	67.44	7.38	7.56	7.16	7.02	7.35	7.28	7.32	6.98	7.40	7.16	7.11	7.69
01/01/25	01/31/25	Jan 2025	70.78	64.72	71.80	64.19	71.43	62.25	73.69	67.39	73.16	67.30	7.50	7.50	7.25	7.11	7.43	7.38	7.44	7.08	7.50	7.26	7.21	7.82
02/01/25	02/28/25	Feb 2025	65.73	61.75	64.91	63.40	63.14	61.95	69.00	66.52	68.83	66.62	7.49	7.49	7.24	7.10	7.42	7.36	7.42	7.06	7.48	7.24	7.19	7.81
03/01/25	03/31/25	Mar 2025	63.92	60.42	62.29	59.95	60.27	57.59	66.52	63.41	65.85	63.32	7.03	6.93	6.71	6.50	6.86	6.80	6.86	6.51	6.88	6.65	6.60	7.24
04/01/25	04/30/25	Apr 2025	63.66	61.07	64.48	60.31	61.71	57.81	66.79	64.64	67.27	64.01	6.96	6.90	6.68	6.52	6.96	6.89	6.95	6.61	6.89	6.66	6.61	7.30
05/01/25	05/31/25	May 2025	63.36	57.42	68.99	60.56	62.97	57.39	67.91	62.14	68.81	62.84	7.01	6.88	6.67	6.51	6.82	6.77	6.76	6.53	6.88	6.65	6.60	7.11
06/01/25	06/30/25	Jun 2025	64.29	58.29	73.12	62.03	63.72	56.50	68.84	63.51	69.84	63.88	7.11	6.98	6.79	6.63	6.94	6.86	6.83	6.63	7.00	6.77	6.72	7.17
07/01/25	07/31/25	Jul 2025	78.16	63.49	89.40	65.87	77.84	61.39	83.06	68.32	86.44	67.90	7.20	7.13	6.90	6.67	7.05	6.97	6.93	6.70	7.04	6.81	6.76	7.28
08/01/25	08/31/25	Aug 2025	79.77	64.77	88.43	66.11	79.52	62.65	84.45	68.68	87.82	68.39	7.24	7.24	6.95	6.71	7.10	7.01	6.98	6.75	7.09	6.85	6.81	7.27
09/01/25	09/30/25	Sep 2025	78.46	63.76	83.02	64.24	78.27	61.37	83.02	67.36	86.02	67.43	7.17	7.26	6.94	6.78	7.13	7.06	7.04	6.79	7.16	6.92	6.87	7.34
10/01/25	10/31/25	Oct 2025	74.71	63.79	74.83	64.66	74.60	61.25	78.91	67.84	79.03	67.83	7.20	7.62	7.13	6.85	7.39	7.22	7.20	6.85	7.22	6.98	6.94	7.51
11/01/25	11/30/25	Nov 2025	76.26	64.29	72.59	63.06	76.85	66.08	76.00	66.25	75.55	65.85	7.26	7.25	7.01	6.85	7.22	7.17	7.28	6.92	7.22	6.98	6.94	7.64
12/01/25	12/31/25	Dec 2025	82.90	67.18	72.61	65.99	82.28	67.86	76.87	68.94	76.09	69.20	7.48	7.83	7.33	7.15	7.54	7.46	7.47	7.11	7.54	7.29	7.24	7.85
01/01/26	01/31/26	Jan 2026	73.05	65.63	73.24	65.72	75.26	63.94	75.02	68.70	74.49	68.62	7.57	7.65	7.37	7.23	7.55	7.50	7.56	7.20	7.61	7.37	7.32	7.95
02/01/26	02/28/26	Feb 2026	66.18	64.03	66.21	64.36	65.01	61.84	69.49	67.93	69.92	67.47	7.56	7.60	7.34	7.20	7.54	7.47	7.53	7.17	7.58	7.34	7.29	7.91
03/01/26	03/31/26	Mar 2026	64.28	61.30	62.68	60.57	61.47	59.06	67.39	63.73	66.54	63.49	7.07	7.00	6.76	6.50	6.92	6.85	6.92	6.88	6.65	6.60	6.29	7.29
04/01/26	04/30/26	Apr 2026	65.22	62.06	65.25	61.44	63.50	59.58	68.04	65.49	68.38	64.61	7.01	6.97	6.70	6.45	7.02	6.95	7.01	6.65	6.82	6.59	6.54	7.35
05/01/26	05/31/26	May 2026	63.41	57.60	69.75	61.42	62.95	55.92	68.62	62.93	69.46	63.51	7.05	6.93	6.72	6.47	6.87	6.81	6.81	6.57	6.84	6.61	6.56	7.15
06/01/26	06/30/26	Jun 2026	65.11	58.88	74.18	63.05	64.47	57.50	69.54	64.10	70.52	64.44	7.17	7.05	6.86	6.61	7.01	6.94	6.89	6.69	6.98	6.75	6.70	7.23
07/01/26	07/31/26	Jul 2026	80.46	64.97	91.48	67.37	79.67	62.67	84.81	69.57	88.32	69.12	7.24	7.27	6.95	6.68	7.11	7.03	6.99	6.75	7.06	6.82	6.78	7.33
08/01/26	08/31/26	Aug 2026	81.28	66.14	90.86	67.79	81.27	64.34	86.09	70.27	90.05	69.88	7.29	7.41	7.00	6.74	7.16	7.07	7.05	6.80	7.11	6.87	6.83	7.35
09/01/26	09/30/26	Sep 2026	80.60	64.83	85.55	65.57	80.22	62.91	85.07	68.54	88.55	68.70	7.22	7.42	6.99	6.75	7.22	7.14	7.12	6.87	7.12	6.88	6.84	7.42
10/01/26	10/31/26	Oct 2026	78.37	66.11	77.86	68.05	78.03	63.16	82.87	71.20	83.31	71.13	7.26	8.13	7.31	6.85	7.55	7.36	7.33	6.97	7.23	6.99	6.95	7.63
11/01/26	11/30/26	Nov 2026	78.79	65.68	73.84	63.94	79.33	68.29	77.31	67.29	76.70	66.52	7.33	7.33	7.05	6.85	7.38	7.33	7.44	7.07	7.23	6.99	6.94	7.80
12/01/26	12/31/26	Dec 2026	85.99	69.60	75.08	68.03	85.72	71.65	79.48	71.08	78.60	71.10	7.55	8.09	7.48	7.20	7.72	7.63	7.63	7.24	7.58	7.34	7.29	8.01
01/01/27	01/31/27	Jan 2027	75.11	67.36	74.61	67.48	76.95	65.45	77.11	70.19	76.53	70.29	7.63	7.88	7.47	7.25	7.70	7.64	7.70	7.32	7.64	7.40	7.35	8.08
02/01/27	02/28/27	Feb 2027	68.57	65.83	68.24	66.53	66.76	63.82	71.96	69.85	72.21	69.66	7.66	7.86	7.49	7.27	7.73	7.65	7.69	7.31	7.65	7.42	7.37	8.07
03/01/27	03/31/27	Mar 2027	65.13	62.63	63.97	61.64	62.92	60.50	68.69	65.07	67.86	64.66	7.15	7.06	6.82	6.55	7.04	6.99	7.06	6.69	6.93	6.69	6.64	7.44
04/01/27	04/30/27	Apr 2027	66.49	63.37	66.34	62.68	64.49	60.56	69.15	66.72	69.50	65.75	7.09	7.09	6.77	6.51	7.15	7.07	7.13	6.76	6.88	6.65	6.60	7.47
05/01/27	05/31/27	May 2027	66.78	59.56	71.34	62.86	66.36	59.53	71.07	64.42	71.83	64.82	7.14	7.06	6.81	6.53	7.00	6.95	6.94	6.69	6.90	6.67	6.62	7.29
06/01/27	06/30/27	Jun 2027	66.85	59.43	76.07	64.63	66.35	59.03	71.52	65.52	72.29	65.43	7.27	7.20	6.97	6.69	7.12	7.06	7.01	6.79	7.07	6.83	6.79	7.35
07/01/27	07/31/27	Jul 2027	81.01	66.25	92.61	69.22	80.68	64.04	85.88	70.96	89.48	70.61	7.33	7.48	7.05	6.78	7.21	7.11	7.09	6.86	7.15	6.92	6.87	7.44
08/01/27	08/31/27	Aug 2027	83.21	67.08	93.10	69.12	83.11	65.12	87.92	71.32	91.84	70.98	7.38	7.59	7.11	6.84	7.28	7.20	7.16	6.90	7.21	6.97	6.93	7.46
09/01/27	09/30/27	Sep 2027	81.66	66.15	86.18	67.41	81.23	64.20	86.32	70.03	88.51	69.82	7.31	7.64	7.15	6.87	7.37	7.27	7.27	6.98	7.24	7.01	6.96	7.57
10/01/27	10/31/27	Oct 2027	78.94	67.93	79.18	68.98	78.40	64.85	83.42	70.25	83.94	70.82	7.34	7.62	7.57	6.95	7.76	7.55	7.47	7.09	7.32	7.08	7.04	7.77
11/01/27	11/30/27	Nov 2027	80.77	67.56	74.56	65.59	80.33	69.95	77.83	69.11	77.13	68.24	7.44	7.60	7.21	6.96	7.59	7.52	7.64	7.26	7.33	7.09	7.05	8.00
12/01/27	12/31/27	Dec 2027	88.24	72.13	77.87	71.25	87.97	73.92	82.14	74.22	81.38	74.12	7.66	8.59	7.73	7.33	7.96	7.85	7.85	7.39	7.77	7.71	7.47	8.23
01/01/28	01/31/28	Jan 2028	76.16	68.40	74.95	67.68	78.47	67.16	76.56	70.75	75.97	70.21	7.66	7.77	7.48	7.32	7.76	7.70	7.78	7.39	7.70	7.46	7.41	8.16
02/01/28	02/29/28	Feb 2028	70.79	67.06	67.99	66.20	67.52	63.87	72.40	70.08	72.17	69.29	7.69	7.76	7.49	7.32	7.70	7.65	7.72	7.33	7.71	7.47	7.42	8.10
03/01/28	03/31/28	Mar 2028	65.21	62.69	63.84	61.87	63.26	60.81	68.66	65.10	67.70	64.95	7.13	7.04	6.79	6.60	6.98	6.93	7.02	6.65	6.98	6.74	6.69	7.40
04/01/28	04/30/28	Apr 2028	66.58	63.93	66.04	62.23	64.13	61.80	68.92	66.55	69.03	65.56	7.06	6.99	6.75	6.57	7.12	7.03	7.11	6.73	6.94	6.71	6.66	7.45
05/01/28	05/31/28	May 2028	65.40	59.45	70.79	62.89	64.73	59.31	69.68	63.95	70.56	64.56	7.12	7.03	6.78	6.58	6.97	6.92	6.91	6.65	6.95	6.72	6.67	7.25
06/01/28	06/30/28	Jun 2028	66.80	61.00	76.15	64.74	66.55	59.67	71.31	65.75	72.48	65.54	7.23	7.15	6.93	6.65	7.09	7.01	6.97	6.76	7.03	6.79	6.75	7.31
07/01/28	07/31/28	Jul 2028	80.98	66.46	92.43	68.77	80.45	63.83	85.83	70.72	89.63	70.25	7.30	7.31	7.01	6.73	7.17	7.09	7.05	6.82	7.11	6.88	6.83	7.39
08/01/28	08/31/28	Aug 2028	83.06	67.14	93.15	68.48	83.07	64.91	87.82	71.14	91.84	70.59	7.35	7.46	7.06	6.79	7.22	7.14	7.12	6.85	7.16	6.92	6.88	7.42
09/01/28	09/30/28	Sep 2028	81.39	66.40	85.88	66.90	81.16	64.53	85.90	69.94	87.95	69.52	7.28	7.44	7.09	6.84	7.36	7.27	7.25	6.97	7.21	6.97	6.93	7.54
10/01/28	10/31/28	Oct 2028	78.66	67.66	77.61	66.02	78.12	64.15	82.60	70.01	82.91	69.12	7.31	7.57	7.37	6.92	7.71	7.49	7.43	7.05	7.29	7.05	7.01	7.74
11/01/28	11/30/28	Nov 2028	81.99	68.28	75.22	65.87	81.96	70.61	78.53	69.72	77.78	68.75	7.46	7.48	7.21	7.01	7.66	7.61	7.72	7.33	7.39	7.15	7.10	8.08

12/01/30	12/31/30	Dec 2030	90.56	75.61	79.05	71.66	88.57	77.61	84.27	75.71	83.20	74.80	8.26	8.43	8.26	7.92	8.28	8.27	8.27	8.23	8.30	8.06	8.01	8.65
01/01/31	01/31/31	Jan 2031	83.59	74.95	82.54	74.36	82.28	73.47	84.32	76.90	83.68	76.48	8.42	8.67	8.41	8.26	8.43	8.43	8.44	8.39	8.64	8.40	8.35	8.82
02/01/31	02/28/31	Feb 2031	77.47	74.19	74.98	73.17	74.39	70.83	79.11	76.39	78.98	75.87	8.40	8.64	8.39	8.21	8.41	8.41	8.42	8.36	8.59	8.36	8.31	8.80
03/01/31	03/31/31	Mar 2031	70.97	70.02	70.94	68.47	70.12	67.94	74.80	72.37	74.91	71.75	7.89	7.88	7.59	7.55	7.77	7.71	7.80	7.40	7.99	7.69	7.64	8.18
04/01/31	04/30/31	Apr 2031	73.47	70.37	72.69	68.96	70.20	67.59	76.25	72.93	75.81	71.92	7.82	7.91	7.61	7.54	7.79	7.73	7.86	7.45	7.91	7.68	7.63	8.20
05/01/31	05/31/31	May 2031	73.84	67.48	78.21	69.67	72.93	66.19	77.64	70.60	78.36	70.73	7.86	7.83	7.55	7.53	7.73	7.67	7.66	7.39	7.91	7.67	7.62	8.01
06/01/31	06/30/31	Jun 2031	73.05	68.31	82.43	71.64	72.28	65.82	77.47	72.42	78.82	72.03	7.99	7.92	7.68	7.61	7.77	7.69	7.66	7.44	7.98	7.75	7.70	8.00
07/01/31	07/31/31	Jul 2031	89.55	72.65	101.67	75.96	88.88	70.94	94.16	77.31	98.13	76.97	8.09	8.24	7.83	7.72	7.88	7.82	7.77	7.54	8.10	7.86	7.81	8.12
08/01/31	08/31/31	Aug 2031	90.90	73.35	100.88	76.40	90.81	72.05	95.65	77.76	99.47	77.65	8.14	8.39	7.90	7.78	7.95	7.86	7.85	7.60	8.15	7.91	7.87	8.15
09/01/31	09/30/31	Sep 2031	89.03	73.13	93.46	74.38	88.43	71.61	92.92	76.50	95.82	76.20	8.07	8.39	7.92	7.86	8.11	8.02	8.00	7.72	8.23	7.99	7.95	8.30
10/01/31	10/31/31	Oct 2031	84.52	74.07	83.49	74.83	83.83	71.07	88.67	77.08	89.56	76.70	8.12	8.82	8.20	7.95	8.30	8.18	8.18	7.77	8.33	8.09	8.05	8.48
11/01/31	11/30/31	Nov 2031	88.72	75.71	82.75	74.09	88.80	77.68	86.08	76.83	85.36	76.35	8.35	8.56	8.25	8.18	8.43	8.48	8.61	8.19	8.56	8.31	8.27	8.97
12/01/31	12/31/31	Dec 2031	96.18	82.89	84.66	77.41	93.85	85.39	90.10	81.44	88.97	80.55	9.29	9.07	9.29	9.21	9.32	9.31	9.32	9.27	9.59	9.35	9.30	9.69
01/01/32	01/31/32	Jan 2032	85.74	76.72	83.59	76.21	83.92	75.08	84.37	78.23	84.82	77.74	8.59	8.85	8.58	8.42	8.60	8.60	8.61	8.56	8.80	8.57	8.52	8.99
02/01/32	02/29/32	Feb 2032	79.27	75.72	76.68	74.94	76.28	72.56	80.41	77.97	80.43	77.13	8.56	8.81	8.55	8.38	8.57	8.57	8.58	8.53	8.76	8.52	8.47	8.97
03/01/32	03/31/32	Mar 2032	72.40	71.69	72.11	69.63	72.05	69.73	76.75	73.62	75.99	72.69	8.04	8.03	7.74	7.70	7.93	7.87	7.96	7.54	8.08	7.84	7.79	8.34
04/01/32	04/30/32	Apr 2032	74.86	71.90	74.63	70.91	72.22	69.81	77.93	74.58	77.76	73.57	7.98	8.06	7.76	7.69	7.95	7.89	8.01	7.60	8.06	7.83	7.78	8.36
05/01/32	05/31/32	May 2032	72.33	66.48	79.25	71.57	72.08	67.07	77.22	71.36	78.11	71.94	8.02	7.98	7.70	7.68	7.88	7.83	7.82	7.54	8.06	7.82	7.78	8.16
06/01/32	06/30/32	Jun 2032	74.95	69.08	84.60	73.45	73.85	67.00	79.17	73.77	80.16	73.38	8.15	8.08	7.83	7.76	7.93	7.84	7.81	7.58	8.14	7.90	7.85	8.16
07/01/32	07/31/32	Jul 2032	91.49	74.58	103.79	78.19	90.86	72.76	96.04	78.99	100.03	78.65	8.25	8.41	7.99	7.88	8.04	7.98	7.93	7.69	8.25	8.02	7.97	8.27
08/01/32	08/31/32	Aug 2032	93.76	75.22	104.03	78.33	93.84	73.63	98.37	79.46	102.28	79.23	8.30	8.56	8.06	7.94	8.11	8.02	8.01	7.75	8.31	8.07	8.03	8.30
09/01/32	09/30/32	Sep 2032	91.58	74.78	95.81	76.30	91.04	73.38	95.45	78.51	98.13	78.20	8.24	8.56	8.08	8.02	8.27	8.18	8.16	7.87	8.39	8.15	8.11	8.46
10/01/32	10/31/32	Oct 2032	87.79	75.92	86.52	76.69	86.63	72.82	91.63	78.95	93.37	78.61	8.28	9.00	8.36	8.11	8.37	8.34	8.34	7.93	8.49	8.25	8.20	8.64
11/01/32	11/30/32	Nov 2032	90.78	77.52	84.96	75.27	90.68	79.88	87.55	78.03	86.92	77.42	8.52	8.74	8.41	8.34	8.60	8.65	8.78	8.35	8.72	8.48	8.43	9.14
12/01/32	12/31/32	Dec 2032	98.45	85.22	86.99	79.48	95.90	86.99	92.23	83.47	91.03	82.54	9.48	9.25	9.48	9.39	9.51	9.50	9.51	9.45	9.78	9.53	9.49	9.88
01/01/33	01/31/33	Jan 2033	88.81	78.55	85.66	78.15	87.06	77.08	86.44	80.10	86.72	79.61	8.76	9.02	8.75	8.59	8.77	8.78	8.73	8.97	8.73	8.68	9.16	
02/01/33	02/28/33	Feb 2033	80.98	77.61	78.94	76.81	78.46	74.54	82.92	80.06	82.73	79.45	8.73	8.99	8.72	8.54	8.75	8.75	8.76	8.70	8.93	8.69	8.64	9.14
03/01/33	03/31/33	Mar 2033	76.03	73.39	74.05	71.31	73.47	70.97	78.90	75.41	77.96	74.45	8.20	7.90	7.85	8.09	8.02	8.12	7.70	8.23	8.00	7.95	8.50	
04/01/33	04/30/33	Apr 2033	76.71	73.59	75.89	72.40	73.43	71.42	79.55	76.07	79.13	75.08	8.14	8.23	7.92	7.84	8.11	8.05	8.17	7.75	8.22	7.98	7.94	8.52
05/01/33	05/31/33	May 2033	75.11	70.62	81.00	73.14	74.37	69.28	79.31	73.80	80.31	74.28	8.18	8.14	7.86	7.84	8.04	7.98	7.97	7.69	8.21	7.98	7.93	8.32
06/01/33	06/30/33	Jun 2033	77.17	71.81	86.41	75.03	75.89	68.29	81.44	75.71	82.55	75.24	8.31	8.24	7.99	7.92	8.09	8.00	7.97	7.74	8.29	8.06	8.01	8.31
07/01/33	07/31/33	Jul 2033	93.17	76.21	105.73	79.61	92.82	74.55	97.93	80.56	102.17	80.16	8.42	8.57	8.15	8.03	8.20	8.14	8.09	7.84	8.21	8.13	8.43	
08/01/33	08/31/33	Aug 2033	95.65	76.62	105.36	79.50	95.56	74.80	100.07	80.75	103.85	80.45	8.47	8.73	8.22	8.09	8.27	8.18	8.17	7.90	8.47	8.23	8.18	8.46
09/01/33	09/30/33	Sep 2033	92.53	76.53	95.63	77.51	91.87	74.70	96.27	79.99	98.30	79.47	8.40	8.73	8.24	8.18	8.43	8.35	8.33	8.03	8.55	8.31	8.27	8.63
10/01/33	10/31/33	Oct 2033	89.16	77.41	87.44	78.11	88.06	74.21	93.07	80.61	94.76	80.17	8.45	9.18	8.53	8.28	8.64	8.51	8.51	8.08	8.65	8.41	8.37	8.81
11/01/33	11/30/33	Nov 2033	91.96	79.17	85.97	76.52	91.50	81.44	89.09	79.69	88.30	78.98	8.69	8.91	8.58	8.51	8.77	8.83	8.95	8.52	8.89	8.65	8.60	9.31
12/01/33	12/31/33	Dec 2033	99.14	87.16	87.64	81.12	97.04	88.78	93.27	84.80	92.12	83.99	9.67	9.43	9.67	9.58	9.70	9.69	9.70	9.64	9.97	9.72	9.67	10.07
01/01/34	01/31/34	Jan 2034	89.92	80.38	86.92	79.28	87.62	78.70	87.90	81.89	88.32	81.21	8.93	9.20	8.92	8.76	8.95	8.96	8.90	9.14	8.91	8.86	9.34	
02/01/34	02/28/34	Feb 2034	82.43	79.53	80.11	78.19	79.41	75.77	83.69	81.38	83.82	80.46	8.91	9.17	8.90	8.71	8.92	8.92	8.93	8.88	9.10	8.86	8.81	9.31
03/01/34	03/31/34	Mar 2034	76.01	75.26	76.03	73.43	75.45	73.05	80.06	77.57	79.82	76.71	8.37	8.36	8.06	8.01	8.25	8.18	8.28	7.85	8.39	8.16	8.11	8.66
04/01/34	04/30/34	Apr 2034	78.36	75.38	78.05	74.66	75.49	72.98	81.32	78.62	81.17	77.63	8.30	8.39	8.08	8.00	8.27	8.21	8.34	7.90	8.37	8.14	8.09	8.68
05/01/34	05/31/34	May 2034	76.28	71.15	82.86	74.70	75.36	70.63	80.79	74.78	81.59	75.38	8.34	8.31	8.01	7.99	8.20	8.14	8.13	7.84	8.37	8.13	8.09	8.48
06/01/34	06/30/34	Jun 2034	77.85	73.32	87.70	76.52	77.20	69.94	82.20	77.49	83.32	76.75	8.47	8.41	8.15	8.07	8.25	8.16	8.13	7.89	8.45	8.22	8.17	8.47
07/01/34	07/31/34	Jul 2034	95.88	78.24	108.28	81.58	95.32	76.46	100.37	82.67	104.55	82.29	8.58	8.75	8.31	8.19	8.37	8.30	8.25	8.00	8.57	8.34	8.29	8.59
08/01/34	08/31/34	Aug 2034	97.83	78.57	107.55	81.35	98.15	76.76	102.54	82.76	105.93	82.47	8.63	8.90	8.39	8.26	8.44	8.34	8.33	8.06	8.63	8.39	8.35	8.63
09/01/34	09/30/34	Sep 2034	94.49	78.93	98.62	79.79	93.89	77.15	98.38	82.07	101.59	81.65	8.57	8.90	8.41	8.34	8.60	8.51	8.49	8.19	8.71	8.48	8.43	8.79
10/01/34	10/31/34	Oct 2034	90.66	79.47	89.17	79.80	89.73	76.20	94.63	82.70	95.65	82.16	8.61	9.36	8.70	8.44	8.81	8.68	8.68	8.25	8.81	8.58	8.53	8.98
11/01/34	11/30/34	Nov 2034	94.75	81.35	88.20	78.70	94.54	83.39	91.80	81.33	91.03	80.99	8.86	9.09	8.75	8.68	8.95	9.00	9.13	8.69	9.06	8.82	8.77	9.49
12/01/34	12/31/34	Dec 2034	102.11	89.04	90.80	82.72	99.91	90.72	96.12	86.72	95.03	85.76	9.86	9.62	9.86	9.77	9.89	9.88	9.89	9.84	10.16	9.91	9.87	10.27

01/01/37	01/31/37	Jan 2037	95.27	86.46	94.92	85.77	93.73	84.20	94.02	87.53	94.53	87.03	9.48	9.77	9.47	9.30	9.49	9.49	9.50	9.45	9.68	9.44	9.39	9.89
02/01/37	02/28/37	Feb 2037	87.93	85.24	86.02	83.93	85.79	81.40	89.83	87.35	90.18	86.44	9.45	9.73	9.44	9.25	9.47	9.47	9.48	9.42	9.63	9.39	9.34	9.86
03/01/37	03/31/37	Mar 2037	81.52	80.80	81.49	78.54	80.16	77.72	85.37	82.65	85.42	81.85	8.88	8.87	8.55	8.50	8.75	8.69	8.79	8.33	8.88	8.65	8.60	9.17
04/01/37	04/30/37	Apr 2037	83.38	81.09	83.35	79.27	80.91	77.72	86.07	82.51	86.26	81.51	8.81	8.90	8.57	8.49	8.78	8.71	8.85	8.39	8.86	8.63	8.58	9.19
05/01/37	05/31/37	May 2037	83.02	77.42	89.57	80.38	82.86	75.59	87.35	80.65	88.48	80.59	8.85	8.82	8.51	8.48	8.70	8.64	8.63	8.32	8.86	8.62	8.58	8.97
06/01/37	06/30/37	Jun 2037	83.90	78.76	94.04	82.30	82.66	75.55	88.10	82.56	89.22	82.06	8.99	8.92	8.65	8.57	8.75	8.66	8.63	8.37	8.94	8.71	8.66	8.97
07/01/37	07/31/37	Jul 2037	101.29	82.64	114.10	87.10	101.14	81.06	105.82	87.33	109.33	86.97	9.11	9.28	8.82	8.70	8.88	8.81	8.75	8.49	9.07	8.84	8.79	9.10
08/01/37	08/31/37	Aug 2037	103.27	84.38	113.42	87.63	103.09	81.95	107.64	88.15	110.96	87.84	9.16	9.45	8.90	8.76	8.96	8.85	8.84	8.54	9.13	8.89	8.85	9.14
09/01/37	09/30/37	Sep 2037	99.76	84.04	103.24	84.84	98.80	81.44	103.21	87.22	105.72	86.51	9.09	9.45	8.92	8.85	9.13	9.04	9.01	8.69	9.22	8.99	8.94	9.31
10/01/37	10/31/37	Oct 2037	96.08	84.71	94.31	85.50	94.78	81.82	99.77	88.00	100.69	87.64	9.14	9.93	9.23	8.96	9.35	9.21	9.21	8.75	9.33	9.09	9.05	9.51
11/01/37	11/30/37	Nov 2037	98.84	86.81	93.87	84.15	98.30	88.41	97.12	87.87	96.40	86.90	9.40	9.65	9.29	9.21	9.50	9.55	9.69	9.22	9.59	9.35	9.30	10.05
12/01/37	12/31/37	Dec 2037	107.49	95.00	95.21	88.25	105.16	95.56	101.08	92.18	100.04	91.17	10.46	10.21	10.46	10.37	10.50	10.48	10.50	10.44	10.76	10.51	10.46	10.87
01/01/38	01/31/38	Jan 2038	100.21	88.78	96.76	87.51	99.61	87.48	96.08	89.44	96.49	88.65	9.67	9.96	9.66	9.48	9.68	9.68	9.69	9.64	9.87	9.63	9.58	10.08
02/01/38	02/28/38	Feb 2038	88.60	88.08	88.22	85.97	88.39	85.31	91.81	89.39	92.04	88.46	9.64	9.92	9.63	9.43	9.66	9.66	9.67	9.61	9.81	9.58	9.53	10.05
03/01/38	03/31/38	Mar 2038	83.81	83.06	83.32	80.33	83.16	80.72	87.16	83.42	87.17	82.46	9.06	9.05	8.72	8.67	8.93	8.86	8.96	9.05	9.05	8.82	8.77	9.34
04/01/38	04/30/38	Apr 2038	84.58	83.25	84.83	81.12	82.93	80.80	87.65	84.07	88.03	83.09	8.99	9.08	8.74	8.66	8.95	8.88	9.02	8.56	9.03	8.80	8.75	9.37
05/01/38	05/31/38	May 2038	84.71	79.39	91.25	82.52	83.82	77.36	88.42	81.73	89.29	82.21	9.03	8.99	8.68	8.65	8.87	8.82	8.80	8.49	9.03	8.79	8.74	9.15
06/01/38	06/30/38	Jun 2038	86.37	80.61	96.87	84.26	85.66	77.30	90.46	84.45	91.48	83.88	9.17	9.10	8.82	8.74	8.93	8.83	8.80	8.54	9.11	8.88	8.83	9.14
07/01/38	07/31/38	Jul 2038	103.63	84.74	116.89	89.47	103.77	83.30	108.48	89.76	112.35	89.33	9.29	9.47	9.00	8.87	9.06	8.99	8.93	8.66	9.25	9.01	8.96	9.27
08/01/38	08/31/38	Aug 2038	106.53	86.20	117.36	89.69	106.71	84.48	111.18	90.29	114.84	89.94	9.35	9.64	9.08	8.94	9.14	9.03	9.02	8.73	9.31	9.07	9.03	9.31
09/01/38	09/30/38	Sep 2038	102.80	86.24	106.08	87.18	102.66	84.21	106.51	89.63	108.62	89.05	9.28	9.64	9.10	9.03	9.31	9.22	9.19	8.87	9.40	9.16	9.12	9.49
10/01/38	10/31/38	Oct 2038	99.83	87.35	98.06	87.41	98.81	84.20	103.91	90.44	105.09	89.86	9.32	10.13	9.42	9.14	9.54	9.39	9.39	9.39	9.51	9.27	9.23	9.70
11/01/38	11/30/38	Nov 2038	99.83	88.98	95.97	85.69	101.74	91.85	98.35	98.96	97.66	87.97	9.59	9.84	9.48	9.39	9.69	9.74	9.89	9.41	9.77	9.53	9.49	10.25
12/01/38	12/31/38	Dec 2038	110.18	97.01	97.86	90.60	108.21	98.07	103.41	94.19	102.37	93.32	10.67	10.41	10.67	10.58	10.71	10.69	10.71	10.65	10.96	10.72	10.67	11.08
01/01/39	01/31/39	Jan 2039	95.94	90.72	98.50	89.53	97.69	89.11	97.96	91.64	98.44	90.79	9.86	10.16	9.85	9.67	9.88	9.88	9.89	9.83	10.06	9.82	9.77	10.27
02/01/39	02/28/39	Feb 2039	92.45	90.11	90.34	87.63	89.74	86.81	94.24	91.19	94.23	90.46	9.84	10.12	9.82	9.62	9.85	9.85	9.86	9.80	10.00	9.77	9.72	10.24
03/01/39	03/31/39	Mar 2039	85.44	85.17	85.52	82.39	84.57	82.43	88.83	85.36	88.91	84.34	9.24	9.23	8.89	8.85	9.11	9.04	9.14	8.67	9.23	8.99	8.94	9.52
04/01/39	04/30/39	Apr 2039	86.33	84.94	87.11	83.11	83.81	82.12	89.79	85.68	89.91	84.70	9.17	9.26	8.92	8.83	9.13	9.06	9.20	8.73	9.21	8.97	8.93	9.55
05/01/39	05/31/39	May 2039	86.84	81.41	93.37	84.47	86.43	79.23	91.14	85.14	92.19	85.13	9.21	9.17	8.85	8.83	9.05	8.99	8.98	8.66	9.20	8.97	9.02	9.32
06/01/39	06/30/39	Jun 2039	88.36	82.65	98.60	86.09	87.57	79.16	92.33	85.93	93.55	85.38	9.36	9.29	9.00	8.91	9.11	8.91	8.97	8.71	9.29	9.06	9.01	9.32
07/01/39	07/31/39	Jul 2039	105.29	86.30	118.63	91.30	105.09	84.80	109.69	91.32	113.98	91.07	9.48	9.66	9.18	9.05	9.24	9.17	9.11	8.83	9.42	9.19	9.14	9.45
08/01/39	08/31/39	Aug 2039	107.87	87.90	118.31	91.22	108.00	85.91	112.07	91.73	115.99	91.33	9.53	9.83	9.26	9.12	9.32	9.21	9.20	8.90	9.49	9.25	9.21	9.50
09/01/39	09/30/39	Sep 2039	102.96	88.29	106.18	88.79	102.20	86.15	106.51	91.16	108.75	90.59	9.46	9.83	9.28	9.21	9.50	9.40	9.38	9.04	9.58	9.34	9.30	9.68
10/01/39	10/31/39	Oct 2039	99.88	89.25	98.24	88.86	98.44	86.28	103.36	92.00	104.95	91.38	9.51	10.33	9.61	9.32	9.73	9.58	9.58	9.10	9.69	9.45	9.41	9.88
11/01/39	11/30/39	Nov 2039	99.80	90.85	97.06	87.23	101.72	93.04	99.41	90.48	99.29	89.49	9.78	10.04	9.66	9.58	9.88	9.94	10.08	9.59	9.96	9.72	9.67	10.44
12/01/39	12/31/39	Dec 2039	111.09	99.04	98.81	92.47	110.19	100.20	104.19	95.61	103.15	94.86	10.88	10.62	10.88	10.79	10.92	10.91	10.92	10.86	11.17	10.93	10.88	11.29
01/01/40	01/31/40	Jan 2040	98.46	92.95	100.95	91.30	99.96	91.04	99.39	93.33	99.96	92.41	10.06	10.37	10.05	9.87	10.07	10.07	10.09	10.03	10.25	10.01	9.96	10.47
02/01/40	02/29/40	Feb 2040	94.65	92.23	92.06	89.15	91.57	88.56	96.40	93.09	95.88	92.09	10.03	10.33	10.02	9.81	10.05	10.05	10.06	10.00	10.20	9.96	9.91	10.44
03/01/40	03/31/40	Mar 2040	87.69	87.32	87.35	84.57	87.17	85.16	90.85	87.81	90.96	86.82	9.42	9.41	9.07	9.02	9.29	9.22	9.33	8.84	9.40	9.17	9.12	9.70
04/01/40	04/30/40	Apr 2040	88.44	87.05	89.75	85.38	85.13	83.91	92.38	88.18	92.47	87.23	9.35	9.45	9.10	9.01	9.32	9.24	9.39	9.30	9.48	9.15	9.10	9.73
05/01/40	05/31/40	May 2040	86.92	82.36	95.35	86.27	86.91	80.90	91.05	85.32	93.56	85.80	9.39	9.35	9.03	9.00	9.23	9.17	9.16	8.83	9.37	9.14	9.09	9.50
06/01/40	06/30/40	Jun 2040	89.17	84.49	100.21	88.33	88.30	81.14	93.35	88.03	94.79	87.48	9.54	9.47	9.18	9.09	9.29	9.19	9.15	8.89	9.47	9.23	9.19	9.50
07/01/40	07/31/40	Jul 2040	108.44	88.78	122.13	93.51	108.32	87.12	112.99	93.67	117.31	93.42	9.67	9.85	9.36	9.23	9.42	9.35	9.29	9.01	9.60	9.37	9.32	9.63
08/01/40	08/31/40	Aug 2040	110.89	90.26	121.13	93.49	110.80	88.65	114.81	94.11	118.74	93.71	9.72	10.03	9.44	9.30	9.50	9.39	9.38	9.08	9.67	9.43	9.39	9.68
09/01/40	09/30/40	Sep 2040	106.01	90.73	109.59	91.48	105.09	88.94	109.60	93.58	112.18	93.07	9.65	10.03	9.47	9.39	9.69	9.59	9.56	9.22	9.77	9.53	9.48	9.86
10/01/40	10/31/40	Oct 2040	102.07	91.54	100.57	91.12	101.40	88.46	106.15	94.36	107.22	93.75	9.70	10.54	9.80	9.51	9.92	9.77	9.77	9.29	9.88	9.64	9.60	10.08
11/01/40	11/30/40	Nov 2040	102.63	93.27	99.40	89.41	104.89	95.40	102.20	92.96	101.97	91.97	9.88	10.24	9.86	9.71	10.08	10.14	10.28	9.79	10.15	9.91	9.86	10.65
12/01/40	12/31/40	Dec 2040	113.78	101.76	101.82	94.53	112.10	102.97	107.28	98.31	106.30	97.29	11.10	10.83	11.10	11.00	11.14	11.13	11.14	11.08	11.39	11.15	11.10	11.51
01/01/41	01/31/41	Jan 2041	101.37	95.35																				

02/01/43	02/28/43	Feb 2043	101.43	98.96	98.57	95.47	99.02	95.22	103.05	99.48	102.51	98.44	10.68	10.99	10.67	10.45	10.69	10.69	10.70	10.64	10.83	10.59	10.54	11.09
03/01/43	03/31/43	Mar 2043	94.79	93.82	94.00	90.65	92.17	90.36	97.98	93.71	97.79	92.73	10.03	10.02	9.65	9.60	9.89	9.81	9.93	9.41	9.98	9.75	9.70	10.30
04/01/43	04/30/43	Apr 2043	94.26	93.28	95.13	90.77	90.93	89.48	98.02	93.39	97.94	92.34	9.95	10.06	9.68	9.59	9.91	9.84	9.99	9.47	9.96	9.73	9.68	10.34
05/01/43	05/31/43	May 2043	94.14	89.67	101.94	92.33	92.66	86.74	98.34	92.47	100.13	92.59	10.00	9.96	9.61	9.58	9.83	9.76	9.75	9.40	9.95	9.72	9.67	10.09
06/01/43	06/30/43	Jun 2043	95.91	90.84	107.52	94.92	95.14	87.60	99.95	94.07	101.81	93.68	10.16	10.08	9.77	9.68	9.89	9.78	9.74	9.46	10.05	9.82	9.77	10.09

08/01/18	08/31/18	Aug 2018	59.08	43.05	56.88	40.01	54.06	36.95	63.56	47.94	67.98	47.98	4.61	4.70	4.38	4.45	4.49	4.45	4.34	4.20	4.81	4.57	4.53	4.60
09/01/18	09/30/18	Sep 2018	56.67	43.37	50.30	39.38	54.06	43.79	60.44	45.23	63.36	46.75	4.62	4.70	4.38	4.45	4.50	4.46	4.41	4.25	4.82	4.58	4.54	4.68
10/01/18	10/31/18	Oct 2018	49.36	43.13	48.91	38.75	47.91	42.35	57.52	45.75	56.96	44.71	4.65	4.74	4.42	4.49	4.53	4.49	4.46	4.29	4.86	4.61	4.58	4.73
11/01/18	11/30/18	Nov 2018	51.97	43.87	48.14	38.13	51.56	42.70	57.52	46.95	59.50	45.53	4.75	4.88	4.54	4.63	4.70	4.66	5.04	4.44	5.00	4.75	4.72	5.37
12/01/18	12/31/18	Dec 2018	55.88	46.81	46.21	39.38	53.99	43.05	58.96	50.55	62.04	50.01	4.99	5.10	4.76	4.86	4.92	4.88	5.26	4.64	5.24	4.99	4.95	5.61
01/01/19	01/31/19	Jan 2019	55.95	48.07	50.28	39.56	53.83	43.36	58.68	48.29	61.77	48.32	5.10	5.19	4.95	4.96	5.03	4.99	5.39	4.81	5.34	5.09	5.05	5.74
02/01/19	02/28/19	Feb 2019	53.06	45.25	49.89	39.56	52.29	42.35	58.68	47.89	61.26	47.50	5.08	5.17	4.93	4.94	5.01	4.97	5.37	4.78	5.32	5.07	5.03	5.72
03/01/19	03/31/19	Mar 2019	48.94	42.43	48.34	38.63	49.59	41.34	55.89	46.32	57.73	46.69	5.00	5.09	4.85	4.85	4.93	4.89	5.30	4.71	5.23	4.98	4.94	5.64
04/01/19	04/30/19	Apr 2019	47.92	33.44	49.25	36.37	43.65	29.99	51.78	38.83	55.33	43.51	4.72	4.77	4.49	4.51	4.60	4.56	4.69	4.41	4.87	4.63	4.59	4.98
05/01/19	05/31/19	May 2019	41.78	30.18	48.71	36.88	37.35	28.65	52.83	44.23	56.04	45.96	5.15	5.23	4.93	4.80	4.98	4.91	4.89	4.60	5.17	4.93	4.89	5.17
06/01/19	06/30/19	Jun 2019	43.15	33.70	52.00	37.73	37.83	29.78	53.54	44.60	56.70	46.73	5.20	5.26	4.97	4.84	5.02	4.95	4.85	4.63	5.21	4.96	4.93	5.13
07/01/19	07/31/19	Jul 2019	56.60	39.54	63.69	42.40	53.37	37.39	63.78	49.86	67.42	50.85	5.25	5.32	5.03	4.88	5.06	4.99	4.90	4.67	5.25	5.01	4.97	5.18
08/01/19	08/31/19	Aug 2019	60.77	45.30	64.61	44.55	58.98	41.71	66.86	51.78	70.24	52.75	5.27	5.42	5.06	4.90	5.08	5.01	4.90	4.69	5.27	5.03	4.99	5.18
09/01/19	09/30/19	Sep 2019	58.45	45.39	55.56	42.93	57.75	44.91	63.40	50.11	66.29	51.64	5.26	5.39	5.04	4.92	5.10	4.99	4.96	4.69	5.29	5.05	5.01	5.24
10/01/19	10/31/19	Oct 2019	52.69	44.76	52.41	42.31	51.42	43.47	60.01	50.41	60.14	50.30	5.29	5.42	5.07	4.97	5.15	5.05	5.03	4.72	5.34	5.09	5.06	5.31
11/01/19	11/30/19	Nov 2019	53.48	45.93	50.97	42.12	53.95	44.33	60.03	51.61	61.44	51.15	5.40	5.54	5.21	5.13	5.31	5.29	5.45	4.86	5.51	5.26	5.22	5.79
12/01/19	12/31/19	Dec 2019	56.70	48.07	50.67	43.31	56.21	44.76	60.32	54.02	61.67	54.01	5.61	5.72	5.41	5.28	5.47	5.45	5.61	4.98	5.66	5.41	5.37	5.96
01/01/20	01/31/20	Jan 2020	53.78	47.88	51.31	43.16	52.32	45.46	59.09	52.39	61.09	52.86	5.67	5.71	5.48	5.33	5.51	5.49	5.74	5.13	5.72	5.47	5.43	6.11
02/01/20	02/29/20	Feb 2020	51.72	46.75	49.46	42.81	51.37	44.28	58.57	52.18	60.35	52.47	5.67	5.71	5.47	5.34	5.52	5.50	5.75	5.13	5.73	5.47	5.43	6.11
03/01/20	03/31/20	Mar 2020	49.51	45.18	49.19	42.21	48.97	43.48	56.63	51.29	58.46	51.81	5.49	5.65	5.34	5.19	5.49	5.47	5.66	5.11	5.58	5.32	5.28	6.02
04/01/20	04/30/20	Apr 2020	50.29	40.39	52.15	41.28	49.01	38.28	55.74	47.26	58.07	50.16	5.33	5.46	5.12	4.99	5.24	5.22	5.23	4.89	5.46	5.12	5.08	5.55
05/01/20	05/31/20	May 2020	42.84	36.57	51.45	44.32	39.39	37.38	55.09	52.29	58.30	53.94	5.77	5.85	5.56	5.28	5.55	5.46	5.35	5.07	5.65	5.40	5.37	5.63
06/01/20	06/30/20	Jun 2020	45.24	42.68	56.46	45.50	43.67	40.72	53.93	52.70	57.25	53.70	5.86	5.89	5.61	5.31	5.60	5.50	5.35	5.12	5.68	5.43	5.40	5.63
07/01/20	07/31/20	Jul 2020	57.49	45.94	69.56	47.94	59.32	44.67	65.56	54.88	67.43	56.17	5.90	5.97	5.70	5.33	5.65	5.55	5.44	5.16	5.70	5.46	5.42	5.71
08/01/20	08/31/20	Aug 2020	62.45	47.54	72.34	49.08	63.91	46.47	70.16	56.63	72.49	57.51	5.94	6.14	5.73	5.48	5.67	5.56	5.47	5.17	5.73	5.48	5.44	5.75
09/01/20	09/30/20	Sep 2020	60.23	47.41	60.81	46.47	61.45	46.03	66.36	55.00	69.21	56.53	5.90	6.08	5.69	5.39	5.71	5.53	5.50	5.13	5.76	5.52	5.48	5.78
10/01/20	10/31/20	Oct 2020	56.03	46.38	55.91	45.87	54.92	44.58	62.50	55.07	63.31	55.89	5.93	6.11	5.73	5.45	5.77	5.61	5.60	5.15	5.82	5.57	5.53	5.88
11/01/20	11/30/20	Nov 2020	55.00	47.99	53.81	46.11	56.35	45.96	62.53	56.26	63.38	58.78	6.03	6.19	5.87	5.64	5.92	5.92	5.85	5.29	6.01	5.76	5.72	6.19
12/01/20	12/31/20	Dec 2020	57.52	49.34	55.13	47.25	58.44	46.46	61.69	57.48	61.30	58.00	6.23	6.34	6.07	5.83	6.02	6.02	5.95	5.32	6.08	5.83	5.78	6.31
01/01/21	01/31/21	Jan 2021	51.61	47.69	52.35	46.75	50.82	47.56	59.49	56.50	60.41	57.40	6.24	6.24	6.01	5.71	5.99	5.98	6.09	5.45	6.10	5.84	5.80	6.46
02/01/21	02/28/21	Feb 2021	50.38	48.24	49.04	46.05	50.45	46.21	58.46	56.47	59.43	57.43	6.26	6.26	6.01	5.74	6.02	6.13	5.48	6.13	5.88	5.83	6.49	
03/01/21	03/31/21	Mar 2021	50.09	47.93	50.04	45.78	48.34	45.62	57.37	56.26	59.19	56.94	5.99	6.20	5.82	5.53	6.05	6.03	5.51	5.92	5.66	5.62	6.39	
04/01/21	04/30/21	Apr 2021	52.67	47.35	55.04	46.19	54.38	46.57	59.69	55.70	60.81	56.81	5.94	6.16	5.76	5.47	5.88	5.88	5.76	5.36	5.85	5.60	5.66	6.09
05/01/21	05/31/21	May 2021	48.42	44.53	53.79	46.61	47.39	42.90	57.29	55.76	61.35	57.05	5.98	6.19	5.77	5.47	5.90	5.80	5.72	5.40	5.84	5.60	5.56	6.00
06/01/21	06/30/21	Jun 2021	49.77	46.87	59.82	47.68	49.61	45.10	57.30	55.45	60.29	56.16	5.98	6.22	5.85	5.50	5.94	5.83	5.73	5.44	5.87	5.62	5.58	6.01
07/01/21	07/31/21	Jul 2021	61.30	49.73	72.35	50.60	63.44	48.64	69.63	57.70	71.13	59.20	6.12	6.28	5.92	5.53	5.98	5.87	5.76	5.47	5.90	5.66	5.62	6.03
08/01/21	08/31/21	Aug 2021	67.11	50.21	76.67	51.27	67.96	50.83	74.40	68.55	76.76	60.18	6.16	6.46	5.95	5.55	6.01	5.90	5.79	5.49	5.93	5.68	5.64	6.07
09/01/21	09/30/21	Sep 2021	63.05	49.63	63.12	48.75	64.46	49.93	69.58	57.68	71.00	59.03	6.12	6.39	5.91	5.67	6.01	5.90	5.83	5.49	5.94	5.70	5.66	6.11
10/01/21	10/31/21	Oct 2021	59.54	49.79	59.53	47.85	61.02	47.93	66.59	57.82	67.79	58.90	6.15	6.42	5.94	5.60	6.08	5.92	5.90	5.51	5.97	5.72	5.69	6.19
11/01/21	11/30/21	Nov 2021	58.76	50.79	56.69	47.78	59.42	49.61	65.83	59.03	66.03	59.57	6.26	6.52	6.10	5.91	6.24	6.20	6.10	5.57	6.16	5.91	5.87	6.55
12/01/21	12/31/21	Dec 2021	61.90	52.10	57.52	49.23	63.83	50.83	64.48	60.23	63.77	60.91	6.46	6.66	6.30	5.91	6.33	6.33	6.34	5.60	6.29	6.04	6.00	6.70
01/01/22	01/31/22	Jan 2022	56.38	54.14	61.01	55.46	57.39	51.24	61.11	58.00	61.68	58.18	6.41	6.46	6.16	5.77	6.15	6.15	6.33	5.60	6.19	5.90	5.86	6.69
02/01/22	02/28/22	Feb 2022	55.75	53.29	59.34	54.88	54.18	50.54	60.45	58.19	61.04	58.16	6.45	6.43	6.17	5.80	6.19	6.19	6.36	5.63	6.19	5.94	5.89	6.72
03/01/22	03/31/22	Mar 2022	56.23	54.12	58.83	54.27	53.91	50.95	60.13	57.46	60.69	57.64	6.15	6.27	5.96	5.60	6.15	6.15	6.14	5.60	5.99	5.73	5.69	6.50
04/01/22	04/30/22	Apr 2022	57.29	53.19	63.44	54.84	55.74	50.02	61.23	57.68	62.64	57.94	6.12	6.27	5.89	5.54	6.01	6.01	5.89	5.48	5.92	5.67	5.63	6.22
05/01/22	05/31/22	May 2022	53.06	48.03	61.80	54.31	52.59	47.41	58.48	56.67	60.80	57.24	6.16	6.32	5.93	5.52	6.03	5.92	5.85	5.52	5.89	5.64	5.61	6.13
06/01/22	06/30/22	Jun 2022	55.16	52.19	66.04	55.56	53.65	50.32	59.31	57.06	62.44	57.65	6.26	6.37	6.00	5.59	6.08	5.98	5.87	5.58	5.96	5.71	5.68	6.15
07/01/22	07/31/22	Jul 2022	67.61	54.88	78.52	58.64	67.59	52.17	72.68	60.37	74.19	60.65	6.30	6.45	6.03	5.62	6.12	6.02	5.92	5.61	5.99	5.74	5.70	6.20
08/01/22	08/31/22	Aug 2022	72.58	55.62	83.22	58.88	71.65	53.29	77.99	61.02	79.57	61.44	6.35	6.65	6.12	5.64	6.16	6.05	5.95	5.64	6.01	5.76	5.73	6.23
09/01/22																								

10/01/24	10/31/24	Oct 2024	70.76	60.16	71.17	61.45	70.11	56.98	74.76	64.95	74.99	64.79	7.01	7.29	6.74	6.18	6.86	6.62	6.63	6.03	6.56	6.31	6.27	6.91
11/01/24	11/30/24	Nov 2024	69.83	61.48	70.35	62.42	69.06	61.79	74.39	66.65	74.04	66.00	7.12	7.44	6.88	6.52	6.39	7.04	6.98	6.85	6.15	6.76	6.48	7.20
12/01/24	12/31/24	Dec 2024	74.15	62.90	70.89	64.96	75.77	63.12	74.49	68.00	74.38	68.09	7.35	7.86	7.17	6.47	7.08	7.03	6.95	6.18	6.85	6.60	6.56	7.31
01/01/25	01/31/25	Jan 2025	64.52	60.27	68.70	62.92	63.71	56.65	65.62	69.92	65.93	7.39	7.48	7.04	6.29	6.90	6.90	6.90	6.90	6.12	6.68	6.42	6.38	7.26
02/01/25	02/28/25	Feb 2025	61.97	59.32	65.68	61.82	60.69	56.50	66.72	64.26	67.40	64.59	7.39	7.23	6.93	6.32	6.88	6.88	6.93	6.15	6.71	6.46	6.42	7.30
03/01/25	03/31/25	Mar 2025	61.31	59.44	64.27	60.75	58.44	55.74	66.08	64.32	66.55	63.85	6.96	7.05	6.60	6.00	6.73	6.73	6.60	6.05	6.39	6.14	6.09	6.96
04/01/25	04/30/25	Apr 2025	62.59	58.82	69.99	61.15	61.95	55.03	67.42	64.04	68.53	64.46	6.91	7.03	6.59	5.94	6.62	6.45	6.46	5.92	6.31	6.06	6.03	6.78
05/01/25	05/31/25	May 2025	59.52	56.52	68.03	59.99	58.91	53.98	64.80	61.92	68.08	62.49	6.95	7.00	6.56	5.93	6.58	6.39	6.32	5.96	6.29	6.05	6.01	6.60
06/01/25	06/30/25	Jun 2025	60.62	58.63	72.35	61.28	59.60	55.03	65.00	63.19	67.99	63.43	7.04	7.04	6.67	5.96	6.62	6.48	6.36	6.05	6.33	6.08	6.05	6.64
07/01/25	07/31/25	Jul 2025	73.85	60.15	85.88	64.68	74.09	57.85	78.85	65.90	80.95	66.89	7.10	7.25	6.75	6.00	6.66	6.52	6.39	6.08	6.37	6.13	6.09	6.67
08/01/25	08/31/25	Aug 2025	79.39	61.61	90.51	66.40	78.71	61.11	84.98	66.91	86.90	68.39	7.14	7.59	6.83	6.03	6.85	6.63	6.50	6.12	6.41	6.16	6.12	6.78
09/01/25	09/30/25	Sep 2025	74.31	61.14	78.61	64.35	73.36	58.98	79.04	66.24	81.27	67.07	7.11	7.56	6.81	6.06	6.83	6.59	6.55	6.04	6.43	6.19	6.15	6.83
10/01/25	10/31/25	Oct 2025	69.94	61.27	70.95	62.52	69.35	58.78	74.07	64.23	74.71	64.93	7.14	7.42	6.83	6.20	6.93	6.68	6.69	6.07	6.58	6.33	6.29	6.97
11/01/25	11/30/25	Nov 2025	69.64	62.38	71.03	63.36	70.46	62.72	74.64	67.38	74.65	66.87	7.24	7.51	6.94	6.38	7.10	7.04	6.91	6.19	6.76	6.51	6.47	7.26
12/01/25	12/31/25	Dec 2025	75.28	63.70	71.33	66.00	75.76	63.70	75.34	68.90	74.77	69.00	7.49	8.00	7.29	6.52	7.15	7.09	7.01	6.23	6.90	6.65	6.61	7.37
01/01/26	01/31/26	Jan 2026	67.31	62.57	70.00	65.19	65.48	59.40	71.95	67.74	72.38	68.11	7.62	7.85	7.26	6.48	7.08	7.07	7.07	6.27	6.87	6.61	6.57	7.44
02/01/26	02/28/26	Feb 2026	64.73	61.87	67.83	63.69	63.02	59.64	69.25	66.71	69.82	66.69	7.62	7.58	7.19	6.52	7.09	7.09	7.11	6.31	6.91	6.65	6.61	7.47
03/01/26	03/31/26	Mar 2026	63.09	61.59	66.33	62.32	61.04	58.11	68.03	66.35	68.56	65.81	7.24	7.33	6.87	6.22	6.96	6.66	6.83	6.27	6.60	6.35	6.31	7.19
04/01/26	04/30/26	Apr 2026	64.70	60.50	72.01	63.09	64.24	57.18	69.79	65.56	70.63	65.96	7.17	7.30	6.84	6.10	6.88	6.69	6.69	6.14	6.48	6.23	6.19	7.01
05/01/26	05/31/26	May 2026	60.08	56.01	70.37	62.53	60.17	53.80	66.98	63.98	69.71	65.10	7.22	7.31	6.82	6.15	6.87	6.66	6.53	6.18	6.52	6.27	6.24	6.81
06/01/26	06/30/26	Jun 2026	62.32	59.02	74.91	63.60	61.93	56.90	64.88	70.40	65.50	7.22	7.35	6.93	6.19	6.91	6.70	6.58	6.26	6.55	6.31	6.19	6.27	6.86
07/01/26	07/31/26	Jul 2026	77.47	62.70	89.38	67.45	77.57	61.58	82.62	68.19	84.57	69.47	7.37	7.60	7.01	6.22	6.95	6.74	6.61	6.29	6.59	6.34	6.30	6.89
08/01/26	08/31/26	Aug 2026	82.64	64.00	93.71	69.26	82.14	63.75	88.19	69.48	90.06	71.16	7.42	7.92	7.11	6.25	7.08	6.85	6.72	6.31	6.62	6.37	6.34	7.00
09/01/26	09/30/26	Sep 2026	77.64	63.20	81.40	66.58	76.12	61.03	82.50	68.97	84.72	69.67	7.39	7.85	7.07	6.29	7.05	6.78	6.76	6.22	6.66	6.41	6.38	7.04
10/01/26	10/31/26	Oct 2026	73.33	63.29	74.22	65.17	72.48	59.72	77.36	68.61	78.03	68.30	7.42	7.76	7.08	6.33	7.13	6.88	6.89	6.26	6.70	6.45	6.42	7.17
11/01/26	11/30/26	Nov 2026	72.32	64.62	73.46	66.13	73.67	66.57	77.01	69.82	77.09	69.37	7.53	7.92	7.23	6.60	7.36	7.28	7.15	6.40	6.98	6.73	6.69	7.50
12/01/26	12/31/26	Dec 2026	77.53	66.21	74.11	68.44	77.70	66.65	78.29	71.30	77.68	71.32	7.78	8.37	7.56	6.66	7.39	7.32	7.27	6.44	7.04	6.79	6.75	7.63
01/01/27	01/31/27	Jan 2027	69.06	63.99	71.87	66.87	67.44	60.78	73.56	69.10	74.00	69.60	7.77	8.02	7.42	6.60	7.23	7.23	7.20	6.39	6.99	6.73	6.69	7.57
02/01/27	02/28/27	Feb 2027	66.31	63.16	69.17	65.04	64.63	60.87	70.83	68.30	71.43	67.96	7.80	7.73	7.32	6.70	7.21	7.21	7.24	6.43	6.95	6.70	6.66	7.60
03/01/27	03/31/27	Mar 2027	64.54	62.65	67.62	63.70	62.31	59.03	69.53	67.42	70.06	66.88	7.31	7.47	6.93	6.21	7.05	7.05	6.91	6.32	6.60	6.34	6.30	7.27
04/01/27	04/30/27	Apr 2027	65.95	62.19	73.42	64.33	65.59	58.39	70.89	67.25	71.71	67.24	7.22	7.42	6.87	6.12	6.99	6.78	6.79	6.20	6.50	6.25	6.21	7.11
05/01/27	05/31/27	May 2027	62.58	59.05	71.58	63.57	62.82	57.45	68.24	65.47	70.76	66.21	7.28	7.39	6.86	6.09	6.96	6.74	6.71	6.24	6.46	6.21	6.18	6.99
06/01/27	06/30/27	Jun 2027	64.59	61.56	76.77	65.07	64.28	58.61	66.35	72.52	66.85	7.38	7.50	6.98	6.13	7.00	6.66	6.34	6.49	6.25	6.13	6.21	6.94	
07/01/27	07/31/27	Jul 2027	79.25	64.36	91.33	69.46	79.55	63.63	84.59	69.67	86.84	71.11	7.43	7.84	7.07	6.16	7.04	6.82	6.78	6.37	6.53	6.28	6.24	7.06
08/01/27	08/31/27	Aug 2027	86.01	66.30	97.96	72.56	84.96	65.87	91.22	71.85	93.94	73.52	7.47	8.38	7.16	6.19	7.21	6.96	6.82	6.38	6.56	6.31	6.28	7.10
09/01/27	09/30/27	Sep 2027	78.63	64.87	82.08	68.23	77.38	62.98	83.58	69.77	85.26	70.69	7.44	8.04	7.11	6.23	7.13	6.88	6.87	6.31	6.60	6.35	6.31	7.15
10/01/27	10/31/27	Oct 2027	75.02	64.34	77.03	66.48	74.09	61.43	79.25	69.96	80.72	69.65	7.48	7.88	7.15	6.36	7.23	6.98	6.99	6.34	6.73	6.48	6.44	7.27
11/01/27	11/30/27	Nov 2027	73.82	66.03	74.48	67.11	75.42	66.94	78.06	70.48	78.18	70.09	7.66	8.05	7.35	6.57	7.49	7.41	7.30	6.52	6.95	6.70	6.66	7.64
12/01/27	12/31/27	Dec 2027	79.91	68.08	76.05	70.26	81.16	68.55	79.96	73.05	79.55	73.22	7.89	8.59	7.77	6.73	7.54	7.45	7.42	6.56	7.11	6.86	6.82	7.78
01/01/28	01/31/28	Jan 2028	69.88	65.47	74.36	68.21	69.43	62.61	74.83	70.46	75.42	70.86	7.90	8.10	7.28	6.80	7.36	7.33	6.50	7.19	6.84	6.90	7.69	
02/01/28	02/29/28	Feb 2028	67.54	64.58	70.99	66.39	65.78	61.98	72.29	69.53	72.93	69.28	7.90	7.86	7.23	6.79	7.34	7.34	7.36	6.53	7.18	6.92	6.88	7.73
03/01/28	03/31/28	Mar 2028	65.27	63.48	68.15	64.57	62.52	60.07	70.32	68.50	70.95	68.03	7.98	7.53	6.83	6.52	6.39	6.48	6.97	6.38	6.78	6.52	6.48	7.33
04/01/28	04/30/28	Apr 2028	67.59	62.92	73.79	65.45	66.84	59.59	72.46	68.43	73.20	68.38	7.31	7.45	6.77	6.33	7.01	6.81	6.81	6.24	6.70	6.45	6.42	7.14
05/01/28	05/31/28	May 2028	63.64	60.46	71.56	64.29	62.73	57.36	68.56	65.39	71.11	66.40	7.35	7.44	6.76	6.30	7.00	6.80	6.77	6.29	6.67	6.43	6.39	7.05
06/01/28	06/30/28	Jun 2028	65.18	62.34	76.75	65.49	64.57	59.50	69.53	66.48	73.00	66.96	7.44	7.48	6.80	6.34	7.04	6.84	6.72	6.39	6.71	6.47	6.43	7.00
07/01/28	07/31/28	Jul 2028	79.90	65.08	91.57	69.67	79.86	62.96	84.98	70.80	87.15	71.67	7.49	7.76	6.85	6.39	7.09	6.94	6.84	6.43	6.76	6.51	6.47	7.12
08/01/28	08/31/28	Aug 2028	86.97	66.82	97.80	72.02	85.96	65.77	91.91	72.29	94.34	73.61	7.53	8.24	6.90	6.44	7.30	7.04	6.91	6.46	6.81	6.56	6.53	7.19
09/01/28	09/30/28	Sep 2028	80.23	66.38	84.09	70.43	79.37	64.64	85.09	71.43	86.79	72.48	7.50	8.29	6.92	6.46	7.27	7.00	6.96	6.42	6.83	6.59	6.55	7.24
10/01/28	10/31/28	Oct 2028	77.08	66.26	78.73	68.11	75.64	63.00	80.37	71.19	82.46	70.96	7.55	8.06	7.01	6.58	7.38	7.10	7.11	6.46	6.95	6.71	6.67	7.39
11/01/28	11/																							

12/01/30	12/31/30	Dec 2030	87.02	75.24	80.40	75.17	87.35	74.71	84.71	79.11	84.23	78.31	8.40	9.02	7.79	7.30	8.35	8.24	8.13	7.20	7.68	7.43	7.39	8.49
01/01/31	01/31/31	Jan 2031	78.00	72.06	84.04	76.04	75.70	69.15	82.54	77.23	82.93	77.45	8.54	9.15	7.83	7.22	8.04	8.04	7.99	7.11	7.61	7.36	7.31	8.36
02/01/31	02/28/31	Feb 2031	73.89	71.67	77.62	73.02	72.78	68.34	78.98	76.32	79.68	75.82	8.50	8.71	7.75	7.20	8.05	8.06	8.04	7.15	7.59	7.33	7.29	8.40
03/01/31	03/31/31	Mar 2031	72.13	70.28	74.96	71.14	69.13	66.97	77.50	74.81	78.09	74.20	7.89	8.34	7.21	6.70	7.81	7.81	7.67	6.98	7.08	6.83	6.79	8.03
04/01/31	04/30/31	Apr 2031	73.38	69.43	79.61	71.09	73.72	66.10	78.42	73.97	79.28	73.50	7.81	8.17	7.14	6.60	7.71	7.49	7.50	6.84	6.98	6.73	6.69	7.83
05/01/31	05/31/31	May 2031	69.93	68.43	78.83	71.12	69.93	65.46	75.98	72.18	78.61	72.96	7.85	8.23	7.15	6.63	7.72	7.48	7.45	6.88	6.99	6.75	6.71	7.73
06/01/31	06/30/31	Jun 2031	71.50	68.94	84.01	72.44	71.15	65.98	76.36	73.45	80.01	73.81	7.95	8.28	7.24	6.67	7.77	7.53	7.35	6.99	7.04	6.79	6.76	7.62
07/01/31	07/31/31	Jul 2031	89.67	72.50	102.15	78.63	89.62	72.44	94.46	77.92	97.57	79.45	8.02	8.95	7.29	6.72	7.84	7.66	7.54	7.11	7.09	6.85	6.81	7.82
08/01/31	08/31/31	Aug 2031	94.68	74.07	104.05	78.35	94.16	72.01	99.64	80.53	100.60	80.74	8.07	8.76	7.24	6.74	8.06	7.77	7.63	7.15	7.11	6.87	6.83	7.91
09/01/31	09/30/31	Sep 2031	87.02	72.82	91.38	76.18	85.06	70.31	91.61	78.96	93.38	78.85	8.03	8.72	7.28	6.78	7.93	7.64	7.63	7.02	7.16	6.91	6.87	7.92
10/01/31	10/31/31	Oct 2031	81.43	72.34	83.14	73.79	80.64	69.00	85.57	78.42	86.63	77.50	8.07	8.57	7.41	6.84	8.02	7.74	7.76	7.06	7.21	6.96	6.92	8.04
11/01/31	11/30/31	Nov 2031	81.73	75.25	81.35	74.37	80.18	74.45	85.40	78.87	85.02	77.79	8.25	8.54	7.51	7.01	8.40	8.28	8.17	7.28	7.39	7.14	7.10	8.52
12/01/31	12/31/31	Dec 2031	87.05	76.34	81.40	76.63	89.36	76.39	86.38	80.28	85.47	79.53	8.54	9.15	7.90	7.30	8.42	8.34	8.31	7.32	7.68	7.43	7.39	8.67
01/01/32	01/31/32	Jan 2032	79.83	73.74	86.45	78.51	77.48	70.92	84.28	79.05	84.77	79.25	8.70	9.32	7.97	7.36	8.19	8.20	8.15	7.24	7.75	7.50	7.45	8.51
02/01/32	02/29/32	Feb 2032	75.46	72.91	80.63	75.10	74.57	70.09	80.68	77.58	81.42	77.52	8.66	8.88	7.90	7.33	8.21	8.21	8.19	7.28	7.72	7.47	7.43	8.55
03/01/32	03/31/32	Mar 2032	74.06	71.91	76.79	72.64	71.32	68.87	79.49	76.50	79.99	75.69	8.04	8.50	7.34	6.83	7.96	7.96	7.82	7.11	7.21	6.96	6.92	8.18
04/01/32	04/30/32	Apr 2032	74.46	70.92	81.00	72.71	74.72	67.37	79.60	75.47	80.35	75.23	7.95	8.33	7.28	6.73	7.86	7.63	7.65	6.97	7.10	6.86	6.82	7.97
05/01/32	05/31/32	May 2032	71.07	67.64	80.24	72.89	70.31	65.14	77.44	74.40	80.15	74.85	8.00	8.39	7.28	6.75	7.87	7.63	7.59	7.01	7.12	6.87	6.84	7.87
06/01/32	06/30/32	Jun 2032	73.24	69.78	85.95	74.04	72.81	66.73	77.95	74.93	81.98	75.57	8.10	8.44	7.37	6.79	7.97	7.91	7.67	7.48	7.12	7.16	6.92	7.76
07/01/32	07/31/32	Jul 2032	91.25	74.40	103.99	80.89	91.20	73.70	96.69	80.30	99.64	81.37	8.17	9.12	7.43	6.85	7.99	7.80	7.68	7.25	7.22	6.98	6.94	7.96
08/01/32	08/31/32	Aug 2032	97.86	75.77	107.49	80.09	97.58	73.31	102.57	82.65	103.55	82.60	8.22	8.92	7.38	6.87	8.22	7.92	7.78	7.29	7.24	6.99	6.96	8.05
09/01/32	09/30/32	Sep 2032	89.65	74.70	93.90	77.80	88.14	72.26	94.20	81.19	95.48	80.87	8.19	8.89	7.42	6.91	8.08	7.78	7.78	7.16	7.28	7.04	7.00	8.06
10/01/32	10/31/32	Oct 2032	84.13	74.27	86.85	76.72	82.80	71.05	87.87	79.55	89.72	79.21	8.23	8.74	7.55	6.97	8.18	7.89	7.90	7.19	7.34	7.09	7.05	8.19
11/01/32	11/30/32	Nov 2032	83.90	76.81	83.30	75.87	82.93	76.08	87.28	80.33	86.92	79.19	8.40	8.70	7.66	7.15	8.56	8.44	8.33	7.42	7.52	7.28	7.24	8.67
12/01/32	12/31/32	Dec 2032	89.73	78.34	83.06	78.43	90.62	78.48	88.16	82.08	87.39	81.32	8.70	9.33	8.05	7.44	8.58	8.49	8.47	7.46	7.82	7.57	7.53	8.83
01/01/33	01/31/33	Jan 2033	82.08	75.59	88.26	80.30	79.66	72.70	86.46	81.17	87.00	81.25	8.87	9.50	8.13	7.50	8.35	8.35	8.30	7.38	7.89	7.64	7.59	8.67
02/01/33	02/28/33	Feb 2033	77.39	74.82	83.21	77.18	75.94	71.41	82.66	79.55	83.37	79.39	8.82	9.05	8.05	7.47	8.36	8.37	8.35	7.42	7.86	7.61	7.57	8.71
03/01/33	03/31/33	Mar 2033	75.87	73.49	78.82	74.34	73.01	70.44	81.25	78.07	81.76	77.27	8.19	8.66	7.48	6.96	8.11	8.11	7.97	7.24	7.34	7.09	7.05	8.33
04/01/33	04/30/33	Apr 2033	76.42	72.53	82.28	74.15	76.17	69.46	81.42	76.62	82.05	76.15	8.10	8.49	7.41	6.86	8.01	7.77	7.79	7.10	7.23	6.98	6.94	8.12
05/01/33	05/31/33	May 2033	74.63	72.07	82.89	74.79	73.88	69.15	79.84	76.92	82.80	77.33	8.15	8.55	7.42	6.88	8.02	7.77	7.73	7.14	7.25	7.00	6.97	8.02
06/01/33	06/30/33	Jun 2033	75.67	72.12	88.63	76.96	75.24	69.04	80.58	77.20	84.47	77.53	8.25	8.60	7.51	6.92	8.06	7.82	7.63	7.26	7.29	7.05	7.01	7.91
07/01/33	07/31/33	Jul 2033	93.70	76.00	106.42	82.95	93.51	75.91	98.75	81.94	102.24	83.11	8.32	9.29	7.57	6.98	8.15	7.95	7.83	7.39	7.35	7.11	7.07	8.11
08/01/33	08/31/33	Aug 2033	99.98	77.20	109.57	81.75	99.69	74.18	104.47	84.73	105.62	84.37	8.38	9.09	7.52	7.00	8.37	7.92	7.43	7.37	7.12	7.09	7.09	8.20
09/01/33	09/30/33	Sep 2033	90.69	76.97	95.38	79.39	88.95	73.99	95.30	82.77	96.39	82.38	8.34	9.06	7.56	7.04	8.23	7.93	7.93	7.29	7.42	7.17	7.13	8.21
10/01/33	10/31/33	Oct 2033	86.11	76.05	89.89	77.47	84.47	72.58	89.69	81.58	92.11	81.08	8.38	8.90	7.69	7.10	8.33	8.04	8.05	7.33	7.47	7.22	7.19	8.34
11/01/33	11/30/33	Nov 2033	85.36	79.64	85.07	77.70	84.63	77.55	88.75	82.39	88.46	81.06	8.56	8.87	7.80	7.28	8.72	8.60	8.49	7.56	7.66	7.41	7.37	8.83
12/01/33	12/31/33	Dec 2033	90.48	80.28	84.64	80.29	89.62	80.28	90.07	83.99	89.28	83.11	8.87	9.51	8.21	7.58	8.74	8.66	8.63	7.60	7.96	7.71	7.67	8.99
01/01/34	01/31/34	Jan 2034	84.21	77.31	90.33	82.39	81.49	74.69	88.47	82.80	88.89	83.09	9.04	9.68	8.28	7.64	8.51	8.51	8.46	7.52	8.03	7.78	7.73	8.82
02/01/34	02/28/34	Feb 2034	80.61	76.12	85.89	78.69	76.87	73.49	84.80	80.79	85.49	80.81	8.99	9.22	8.20	7.62	8.52	8.50	7.56	8.00	7.75	7.71	7.71	8.87
03/01/34	03/31/34	Mar 2034	77.80	75.44	81.07	76.60	74.96	72.44	83.20	80.41	83.71	79.59	8.35	8.83	7.63	7.22	8.09	8.27	8.12	7.38	7.47	7.18	7.18	8.48
04/01/34	04/30/34	Apr 2034	78.73	74.49	84.67	76.53	77.99	71.04	83.57	79.00	84.24	78.75	8.26	8.65	7.55	6.99	8.16	7.92	7.94	7.24	7.36	7.11	7.07	8.26
05/01/34	05/31/34	May 2034	74.79	71.65	84.80	76.26	73.85	69.32	80.79	77.17	83.56	77.82	8.31	8.71	7.56	7.01	8.17	7.92	7.88	7.28	7.38	7.13	7.10	8.16
06/01/34	06/30/34	Jun 2034	76.20	73.15	90.03	77.51	75.57	70.10	81.36	78.18	85.37	78.58	8.41	8.76	7.66	7.06	8.22	7.97	7.77	7.40	7.42	7.18	7.14	8.05
07/01/34	07/31/34	Jul 2034	95.53	78.29	108.47	84.75	95.50	77.94	100.49	83.46	104.03	84.85	8.48	9.47	7.71	7.11	8.30	8.10	7.98	7.53	7.49	7.24	7.20	8.26
08/01/34	08/31/34	Aug 2034	101.58	79.49	111.15	83.49	101.01	76.88	106.14	85.98	107.39	85.73	8.54	9.27	7.66	7.13	8.53	8.22	8.07	7.57	7.50	7.26	7.22	8.35
09/01/34	09/30/34	Sep 2034	92.17	78.78	97.90	81.24	90.35	76.22	96.95	84.37	99.04	84.04	8.50	9.23	7.70	7.18	8.39	8.08	8.08	7.43	7.55	7.30	7.26	8.36
10/01/34	10/31/34	Oct 2034	86.84	77.62	89.10	79.26	85.77	74.29	90.80	82.75	92.52	82.45	8.54	9.07	7.84	7.23	8.49	8.19	8.21	7.47	7.61	7.36	7.32	8.49
11/01/34	11/30/34	Nov 2034	86.92	80.44	86.60	79.45	86.72	79.70	90.27	84.26	90.03	82.84	8.73	9.03	7.95	7.42	8.89	8.77	8.65	7.70	7.80	7.55	7.51	8.99
12/01/34	12/31/34	Dec 2034	92.27	82.52	86.71	82.05	92.27	82.49	92.19	85.33	91.44	84.55	9.04	9.69	8.66	7.72	8.91	8.82	8.79	7.75	8.11	7.86		

02/01/37	02/28/37	Feb 2037	85.95	82.60	90.81	84.43	83.24	79.15	91.10	86.19	91.71	86.42	9.51	9.75	8.68	8.06	9.01	9.02	9.00	8.00	8.45	8.19	8.15	9.36
03/01/37	03/31/37	Mar 2037	82.88	80.67	86.40	81.37	80.91	77.35	88.23	84.70	89.06	84.26	8.83	9.34	8.07	7.50	8.75	8.75	8.59	7.81	7.89	7.59	8.95	8.95
04/01/37	04/30/37	Apr 2037	84.56	79.18	90.65	81.40	84.06	76.08	89.52	82.94	90.70	83.26	8.74	9.15	7.99	7.39	8.64	8.38	8.40	7.66	7.77	7.52	7.48	8.73
05/01/37	05/31/37	May 2037	81.67	76.90	90.26	81.73	80.63	75.08	86.90	82.52	90.51	83.11	8.79	9.22	8.00	7.42	8.64	8.38	8.34	7.70	7.79	7.54	7.50	8.62
06/01/37	06/30/37	Jun 2037	83.20	79.47	95.89	82.96	83.13	77.01	87.55	83.39	92.31	84.11	8.90	9.27	8.10	7.47	8.69	8.43	8.22	7.83	7.93	7.59	7.55	8.50
07/01/37	07/31/37	Jul 2037	102.90	83.24	115.12	90.19	102.70	81.64	107.77	89.66	110.71	90.90	8.97	10.02	8.16	7.53	8.78	8.57	8.44	7.97	7.90	7.65	7.61	8.72
08/01/37	08/31/37	Aug 2037	107.93	84.90	117.47	89.70	107.55	82.97	113.03	91.71	113.79	91.73	9.04	9.81	8.11	7.55	9.03	8.70	8.54	8.01	7.92	7.67	7.63	8.82
09/01/37	09/30/37	Sep 2037	98.10	83.31	102.71	86.56	97.17	81.01	103.05	89.54	104.64	89.32	8.99	9.77	8.15	7.59	8.88	8.55	8.56	7.86	7.97	7.72	7.68	8.83
10/01/37	10/31/37	Oct 2037	92.26	83.09	93.20	84.42	91.52	79.96	96.53	88.37	96.96	87.63	9.04	9.60	8.29	7.65	8.98	8.67	8.68	7.90	8.03	7.78	7.74	8.97
11/01/37	11/30/37	Nov 2037	93.31	86.05	93.13	84.96	92.66	85.22	97.20	89.76	96.87	88.68	9.23	9.56	8.41	7.85	9.41	9.27	9.15	8.15	8.23	7.98	7.94	9.50
12/01/37	12/31/37	Dec 2037	100.50	87.63	92.36	87.69	102.43	88.51	98.17	91.48	97.36	90.66	9.56	10.25	8.85	8.17	9.42	9.33	9.30	8.20	8.56	8.30	8.26	9.66
01/01/38	01/31/38	Jan 2038	92.80	85.12	99.09	89.91	90.98	83.44	97.57	90.62	98.23	90.94	9.75	10.45	8.94	8.25	9.18	9.18	9.13	8.11	8.64	8.38	8.34	9.49
02/01/38	02/28/38	Feb 2038	88.66	84.79	92.33	86.43	86.34	82.11	93.66	89.77	94.16	89.29	9.70	9.95	8.85	8.22	9.20	9.18	8.16	8.61	8.35	8.22	8.31	9.54
03/01/38	03/31/38	Mar 2038	85.49	82.88	88.57	82.35	82.28	79.52	90.82	86.29	91.21	85.31	9.01	9.53	8.23	7.65	8.92	8.92	8.76	7.97	8.04	7.78	7.74	9.12
04/01/38	04/30/38	Apr 2038	81.68	81.68	92.86	83.52	87.10	78.07	91.72	86.31	92.62	86.02	8.91	9.33	8.15	7.54	8.81	8.55	8.57	7.81	7.91	7.67	7.63	8.89
05/01/38	05/31/38	May 2038	83.42	79.80	92.19	83.96	82.34	77.53	88.99	85.41	93.45	85.75	8.97	9.40	8.16	7.57	8.82	8.55	8.50	7.86	7.93	7.69	7.65	8.79
06/01/38	06/30/38	Jun 2038	85.16	80.26	98.31	85.06	85.36	79.96	89.95	85.12	94.83	85.94	9.08	9.46	8.26	7.61	8.87	8.60	8.39	7.98	7.98	7.74	7.70	8.67
07/01/38	07/31/38	Jul 2038	105.06	85.76	117.24	92.75	105.25	84.53	110.11	91.84	113.01	93.08	9.15	10.22	8.33	7.68	8.96	8.75	8.61	8.12	8.05	7.80	7.77	8.89
08/01/38	08/31/38	Aug 2038	111.22	87.08	121.29	91.84	110.73	84.57	115.91	94.61	117.19	94.15	9.22	10.00	8.27	7.19	9.21	8.88	8.71	8.17	8.07	7.82	7.79	8.99
09/01/38	09/30/38	Sep 2038	101.41	85.69	105.64	88.93	101.42	83.78	105.93	92.32	107.27	91.84	9.17	9.96	8.32	7.75	9.05	8.72	8.72	8.02	8.12	7.87	7.83	9.00
10/01/38	10/31/38	Oct 2038	97.34	86.35	97.62	86.71	95.85	82.11	101.12	90.91	101.55	90.03	9.22	9.79	8.46	7.81	9.16	8.84	8.86	8.06	8.18	7.93	7.89	9.14
11/01/38	11/30/38	Nov 2038	96.21	88.41	94.89	87.18	95.36	87.85	99.02	92.15	98.48	90.32	9.42	9.75	8.58	8.01	9.59	9.46	9.34	8.31	8.39	8.14	8.10	9.68
12/01/38	12/31/38	Dec 2038	101.14	90.16	95.25	89.92	98.85	89.73	101.02	93.73	100.29	92.95	9.75	10.45	9.02	8.47	8.33	9.61	9.52	9.49	8.36	8.72	8.42	9.85
01/01/39	01/31/39	Jan 2039	94.37	87.24	101.10	91.88	92.04	85.13	99.27	92.67	99.93	93.16	9.95	10.65	9.12	8.41	9.36	9.37	9.31	8.28	8.80	8.55	8.51	9.68
02/01/39	02/28/39	Feb 2039	90.96	86.91	95.59	88.74	88.06	83.74	95.86	91.68	96.24	91.18	9.90	10.15	9.03	8.52	9.38	9.36	9.36	8.32	8.77	8.52	8.38	9.72
03/01/39	03/31/39	Mar 2039	87.79	84.75	91.07	84.56	84.34	80.90	93.24	88.50	93.67	87.51	9.19	9.72	8.39	7.80	9.10	9.10	8.94	8.13	8.19	7.94	7.89	9.30
04/01/39	04/30/39	Apr 2039	89.46	83.64	95.01	85.46	89.23	80.10	94.49	87.98	95.27	87.66	9.09	9.52	8.32	7.69	8.98	8.72	8.74	7.97	8.07	7.78	7.97	9.07
05/01/39	05/31/39	May 2039	86.23	81.30	94.67	85.76	86.08	80.05	91.46	86.76	94.95	87.43	9.15	9.59	8.32	7.72	8.99	8.72	8.67	8.01	8.08	7.84	7.80	8.96
06/01/39	06/30/39	Jun 2039	87.90	84.02	101.23	87.22	88.08	81.60	92.02	87.58	97.69	88.24	9.26	9.65	8.43	7.77	9.04	8.77	8.56	8.14	8.14	7.89	7.85	8.83
07/01/39	07/31/39	Jul 2039	107.75	87.89	120.31	95.32	107.48	86.83	112.79	93.94	116.15	95.29	9.34	10.42	8.49	7.83	9.14	8.92	8.78	8.29	8.20	7.96	7.92	9.06
08/01/39	08/31/39	Aug 2039	114.07	89.03	123.63	93.89	113.30	86.84	118.53	96.25	119.64	96.14	9.40	10.20	8.44	7.85	9.39	9.05	8.89	8.33	8.22	7.98	7.94	9.17
09/01/39	09/30/39	Sep 2039	102.65	87.67	107.40	91.20	102.65	85.69	107.29	94.72	108.44	94.09	9.36	10.16	8.48	7.90	9.24	8.90	8.89	8.18	8.27	8.03	7.99	9.17
10/01/39	10/31/39	Oct 2039	97.50	87.38	98.84	88.58	96.08	83.70	101.25	92.63	102.43	91.77	9.40	9.99	8.63	7.96	9.35	9.02	9.03	8.22	8.34	8.09	8.05	9.32
11/01/39	11/30/39	Nov 2039	97.96	90.86	97.25	89.16	96.67	89.37	101.38	94.54	100.78	93.09	9.61	9.95	8.75	8.17	9.79	9.65	9.52	8.48	8.55	8.30	8.26	9.87
12/01/39	12/31/39	Dec 2039	102.71	92.39	96.51	92.19	100.50	91.93	103.01	95.92	102.44	95.06	9.95	10.66	9.20	8.50	9.80	9.71	9.68	8.53	8.89	8.63	8.59	10.04
01/01/40	01/31/40	Jan 2040	96.76	89.47	103.86	94.85	94.29	87.45	101.82	94.92	102.59	95.39	10.15	10.87	9.30	8.58	9.55	9.56	9.50	8.44	8.97	8.72	8.67	9.86
02/01/40	02/29/40	Feb 2040	93.20	89.16	98.36	90.27	90.47	86.01	97.98	93.48	98.51	92.77	10.10	10.35	9.21	8.55	9.57	9.57	9.55	8.49	8.94	8.69	8.64	9.91
03/01/40	03/31/40	Mar 2040	89.33	86.89	93.68	88.07	87.97	82.97	94.60	91.48	95.49	90.84	9.37	9.91	8.56	7.96	9.28	9.28	9.12	8.29	8.34	8.09	8.05	9.48
04/01/40	04/30/40	Apr 2040	91.68	85.70	97.99	87.85	90.94	82.81	96.86	89.84	97.71	89.82	9.27	9.71	8.48	7.84	9.16	8.89	8.91	8.13	8.22	7.97	7.93	9.24
05/01/40	05/31/40	May 2040	87.53	83.50	97.46	87.79	85.31	80.34	93.42	89.15	97.36	89.60	9.33	9.78	8.49	7.87	9.17	8.89	8.85	8.17	8.24	7.99	7.96	9.13
06/01/40	06/30/40	Jun 2040	89.21	84.19	102.45	89.16	88.97	83.71	93.63	89.10	98.77	89.98	9.45	9.84	8.60	7.92	9.23	8.94	8.73	8.31	8.29	8.05	8.01	9.01
07/01/40	07/31/40	Jul 2040	110.99	90.11	123.41	97.41	110.91	89.25	115.90	96.05	119.45	97.39	9.52	10.63	8.66	7.99	9.32	9.10	8.96	8.45	8.36	8.11	8.08	9.24
08/01/40	08/31/40	Aug 2040	116.78	91.40	126.48	96.29	116.08	88.90	121.45	99.27	122.70	98.73	9.59	10.41	8.60	8.01	9.58	9.23	9.07	8.50	8.38	8.13	8.10	9.34
09/01/40	09/30/40	Sep 2040	105.15	90.22	110.42	93.76	104.82	88.54	109.96	96.95	111.69	96.58	9.54	10.36	8.65	8.06	9.42	9.08	9.07	8.34	8.43	8.18	8.15	9.35
10/01/40	10/31/40	Oct 2040	99.07	89.82	99.85	90.63	97.34	86.07	102.91	94.49	103.53	93.74	9.59	10.19	8.80	8.12	9.53	9.20	9.21	8.38	8.49	8.25	8.21	9.50
11/01/40	11/30/40	Nov 2040	100.42	93.05	99.71	91.25	99.43	91.76	103.76	96.85	103.18	95.57	9.80	10.14	8.93	8.33	9.98	9.84	9.71	8.65	8.71	8.46	8.42	10.06
12/01/40	12/31/40	Dec 2040	105.84	95.13	99.41	94.15	104.18	94.66	106.04	98.16	105.45	97.32	10.15	10.88	9.39	8.67	10.00	9.90	9.87	8.70	9.06	8.80	8.76	10.23
01/01/41	01/31/41	Jan 2041	98.99	91.68	106.37	96.60	96.62	89.23	104.20	97.31	105.03	97.68	10.35	11.08	9.48	8.75	9.74	9.75	9.69	8.61	9.14	8.89	8.85	10.05
02/01/41	02/28/41	Feb 2041	95.21	91.03	99.89	92.55	91.88	87.64	100.37	95.51	100.97													

04/01/18	04/30/18	Apr 2018	48.11	30.09	46.80	34.22	42.86	26.96	51.27	38.44	53.13	39.92	4.70	4.88	4.50	4.53	4.64	4.60	4.68	4.47	4.85	4.63	4.70	4.96
05/01/18	05/31/18	May 2018	43.28	22.99	47.94	29.02	37.19	20.20	52.57	33.22	54.04	33.67	4.72	4.90	4.52	4.56	4.66	4.62	4.67	4.49	4.87	4.66	4.73	4.95
06/01/18	06/30/18	Jun 2018	43.62	23.88	51.36	29.76	33.95	19.29	55.16	34.09	56.33	33.67	4.75	4.93	4.55	4.59	4.69	4.65	4.64	4.50	4.91	4.69	4.76	4.93
07/01/18	07/31/18	Jul 2018	56.58	32.39	61.51	37.36	50.08	31.39	61.75	42.42	67.36	42.66	4.79	4.97	4.59	4.65	4.73	4.69	4.67	4.54	4.97	4.75	4.82	4.95
08/01/18	08/31/18	Aug 2018	59.90	42.00	60.57	40.51	56.60	38.00	63.29	45.30	67.92	44.85	4.81	4.99	4.61	4.67	4.75	4.71	4.67	4.56	4.99	4.78	4.85	4.95
09/01/18	09/30/18	Sep 2018	57.53	42.31	54.03	39.88	56.60	44.61	60.21	42.78	63.48	43.75	4.82	5.00	4.62	4.68	4.76	4.72	4.71	4.60	5.00	4.78	4.85	4.99
10/01/18	10/31/18	Oct 2018	51.42	43.18	52.63	38.50	50.97	44.15	59.01	42.90	57.79	42.65	4.85	5.04	4.66	4.72	4.80	4.76	4.75	4.64	5.04	4.82	4.89	5.04
11/01/18	11/30/18	Nov 2018	54.06	43.92	51.84	37.89	54.66	44.50	59.01	44.01	60.25	43.39	4.97	5.16	4.81	4.87	4.95	4.91	5.26	4.79	5.20	4.98	5.05	5.60
12/01/18	12/31/18	Dec 2018	58.02	46.86	49.88	39.11	57.12	44.85	60.48	47.34	62.71	47.46	5.19	5.37	5.03	5.10	5.16	5.12	5.48	5.00	5.43	5.21	5.28	5.83
01/01/19	01/31/19	Jan 2019	55.37	45.10	50.78	38.63	53.43	44.08	59.15	46.68	59.65	45.72	5.30	5.52	5.16	5.20	5.29	5.25	5.61	5.17	5.53	5.31	5.39	5.98
02/01/19	02/28/19	Feb 2019	48.92	42.53	47.00	39.42	48.15	41.65	56.33	48.77	56.74	48.93	5.48	5.58	5.29	5.18	5.36	5.34	5.46	4.95	5.52	5.29	5.37	5.82
03/01/19	03/31/19	Mar 2019	46.11	40.65	46.74	38.56	45.38	40.55	54.14	47.44	54.90	48.30	5.35	5.48	5.17	5.10	5.29	5.26	5.40	4.93	5.43	5.21	5.28	5.76
04/01/19	04/30/19	Apr 2019	48.78	37.14	49.70	38.80	47.13	34.96	54.04	45.82	55.53	47.04	5.21	5.35	5.01	4.92	5.09	5.07	5.05	4.76	5.24	5.02	5.10	5.35
05/01/19	05/31/19	May 2019	44.14	30.23	49.71	36.52	39.98	30.09	54.28	43.03	56.57	43.82	5.25	5.38	5.04	4.92	5.11	5.04	5.01	4.78	5.24	5.02	5.10	5.31
06/01/19	06/30/19	Jun 2019	45.15	33.44	54.00	37.26	39.81	29.93	54.79	43.77	57.01	44.09	5.30	5.41	5.08	4.95	5.15	5.08	4.99	4.81	5.28	5.06	5.13	5.29
07/01/19	07/31/19	Jul 2019	57.60	39.37	65.74	42.59	55.48	38.13	64.40	49.05	68.24	49.68	5.35	5.47	5.14	4.99	5.19	5.12	5.05	4.85	5.32	5.10	5.17	5.35
08/01/19	08/31/19	Aug 2019	61.53	44.75	66.85	44.61	60.34	42.40	67.42	50.97	71.09	51.47	5.37	5.57	5.17	5.01	5.21	5.14	5.07	4.86	5.34	5.12	5.19	5.37
09/01/19	09/30/19	Sep 2019	59.33	44.62	58.46	43.06	59.46	45.53	63.88	49.12	66.98	50.55	5.36	5.54	5.16	5.03	5.23	5.12	5.10	4.87	5.36	5.14	5.21	5.41
10/01/19	10/31/19	Oct 2019	53.94	44.79	53.83	41.81	53.68	44.54	60.96	49.18	60.70	49.52	5.39	5.57	5.19	5.08	5.28	5.18	5.17	4.89	5.41	5.19	5.26	5.48
11/01/19	11/30/19	Nov 2019	54.84	45.92	53.25	41.64	55.75	45.16	61.05	50.33	61.82	50.30	5.50	5.67	5.34	5.25	5.43	5.41	5.55	5.04	5.59	5.37	5.44	5.91
12/01/19	12/31/19	Dec 2019	57.99	48.01	52.89	42.92	57.88	45.73	61.51	52.59	62.17	53.01	5.71	5.86	5.55	5.40	5.59	5.57	5.71	5.16	5.74	5.51	5.59	6.09
01/01/20	01/31/20	Jan 2020	53.87	46.68	51.75	42.47	52.47	45.49	60.02	51.86	60.61	51.77	5.77	5.88	5.58	5.45	5.64	5.62	5.85	5.31	5.80	5.57	5.65	6.23
02/01/20	02/29/20	Feb 2020	47.94	45.15	46.19	43.05	47.44	43.05	56.00	53.94	56.80	54.85	5.96	5.95	5.72	5.45	5.73	5.72	5.61	5.10	5.78	5.56	5.64	5.97
03/01/20	03/31/20	Mar 2020	46.23	44.60	47.12	43.04	44.79	42.68	54.32	53.42	56.37	54.31	5.77	5.83	5.56	5.37	5.65	5.65	5.55	5.13	5.70	5.48	5.55	5.91
04/01/20	04/30/20	Apr 2020	49.45	44.19	52.60	43.38	51.40	42.96	58.80	53.20	57.93	54.17	5.73	5.81	5.52	5.31	5.54	5.54	5.43	5.04	5.63	5.41	5.48	5.73
05/01/20	05/31/20	May 2020	45.01	37.47	51.48	44.02	42.76	39.97	55.99	52.84	59.10	53.98	5.77	5.85	5.56	5.28	5.55	5.46	5.35	5.07	5.60	5.39	5.46	5.65
06/01/20	06/30/20	Jun 2020	46.68	43.01	56.63	44.75	45.67	40.57	54.41	53.45	57.69	54.51	5.86	5.89	5.61	5.31	5.60	5.50	5.35	5.12	5.63	5.42	5.49	5.65
07/01/20	07/31/20	Jul 2020	58.62	46.34	69.98	47.81	60.88	44.87	67.04	55.68	69.11	56.71	5.90	5.97	5.70	5.33	5.65	5.55	5.44	5.16	5.66	5.44	5.51	5.74
08/01/20	08/31/20	Aug 2020	63.16	47.49	73.12	48.70	64.08	46.80	71.56	56.63	74.26	58.10	5.94	6.14	5.73	5.35	5.67	5.56	5.47	5.17	5.68	5.46	5.54	5.77
09/01/20	09/30/20	Sep 2020	61.13	46.92	62.90	46.24	62.32	46.45	67.55	55.46	70.48	57.35	5.90	6.08	5.69	5.39	5.71	5.53	5.50	5.13	5.72	5.50	5.57	5.80
10/01/20	10/31/20	Oct 2020	56.46	46.40	55.03	45.12	56.39	44.92	62.90	55.45	63.62	56.39	5.93	6.11	5.73	5.45	5.77	5.61	5.60	5.15	5.77	5.55	5.63	5.90
11/01/20	11/30/20	Nov 2020	55.61	47.92	54.65	45.38	56.84	45.81	63.08	56.65	63.38	57.20	6.03	6.19	5.87	5.64	5.92	5.92	5.85	5.29	5.97	5.75	5.82	6.21
12/01/20	12/31/20	Dec 2020	57.96	49.16	55.89	46.72	58.64	46.61	62.54	57.84	61.63	58.56	6.23	6.34	6.07	5.69	6.02	6.02	5.95	5.32	6.03	5.81	5.88	6.32
01/01/21	01/31/21	Jan 2021	52.36	48.25	52.73	46.30	51.51	46.90	60.88	57.03	61.58	57.83	6.24	6.24	6.01	5.71	5.99	5.98	6.09	5.45	6.05	5.89	5.90	6.47
02/01/21	02/28/21	Feb 2021	51.01	48.33	48.65	45.60	49.68	45.94	59.01	56.93	60.09	57.76	6.26	6.26	6.01	5.74	6.02	6.02	6.13	5.48	6.07	5.85	5.93	6.49
03/01/21	03/31/21	Mar 2021	51.23	48.27	49.79	45.68	49.25	45.46	58.48	57.13	60.01	57.88	5.99	6.20	5.82	5.53	6.05	6.05	6.03	5.51	5.86	5.64	5.72	6.39
04/01/21	04/30/21	Apr 2021	53.27	47.27	55.83	45.69	55.26	46.30	60.51	56.06	61.56	57.16	5.94	6.16	5.76	5.47	5.88	5.88	5.76	5.36	5.79	5.58	5.65	6.06
05/01/21	05/31/21	May 2021	50.67	46.93	54.49	46.55	49.70	43.67	58.90	56.98	63.06	57.77	5.98	6.19	5.77	5.47	5.90	5.80	5.72	5.40	5.80	5.58	5.65	6.02
06/01/21	06/30/21	Jun 2021	50.70	47.26	60.50	47.21	51.85	45.35	59.19	56.50	61.02	57.55	6.08	6.22	5.85	5.50	5.94	5.83	5.73	5.44	5.82	5.60	5.68	6.03
07/01/21	07/31/21	Jul 2021	62.17	49.47	73.15	50.55	64.56	48.24	70.73	58.69	72.46	59.52	6.12	6.28	5.92	5.53	5.98	5.87	5.78	5.47	5.86	5.64	5.71	6.06
08/01/21	08/31/21	Aug 2021	67.83	50.83	77.53	51.03	67.85	51.49	75.88	59.67	78.29	60.51	6.16	6.46	5.95	5.55	6.01	5.90	5.79	5.49	5.88	5.66	5.74	6.09
09/01/21	09/30/21	Sep 2021	63.99	50.58	65.16	48.73	65.60	50.59	71.10	58.43	72.43	59.39	6.12	6.39	5.91	5.57	6.01	5.90	5.83	5.49	5.90	5.68	5.75	6.13
10/01/21	10/31/21	Oct 2021	60.44	48.69	59.09	47.15	61.83	47.80	67.05	58.22	68.47	59.23	6.15	6.42	5.94	5.60	6.08	5.92	5.90	5.51	5.93	5.71	5.78	6.21
11/01/21	11/30/21	Nov 2021	60.59	50.63	58.46	47.18	60.71	49.84	67.06	59.47	66.48	59.82	6.26	6.52	6.10	5.78	6.24	6.24	6.21	5.57	6.12	5.89	5.97	6.57
12/01/21	12/31/21	Dec 2021	62.47	52.33	57.95	48.84	64.71	51.32	65.04	60.66	64.35	61.28	6.46	6.66	6.30	5.91	6.33	6.33	6.34	5.60	6.25	6.02	6.10	6.72
01/01/22	01/31/22	Jan 2022	56.62	54.13	61.34	55.24	57.34	52.67	61.39	58.21	61.96	58.04	6.41	6.42	6.16	5.77	6.15	6.15	6.33	5.60	6.11	5.88	5.96	6.71
02/01/22	02/28/22	Feb 2022	55.93	54.33	58.96	54.81	56.35	50.92	60.62	58.33	61.20	57.92	6.45	6.43	6.17	5.80	6.19	6.19	6.36	5.63	6.14	5.91	5.99	6.72
03/01/22	03/31/22	Mar 2022	56.61	54.13	58.73	54.18	55.11	52.67	60.71	57.59	61.45	57.12	6.15	6.27	5.96	5.60	6.15	6.15	6.14	5.60	5.93	5.71	5.78	6.50
04/01/22	04/30/22	Apr 2022	58.61	53.25	63.71	54.88	57.75	50.61	62.66	57.91	63.31	57.50	6.12	6.27	5.89	5.54	6.01	6.01	5.89	5.48	5.86	5.65	5.72	6.19

05/01/24	05/31/24	May 2024	58.36	56.51	66.38	58.87	58.28	53.98	63.82	62.14	67.27	62.01	6.82	6.90	6.45	5.89	6.49	6.37	6.25	5.95	6.21	5.99	6.07	6.55
06/01/24	06/30/24	Jun 2024	59.87	57.67	70.86	60.15	58.35	53.75	64.09	62.52	67.40	62.76	6.91	6.93	6.55	5.90	6.53	6.41	6.31	5.99	6.23	6.01	6.08	6.61
07/01/24	07/31/24	Jul 2024	73.52	59.43	85.59	63.63	73.96	57.53	78.57	65.32	80.65	66.27	6.97	7.15	6.65	5.95	6.60	6.48	6.36	6.06	6.28	6.06	6.13	6.66
08/01/24	08/31/24	Aug 2024	78.76	61.28	89.73	65.16	78.28	59.37	84.18	66.66	86.35	67.76	7.02	7.48	6.73	5.99	6.78	6.57	6.44	6.09	6.32	6.10	6.17	6.74
09/01/24	09/30/24	Sep 2024	74.13	60.38	77.24	62.70	73.44	57.64	78.59	65.65	80.54	65.80	6.97	7.34	6.71	6.03	6.78	6.54	6.48	6.00	6.36	6.14	6.21	6.79
10/01/24	10/31/24	Oct 2024	68.65	59.95	70.71	61.37	68.34	56.46	72.90	64.81	73.76	64.49	6.97	7.29	6.74	6.18	6.86	6.62	6.63	6.03	6.51	6.29	6.37	6.93
11/01/24	11/30/24	Nov 2024	68.47	61.36	69.68	62.21	70.04	61.98	73.34	66.42	73.18	65.65	7.12	7.44	6.88	6.39	7.04	6.98	6.85	6.15	6.72	6.50	6.57	7.21
12/01/24	12/31/24	Dec 2024	72.63	62.03	70.06	64.68	75.71	62.91	73.89	67.62	73.43	67.49	7.35	7.86	7.17	6.47	7.08	7.03	6.95	6.18	6.81	6.58	6.66	7.32
01/01/25	01/31/25	Jan 2025	64.74	60.73	67.29	62.69	63.26	58.88	69.17	65.40	69.71	65.46	7.39	7.48	7.04	6.29	6.90	6.90	6.90	6.12	6.63	6.40	6.48	7.28
02/01/25	02/28/25	Feb 2025	61.81	60.35	64.54	60.89	59.62	57.23	66.46	64.70	67.07	64.00	7.39	7.23	6.93	6.32	6.88	6.88	6.93	6.15	6.66	6.44	6.51	7.30
03/01/25	03/31/25	Mar 2025	61.42	59.60	64.01	60.30	59.54	57.47	65.67	64.11	66.26	63.54	6.96	7.05	6.60	6.00	6.73	6.73	6.60	6.05	6.33	6.11	6.19	6.96
04/01/25	04/30/25	Apr 2025	63.93	58.89	69.72	61.27	62.89	55.32	68.73	64.19	69.56	64.43	6.91	7.03	6.59	5.94	6.62	6.45	6.46	5.92	6.26	6.04	6.11	6.76
05/01/25	05/31/25	May 2025	60.40	58.04	67.76	59.94	60.00	56.26	64.95	62.36	67.70	62.62	6.95	7.00	6.56	5.93	6.58	6.39	6.32	5.96	6.25	6.03	6.10	6.62
06/01/25	06/30/25	Jun 2025	61.55	59.51	72.44	61.35	60.09	55.05	65.60	64.07	68.91	64.05	7.04	7.04	6.67	5.96	6.62	6.48	6.36	6.05	6.28	6.07	6.14	6.66
07/01/25	07/31/25	Jul 2025	74.66	60.39	86.71	64.67	74.86	57.86	79.84	66.22	82.02	67.27	7.10	7.25	6.75	6.00	6.66	6.52	6.39	6.08	6.33	6.11	6.18	6.69
08/01/25	08/31/25	Aug 2025	79.89	62.26	91.23	66.32	79.39	60.28	85.19	67.66	87.85	68.83	7.14	7.59	6.83	6.03	6.85	6.63	6.50	6.12	6.36	6.14	6.22	6.80
09/01/25	09/30/25	Sep 2025	75.22	61.43	78.99	64.30	74.66	58.47	79.98	66.91	82.27	67.04	7.11	7.56	6.81	6.06	6.83	6.59	6.55	6.04	6.39	6.17	6.24	6.85
10/01/25	10/31/25	Oct 2025	69.27	61.28	71.22	62.49	68.80	57.61	73.35	65.88	74.58	65.45	7.14	7.42	6.83	6.20	6.93	6.68	6.69	6.07	6.53	6.31	6.39	6.99
11/01/25	11/30/25	Nov 2025	69.72	62.24	70.74	63.23	71.58	63.04	74.52	67.34	74.44	66.64	7.24	7.51	6.94	6.38	7.10	7.04	6.91	6.19	6.72	6.50	6.57	7.27
12/01/25	12/31/25	Dec 2025	73.51	63.24	71.05	65.85	76.34	63.87	75.07	68.71	74.41	68.53	7.49	8.00	7.29	6.52	7.15	7.09	7.01	6.23	6.86	6.63	6.71	7.38
01/01/26	01/31/26	Jan 2026	67.42	62.58	69.50	65.19	65.34	59.88	71.97	67.80	72.42	67.84	6.52	7.85	7.26	6.48	7.08	7.08	7.07	6.27	6.82	6.59	6.67	7.45
02/01/26	02/28/26	Feb 2026	65.17	62.22	66.95	63.54	63.64	58.84	69.58	67.00	70.03	66.35	7.62	7.58	7.19	6.52	7.09	7.09	7.11	6.31	6.85	6.63	6.70	7.47
03/01/26	03/31/26	Mar 2026	63.38	61.61	66.39	62.16	62.03	58.44	68.23	66.13	68.75	65.45	7.24	7.33	6.87	6.22	6.96	6.96	6.83	6.27	6.55	6.33	6.40	7.19
04/01/26	04/30/26	Apr 2026	65.15	61.05	71.18	62.85	64.69	57.52	70.02	66.09	70.87	65.66	7.17	7.30	6.84	6.10	6.88	6.69	6.69	6.14	6.43	6.21	6.28	6.99
05/01/26	05/31/26	May 2026	62.18	60.14	69.96	62.40	61.65	57.70	67.38	65.01	70.07	65.24	7.22	7.31	6.82	6.15	6.87	6.66	6.53	6.18	6.47	6.26	6.33	6.83
06/01/26	06/30/26	Jun 2026	63.53	60.99	74.87	63.53	62.71	57.34	67.95	66.07	71.35	66.18	7.31	7.35	6.93	6.19	6.91	6.70	6.58	6.26	6.51	6.29	6.36	6.88
07/01/26	07/31/26	Jul 2026	77.86	62.84	89.42	67.21	77.95	60.83	83.11	68.60	85.16	69.80	7.37	7.60	7.01	6.22	6.95	6.74	6.61	6.29	6.54	6.32	6.40	6.91
08/01/26	08/31/26	Aug 2026	82.80	64.42	93.34	68.98	82.31	62.47	87.79	70.25	90.31	71.32	7.42	7.92	7.11	6.25	7.08	6.85	6.72	6.31	6.58	6.36	6.43	7.02
09/01/26	09/30/26	Sep 2026	77.51	63.20	81.51	66.51	76.80	60.49	82.08	68.99	84.65	69.18	7.39	7.85	7.07	6.29	7.05	6.78	6.76	6.22	6.62	6.40	6.47	7.06
10/01/26	10/31/26	Oct 2026	72.09	63.17	73.78	65.02	71.31	59.59	76.03	68.35	77.05	67.84	7.42	7.76	7.08	6.33	7.13	6.88	6.89	6.26	6.66	6.44	6.51	7.19
11/01/26	11/30/26	Nov 2026	72.13	64.54	73.51	66.08	72.86	65.48	76.93	69.76	77.11	69.04	7.53	7.92	7.23	6.60	7.36	7.28	7.15	6.40	6.94	6.71	6.79	7.51
12/01/26	12/31/26	Dec 2026	76.93	66.37	73.57	67.76	79.26	66.98	77.60	70.93	76.97	70.50	7.78	8.37	7.56	6.66	7.39	7.32	7.27	6.44	7.00	6.77	6.85	7.64
01/01/27	01/31/27	Jan 2027	68.79	64.06	70.84	66.46	66.62	61.61	73.51	69.07	73.92	69.16	7.77	8.02	7.42	6.60	7.23	7.23	7.20	6.39	6.94	6.72	6.79	7.58
02/01/27	02/28/27	Feb 2027	67.22	63.76	67.93	64.84	64.73	61.73	70.65	68.24	71.30	67.61	7.80	7.73	7.32	6.57	7.21	7.21	7.24	6.43	6.90	6.68	6.75	7.60
03/01/27	03/31/27	Mar 2027	64.42	62.62	66.97	63.39	62.73	60.63	69.36	66.87	69.87	66.32	7.31	7.47	6.93	6.21	7.05	7.05	6.91	6.32	6.54	6.32	6.39	7.27
04/01/27	04/30/27	Apr 2027	66.62	62.35	72.09	63.99	66.34	58.61	71.37	67.25	72.25	66.85	7.22	7.42	6.87	6.12	6.99	6.78	6.79	6.20	6.45	6.23	6.30	7.09
05/01/27	05/31/27	May 2027	63.63	61.10	70.82	63.37	63.47	59.78	68.49	65.54	71.19	65.94	7.28	7.39	6.86	6.09	6.96	6.74	6.71	6.24	6.41	6.20	6.27	7.01
06/01/27	06/30/27	Jun 2027	65.47	62.24	75.92	64.63	64.52	58.67	70.08	66.99	72.65	67.01	7.38	7.50	6.98	6.13	7.00	6.78	6.66	6.34	6.45	6.23	6.30	6.96
07/01/27	07/31/27	Jul 2027	79.10	64.44	90.54	68.96	79.22	62.49	84.29	70.17	86.50	71.15	7.43	7.84	7.07	6.16	7.04	6.82	6.78	6.37	6.48	6.26	6.34	7.07
08/01/27	08/31/27	Aug 2027	85.60	66.60	96.93	71.76	85.02	65.67	90.55	71.57	93.37	72.94	7.47	8.38	7.16	6.19	7.16	6.96	6.82	6.38	6.51	6.30	6.37	7.12
09/01/27	09/30/27	Sep 2027	78.02	64.98	81.22	67.87	77.05	61.56	82.47	70.34	84.34	70.42	7.44	8.04	7.11	6.23	7.13	6.88	6.87	6.31	6.55	6.33	6.41	7.17
10/01/27	10/31/27	Oct 2027	74.38	64.31	75.69	66.35	72.87	61.04	77.91	69.82	79.14	69.23	7.48	7.88	7.15	6.36	7.23	6.98	6.99	6.34	6.68	6.46	6.54	7.29
11/01/27	11/30/27	Nov 2027	73.25	65.92	73.88	66.57	74.21	66.85	77.48	70.35	77.46	69.42	7.66	8.05	7.35	6.57	7.49	7.41	7.30	6.52	6.90	6.68	6.76	7.66
12/01/27	12/31/27	Dec 2027	78.39	67.91	74.81	69.21	80.30	68.67	79.00	72.57	78.23	71.98	7.89	8.59	7.77	6.73	7.54	7.45	7.42	6.56	7.07	6.84	6.92	7.79
01/01/28	01/31/28	Jan 2028	69.46	65.37	72.79	67.65	68.07	62.77	74.24	70.22	74.86	70.08	7.90	8.10	7.28	6.80	7.36	7.36	7.33	6.50	7.15	6.92	7.00	7.71
02/01/28	02/29/28	Feb 2028	68.41	65.17	69.91	66.27	66.06	61.91	72.37	69.65	72.97	69.05	7.90	7.86	7.23	6.79	7.34	7.34	7.36	6.53	7.12	6.90	6.97	7.73
03/01/28	03/31/28	Mar 2028	65.43	63.49	67.58	64.34	63.70	60.78	70.38	68.19	70.79	67.33	7.38	7.53	6.83	6.39	7.10	6.96	6.97	6.38	6.72	6.50	6.58	7.32
04/01/28	04/30/28	Apr 2028	66.46	62.83	71.81	64.55	65.68	59.24	71.30	67.79	72.03	67.29	7.31	7.45	6.77	6.33	7.01	6.81	6.81	6.24	6.65	6.43	6.50	7.11
05/01/28	05/31/28	May 2028	63.96	61.72	70.89	64.07	63.43	59.76	68.89	65.76	71.18	66.39	7.35	7.44	6.76	6.30	7.00	6.80	6.77	6.29	6.63	6.41	6.48	7.07

06/01/30	06/30/30	Jun 2030	69.41	66.86	79.36	69.01	67.84	63.16	73.86	71.16	76.44	70.98	7.80	7.88	7.10	6.59	7.43	7.25	7.12	6.78	6.91	6.69	6.77	7.42
07/01/30	07/31/30	Jul 2030	86.55	70.38	97.86	75.18	86.62	68.30	91.61	75.70	93.88	76.75	7.86	8.53	7.15	6.62	7.64	7.42	7.28	6.89	6.95	6.73	6.80	7.58
08/01/30	08/31/30	Aug 2030	92.81	72.21	101.52	75.93	92.24	70.15	98.14	78.25	98.82	78.38	7.93	8.63	7.13	6.65	7.82	7.53	7.39	6.93	6.98	6.76	6.83	7.69
09/01/30	09/30/30	Sep 2030	84.99	70.94	87.82	73.30	83.33	67.93	89.28	76.75	90.61	76.24	7.87	8.41	7.18	6.70	7.78	7.49	7.46	6.86	7.02	6.80	6.88	7.76
10/01/30	10/31/30	Oct 2030	79.74	70.77	80.81	71.68	78.69	67.00	83.79	75.68	84.27	74.72	7.92	8.29	7.28	6.80	7.88	7.59	7.60	6.90	7.13	6.91	6.98	7.91
11/01/30	11/30/30	Nov 2030	81.27	74.40	81.62	73.97	81.91	67.20	85.18	78.11	85.03	77.08	8.20	8.88	7.57	7.11	8.23	8.12	8.00	7.16	7.44	7.22	7.30	8.36
12/01/30	12/31/30	Dec 2030	86.41	75.15	79.63	74.47	88.01	75.59	83.90	78.35	83.42	77.46	8.40	9.02	7.79	7.30	8.35	8.24	8.13	7.20	7.64	7.41	7.49	8.50
01/01/31	01/31/31	Jan 2031	77.53	72.00	81.04	74.51	75.20	69.27	82.35	77.03	82.57	76.93	8.54	9.15	7.83	7.22	8.04	8.04	7.99	7.11	7.57	7.34	7.42	8.38
02/01/31	02/28/31	Feb 2031	74.04	71.90	76.21	72.92	72.50	68.47	79.18	76.42	79.70	75.67	8.50	8.71	7.75	7.20	8.05	8.06	8.04	7.15	7.53	7.31	7.38	8.40
03/01/31	03/31/31	Mar 2031	72.29	70.30	74.64	70.77	70.43	67.61	77.19	74.55	77.94	73.69	7.89	8.34	7.21	6.70	7.81	7.81	7.67	6.98	7.03	6.81	6.88	8.03
04/01/31	04/30/31	Apr 2031	73.28	69.53	78.40	70.64	72.97	65.85	78.37	73.94	79.07	73.14	7.81	8.17	7.14	6.60	7.71	7.49	7.50	6.84	6.93	6.71	6.78	7.80
05/01/31	05/31/31	May 2031	71.11	68.83	77.52	70.55	70.70	66.91	76.26	71.93	78.70	72.68	7.85	8.23	7.15	6.63	7.72	7.48	7.45	6.88	6.95	6.73	6.80	7.75
06/01/31	06/30/31	Jun 2031	72.29	69.46	82.83	71.87	71.81	66.09	76.97	73.94	79.85	74.05	7.95	8.28	7.24	6.67	7.77	7.53	7.35	6.99	6.99	6.77	6.85	7.64
07/01/31	07/31/31	Jul 2031	90.03	72.91	101.40	78.17	90.03	71.47	94.78	78.30	97.62	79.46	8.02	8.95	7.29	6.72	7.84	7.66	7.54	7.11	7.05	6.83	6.90	7.84
08/01/31	08/31/31	Aug 2031	95.11	74.23	103.67	77.88	94.59	71.38	100.24	80.71	100.99	80.63	8.07	8.76	7.24	6.74	8.06	7.77	7.63	7.15	7.07	6.85	6.92	7.93
09/01/31	09/30/31	Sep 2031	87.14	72.75	89.97	75.66	85.64	69.83	91.67	78.99	92.89	78.51	8.03	8.72	7.28	6.78	7.93	7.64	7.63	7.02	7.11	6.89	6.96	7.94
10/01/31	10/31/31	Oct 2031	81.33	72.22	82.41	73.73	80.55	68.65	85.71	78.19	86.16	77.20	8.07	8.57	7.41	6.84	8.02	7.74	7.76	7.06	7.16	6.94	7.02	8.06
11/01/31	11/30/31	Nov 2031	82.05	75.29	80.97	74.03	82.25	74.66	85.42	78.80	84.82	77.06	8.25	8.54	7.51	7.01	8.40	8.28	8.17	7.28	7.35	7.12	7.20	8.54
12/01/31	12/31/31	Dec 2031	88.08	76.56	80.90	76.06	90.23	77.64	85.48	79.89	84.63	78.94	8.54	9.15	7.90	7.30	8.42	8.34	8.31	7.32	7.64	7.41	7.49	8.68
01/01/32	01/31/32	Jan 2032	79.50	73.72	83.30	76.41	77.07	71.04	84.24	79.03	84.30	78.70	8.70	9.32	7.97	7.36	8.19	8.20	8.15	7.24	7.70	7.48	7.55	8.53
02/01/32	02/29/32	Feb 2032	75.51	73.61	78.48	74.45	73.74	70.35	80.55	77.83	81.06	77.11	8.66	8.88	7.90	7.33	8.21	8.21	8.19	7.28	7.67	7.45	7.52	8.55
03/01/32	03/31/32	Mar 2032	74.06	71.94	76.46	72.11	72.19	69.75	79.15	75.93	79.67	74.98	8.04	8.50	7.34	6.83	7.96	7.96	7.82	7.11	7.16	6.94	7.01	8.18
04/01/32	04/30/32	Apr 2032	75.47	71.15	80.00	72.37	75.74	67.89	80.37	75.32	81.11	74.65	7.95	8.33	7.28	6.73	7.86	7.63	7.65	6.97	7.05	6.83	6.91	7.95
05/01/32	05/31/32	May 2032	72.54	70.21	79.07	72.46	71.52	67.46	77.69	74.48	80.48	74.77	8.00	8.39	7.28	6.75	7.87	7.63	7.59	7.01	7.07	6.86	6.93	7.89
06/01/32	06/30/32	Jun 2032	74.03	71.05	85.25	73.56	73.04	67.45	78.90	75.90	82.08	75.74	8.10	8.44	7.37	6.79	7.91	7.67	7.48	7.12	7.12	6.90	6.97	7.78
07/01/32	07/31/32	Jul 2032	91.98	74.95	103.75	80.27	91.95	73.18	96.99	80.62	99.93	81.70	8.17	9.12	7.43	6.85	7.99	7.80	7.68	7.25	7.18	6.96	7.03	7.98
08/01/32	08/31/32	Aug 2032	98.52	76.04	107.46	79.60	97.91	73.25	103.14	82.44	104.05	82.36	8.22	8.92	7.38	6.87	8.22	7.92	7.78	7.29	7.20	6.98	7.05	8.08
09/01/32	09/30/32	Sep 2032	89.99	75.23	92.63	77.70	88.34	72.20	94.10	80.59	95.25	80.54	8.19	8.89	7.42	6.91	8.08	7.78	7.78	7.16	7.24	7.02	7.09	8.08
10/01/32	10/31/32	Oct 2032	83.84	74.34	86.36	75.72	83.04	70.65	87.89	80.08	89.01	79.22	8.23	8.74	7.55	6.97	7.18	7.89	7.90	7.19	7.29	7.07	7.15	8.21
11/01/32	11/30/32	Nov 2032	83.67	77.06	82.63	75.42	84.06	76.05	87.15	80.39	86.39	78.41	8.40	8.70	7.66	7.15	8.56	8.44	8.33	7.42	7.48	7.26	7.33	8.69
12/01/32	12/31/32	Dec 2032	90.64	78.75	82.84	78.04	92.76	79.49	87.25	81.75	86.36	80.88	8.70	9.33	8.05	7.44	8.58	8.49	8.47	7.46	7.78	7.55	7.63	8.84
01/01/33	01/31/33	Jan 2033	81.75	75.59	85.86	78.76	79.48	73.08	86.36	80.98	86.52	80.68	8.87	9.50	8.13	7.50	8.35	8.35	8.30	7.38	7.84	7.62	7.69	8.68
02/01/33	02/28/33	Feb 2033	77.61	75.32	80.74	76.63	75.94	72.06	82.81	79.84	83.46	79.17	8.82	9.05	8.05	7.47	8.36	8.37	8.35	7.42	7.81	7.59	7.66	8.71
03/01/33	03/31/33	Mar 2033	75.82	73.58	78.34	73.77	74.00	71.42	81.06	77.46	81.54	76.53	8.19	8.66	7.48	6.96	8.11	8.11	7.97	7.19	7.24	7.07	7.14	8.33
04/01/33	04/30/33	Apr 2033	77.82	72.87	82.25	74.16	77.62	69.29	82.50	77.24	83.24	76.61	8.10	8.49	7.41	6.86	8.01	7.77	7.79	7.10	7.18	6.96	7.03	8.09
05/01/33	05/31/33	May 2033	74.92	72.16	81.19	74.27	74.26	69.75	79.94	76.08	82.17	76.54	8.15	8.55	7.42	6.88	8.02	7.77	7.73	7.14	7.20	6.98	7.06	8.03
06/01/33	06/30/33	Jun 2033	76.09	72.87	87.41	75.37	75.19	69.21	80.96	77.80	84.55	77.68	8.25	8.60	7.51	6.92	8.06	7.82	7.63	7.26	7.25	7.03	7.10	7.93
07/01/33	07/31/33	Jul 2033	93.65	76.31	105.45	82.14	93.25	74.77	98.77	82.23	102.04	83.34	8.32	9.29	7.57	6.98	8.15	7.95	7.83	7.39	7.31	7.09	7.16	8.13
08/01/33	08/31/33	Aug 2033	99.95	77.62	108.62	81.40	99.11	74.70	104.67	83.47	105.46	83.88	8.38	9.09	7.52	7.00	8.37	8.07	7.92	7.43	7.33	7.11	7.18	8.22
09/01/33	09/30/33	Sep 2033	89.56	76.64	93.27	79.27	87.73	73.51	94.20	82.19	95.17	82.10	8.34	9.06	7.56	7.04	8.23	7.93	7.93	7.29	7.37	7.15	7.22	8.23
10/01/33	10/31/33	Oct 2033	85.18	76.25	88.27	77.32	83.86	72.53	89.16	81.69	90.42	80.98	8.38	8.90	7.69	7.10	8.33	8.04	8.05	7.33	7.43	7.21	7.28	8.36
11/01/33	11/30/33	Nov 2033	85.04	78.74	84.55	77.24	84.37	77.30	88.71	82.27	88.29	80.24	8.56	8.87	7.80	7.28	8.72	8.60	8.49	7.56	7.62	7.39	7.47	8.85
12/01/33	12/31/33	Dec 2033	92.41	80.36	84.09	79.87	94.11	81.03	88.75	83.72	87.87	82.80	8.87	9.51	8.21	7.58	8.74	8.66	8.63	7.80	7.92	7.69	7.77	9.00
01/01/34	01/31/34	Jan 2034	83.45	77.29	87.47	80.75	80.72	74.97	87.87	82.74	87.87	82.52	9.04	9.68	8.28	7.64	8.51	8.51	8.46	7.52	7.99	7.76	7.84	8.84
02/01/34	02/28/34	Feb 2034	79.00	76.76	82.59	77.57	76.91	73.51	84.10	80.91	84.84	80.37	8.99	9.22	8.20	7.62	8.52	8.52	8.50	7.56	7.95	7.73	7.80	8.87
03/01/34	03/31/34	Mar 2034	77.60	75.35	80.98	76.18	74.79	72.57	82.87	79.81	83.38	78.93	8.35	8.83	7.63	7.09	8.27	8.27	8.12	7.38	7.42	7.20	7.27	8.48
04/01/34	04/30/34	Apr 2034	79.08	74.50	83.50	76.20	78.62	70.93	83.91	78.99	84.75	78.45	8.26	8.65	7.55	6.99	8.16	7.92	7.94	7.24	7.31	7.09	7.16	8.24
05/01/34	05/31/34	May 2034	76.10	73.99	83.53	75.94	74.62	71.45	81.32	77.67	84.40	78.17	8.31	8.71	7.56	7.01	8.17	7.92	7.88	7.28	7.33	7.12	7.19	8.18
06/01/34	06/30/34	Jun 2034	76.89	74.59	88.42	76.87	75.81	70.75	81.73	79.50	85.56	79.26	8.41	8.76	7.66	7.06	8.22	7.97	7.77	7.40	7.38	7.16	7.23	

07/01/36	07/31/36	Jul 2036	101.74	82.43	112.32	87.79	101.48	80.22	106.31	88.25	108.77	89.31	8.81	9.83	8.01	7.39	8.62	8.41	8.28	7.71	7.49	7.57	8.58	
08/01/36	08/31/36	Aug 2036	106.12	83.25	114.09	87.33	105.29	81.23	111.04	89.52	111.56	89.76	8.87	9.62	7.96	7.41	8.86	8.54	8.38	7.82	7.73	7.51	7.59	8.68
09/01/36	09/30/36	Sep 2036	96.25	81.65	99.13	84.52	94.75	79.09	100.97	87.94	101.99	87.58	8.83	9.58	8.00	7.45	8.71	8.39	8.39	7.72	7.78	7.56	7.63	8.69
10/01/36	10/31/36	Oct 2036	89.58	81.34	90.54	82.23	89.30	78.37	94.01	87.00	94.19	86.41	8.87	9.42	8.14	7.51	8.82	8.51	8.52	7.75	7.84	7.62	7.69	8.83
11/01/36	11/30/36	Nov 2036	91.16	85.08	90.59	82.90	90.19	82.93	95.00	88.33	94.64	86.75	9.06	9.38	8.25	7.71	9.23	9.10	8.98	8.00	8.04	7.82	7.89	9.34
12/01/36	12/31/36	Dec 2036	98.85	86.29	89.76	85.61	101.56	86.60	95.43	89.21	94.77	88.41	9.38	10.06	8.68	8.02	9.25	9.16	9.13	8.00	8.36	8.13	8.21	9.50
01/01/37	01/31/37	Jan 2037	89.90	83.11	94.51	87.26	87.35	80.97	95.00	88.73	95.48	88.55	9.56	10.24	8.76	8.09	9.00	9.00	8.95	7.96	8.43	8.20	8.28	9.33
02/01/37	02/28/37	Feb 2037	86.05	82.71	89.57	84.45	83.28	79.57	91.25	87.63	92.01	87.11	9.51	9.75	8.68	8.06	9.01	9.02	9.00	8.00	8.39	8.17	8.24	9.36
03/01/37	03/31/37	Mar 2037	83.28	80.40	86.52	81.83	80.76	76.99	88.22	84.98	89.62	84.50	8.83	9.34	8.07	7.50	8.75	8.75	8.59	7.81	7.83	7.61	7.68	8.95
04/01/37	04/30/37	Apr 2037	84.94	79.31	89.45	81.49	84.52	76.34	90.08	83.25	90.84	83.09	8.74	9.15	7.99	7.39	8.64	8.38	8.40	7.66	7.71	7.50	7.57	8.70
05/01/37	05/31/37	May 2037	82.69	77.90	89.61	81.60	80.78	76.29	87.16	82.59	91.41	83.20	8.79	9.22	8.00	7.42	8.64	8.38	8.34	7.70	7.74	7.52	7.60	8.64
06/01/37	06/30/37	Jun 2037	83.38	80.11	95.35	82.78	82.99	77.29	87.76	83.18	92.32	83.98	8.90	9.27	8.10	7.47	8.69	8.43	8.22	7.83	7.79	7.57	7.64	8.52
07/01/37	07/31/37	Jul 2037	103.03	83.55	115.32	89.68	102.57	81.65	108.22	90.02	111.35	91.27	8.97	10.02	8.16	7.53	8.78	8.57	8.44	7.97	7.85	7.63	7.71	8.74
08/01/37	08/31/37	Aug 2037	108.43	84.97	117.22	89.54	107.85	82.04	113.45	92.08	114.04	92.02	9.04	9.81	8.11	7.55	9.03	8.70	8.54	8.01	7.87	7.65	7.73	8.84
09/01/37	09/30/37	Sep 2037	97.99	83.55	101.52	86.49	97.23	80.78	102.69	89.59	103.97	89.31	8.99	9.77	8.15	7.59	8.88	8.55	8.55	7.86	7.92	7.70	7.77	8.85
10/01/37	10/31/37	Oct 2037	91.64	83.03	92.67	84.46	91.00	79.73	96.05	88.22	96.50	87.60	9.04	9.60	8.29	7.65	8.98	8.67	8.68	7.90	7.98	7.76	7.83	8.99
11/01/37	11/30/37	Nov 2037	93.51	86.38	92.37	84.68	91.53	83.94	97.25	89.73	96.49	88.42	9.23	9.56	8.41	7.85	9.41	9.27	9.15	8.15	8.18	7.96	8.04	9.51
12/01/37	12/31/37	Dec 2037	99.86	87.49	91.49	87.59	101.99	87.12	97.41	91.44	96.69	90.55	9.56	10.25	8.85	8.17	9.42	9.33	9.30	8.20	8.51	8.29	8.36	9.68
01/01/38	01/31/38	Jan 2038	93.02	85.36	97.32	89.23	90.71	83.34	97.46	90.97	97.94	90.73	9.75	10.45	8.94	8.25	9.18	9.18	9.13	8.11	8.59	8.36	8.44	9.51
02/01/38	02/28/38	Feb 2038	88.40	84.80	92.12	86.39	86.11	82.47	93.64	89.88	94.25	89.10	9.70	9.95	8.85	8.22	9.20	9.20	9.18	8.16	8.55	8.33	8.41	9.54
03/01/38	03/31/38	Mar 2038	85.78	82.95	88.82	82.45	82.94	80.04	90.97	86.17	91.42	85.25	9.01	9.53	8.23	7.65	8.92	8.92	8.76	7.97	7.98	7.76	7.83	9.12
04/01/38	04/30/38	Apr 2038	88.12	81.91	93.52	83.67	87.25	78.74	93.00	86.26	93.85	85.88	8.91	9.33	8.15	7.54	8.81	8.55	8.57	7.81	7.86	7.65	7.72	8.87
05/01/38	05/31/38	May 2038	84.25	80.87	91.83	83.80	82.17	77.46	89.34	85.56	93.89	86.19	8.97	9.40	8.16	7.57	8.82	8.55	8.50	7.86	7.89	7.67	7.74	8.81
06/01/38	06/30/38	Jun 2038	86.30	81.18	98.24	84.67	86.09	79.84	90.55	85.66	95.52	86.45	9.08	9.46	8.26	7.61	8.87	8.60	8.39	7.98	7.94	7.72	7.79	8.69
07/01/38	07/31/38	Jul 2038	105.51	86.18	117.03	92.17	105.47	84.92	110.95	92.04	113.58	93.30	9.15	10.22	8.33	7.68	8.96	8.75	8.61	8.12	8.00	7.78	7.86	8.91
08/01/38	08/31/38	Aug 2038	111.80	87.13	121.12	91.78	111.02	84.86	116.61	94.52	117.58	94.26	9.22	10.00	8.27	7.70	9.21	8.88	8.71	8.17	8.02	7.80	7.88	9.01
09/01/38	09/30/38	Sep 2038	100.96	85.48	104.48	89.14	100.55	82.89	105.59	92.56	106.98	92.06	9.17	9.96	8.32	7.75	9.05	8.72	8.72	8.02	8.07	7.85	7.93	9.02
10/01/38	10/31/38	Oct 2038	95.61	85.50	97.21	86.63	94.41	81.99	99.39	90.87	99.80	90.28	9.22	9.79	8.46	7.81	9.16	8.84	8.86	8.06	8.13	7.91	7.99	9.16
11/01/38	11/30/38	Nov 2038	95.20	88.29	94.67	86.78	94.33	87.32	99.04	92.34	98.39	90.28	9.42	9.75	8.58	8.01	9.59	9.46	9.34	8.31	8.34	8.12	8.19	9.70
12/01/38	12/31/38	Dec 2038	100.45	90.60	93.67	89.72	102.43	89.89	99.87	93.76	99.07	92.84	9.75	10.45	9.02	8.33	9.61	9.52	9.49	8.36	8.67	8.45	8.53	9.86
01/01/39	01/31/39	Jan 2039	94.53	87.40	99.46	91.94	92.42	85.05	98.90	93.04	99.29	93.16	9.95	10.65	9.12	8.41	9.36	9.37	9.31	8.28	8.76	8.53	8.61	9.69
02/01/39	02/28/39	Feb 2039	90.60	86.93	94.27	88.44	87.59	83.79	95.43	91.80	95.79	91.01	9.90	10.15	9.03	8.38	9.38	9.38	9.36	8.32	8.72	8.50	8.57	9.72
03/01/39	03/31/39	Mar 2039	88.17	85.17	91.16	84.91	85.32	82.08	93.29	88.74	93.98	87.91	9.19	9.72	8.39	7.80	9.10	9.10	8.94	8.13	8.13	7.91	7.99	9.30
04/01/39	04/30/39	Apr 2039	88.87	83.67	94.65	85.50	88.70	79.96	93.57	87.89	94.53	87.55	9.09	9.52	8.32	7.69	8.98	8.72	8.74	7.97	8.01	7.80	7.87	9.04
05/01/39	05/31/39	May 2039	87.87	82.34	94.31	85.71	87.22	80.86	92.48	87.21	95.64	87.84	9.15	9.59	8.32	7.72	8.99	8.72	8.67	8.01	8.04	7.82	7.89	8.98
06/01/39	06/30/39	Jun 2039	88.58	84.51	100.49	86.72	88.63	81.14	92.44	88.73	98.24	88.76	9.26	9.65	8.43	7.77	9.04	8.77	8.56	8.14	8.09	7.87	7.95	8.85
07/01/39	07/31/39	Jul 2039	108.26	88.44	119.87	94.45	108.33	87.75	113.56	93.87	116.70	95.26	9.34	10.22	8.49	7.83	9.14	8.92	8.78	8.29	8.16	7.94	8.01	9.08
08/01/39	08/31/39	Aug 2039	114.39	89.21	123.59	93.74	113.61	86.78	119.07	96.61	120.08	96.20	9.40	10.20	8.44	7.85	9.39	9.05	8.89	8.33	8.18	7.96	8.03	9.19
09/01/39	09/30/39	Sep 2039	102.49	87.64	105.84	91.13	102.01	85.26	106.95	94.68	108.22	94.07	9.36	10.16	8.48	7.90	9.24	8.90	8.89	8.18	8.23	8.01	8.08	9.19
10/01/39	10/31/39	Oct 2039	96.17	87.29	98.24	88.38	95.13	83.57	100.40	92.32	100.97	91.60	9.40	9.99	8.63	7.96	9.03	9.02	9.03	8.22	8.29	8.07	8.14	9.34
11/01/39	11/30/39	Nov 2039	97.78	91.38	96.81	88.43	96.90	89.10	101.41	94.46	100.78	92.95	9.61	9.95	8.75	8.17	9.79	9.65	9.52	8.48	8.50	8.28	8.35	9.88
12/01/39	12/31/39	Dec 2039	102.77	92.78	96.09	92.02	104.71	92.50	101.21	95.91	100.69	95.03	9.95	10.66	9.20	8.50	9.80	9.71	9.68	8.53	8.84	8.62	8.69	10.05
01/01/40	01/31/40	Jan 2040	96.16	89.63	102.46	93.75	93.97	87.66	101.57	95.16	102.19	95.29	10.15	10.87	9.30	8.58	9.55	9.56	9.50	8.44	8.92	8.70	8.78	9.88
02/01/40	02/29/40	Feb 2040	92.97	89.19	97.34	90.99	90.19	86.42	98.31	94.31	99.01	93.50	10.10	10.35	9.21	8.55	9.57	9.57	9.55	8.49	8.89	8.66	8.74	9.91
03/01/40	03/31/40	Mar 2040	90.44	87.36	93.56	88.27	87.44	84.25	95.59	91.94	96.33	91.28	9.37	9.91	8.56	7.96	9.28	9.28	9.12	8.29	8.29	8.07	8.14	9.47
04/01/40	04/30/40	Apr 2040	91.97	85.58	97.53	87.73	91.21	82.15	97.01	90.26	97.86	89.88	9.27	9.71	8.48	7.84	9.16	8.89	8.91	8.13	8.17	7.95	8.02	9.21
05/01/40	05/31/40	May 2040	88.54	84.48	96.72	87.64	86.73	81.43	93.54	89.37	98.08	89.40	9.33	9.78	8.49	7.87	9.17	8.89	8.85	8.17	8.19	7.98	8.05	9.15
06/01/40	06/30/40	Jun 2040	89.90	84.75	102.12	88.75	89.78	83.93	94.13	89.63	99.47	90.45	9.45	9.84	8.60	7.92	9.23	8.94	8.73	8.31	8.25	8.03	8.10	9.03
07/01/40	07/31/40	Jul 2040	111.63	90.36	123.96	96.72	111.84	89.46	116.84	96.39	120.21	97.61	9.52	10.63	8.									

08/01/42	08/31/42	Aug 2042	121.25	95.95	131.16	100.76	120.76	93.26	126.53	103.45	127.65	103.26	9.98	10.83	8.95	8.33	9.97	9.61	9.43	8.84	8.66	8.44	8.51	9.73
09/01/42	09/30/42	Sep 2042	110.46	94.48	115.12	97.91	110.34	91.86	115.25	101.04	117.51	100.84	9.93	10.78	9.00	8.38	9.80	9.44	9.44	8.68	8.71	8.49	8.57	9.74
10/01/42	10/31/42	Oct 2042	102.31	93.67	103.48	94.53	101.27	90.31	106.69	98.58	107.13	98.16	9.98	10.60	9.16	8.45	9.92	9.57	9.59	8.72	8.78	8.56	8.63	9.89
11/01/42	11/30/42	Nov 2042	103.94	96.87	103.04	94.54	102.59	94.77	108.01	100.45	107.11	99.45	10.19	10.55	9.29	8.67	10.38	10.24	10.10	9.00	9.00	8.78	8.85	10.47
12/01/42	12/31/42	Dec 2042	108.69	99.29	103.73	98.61	110.67	97.77	108.91	102.68	108.16	101.77	10.56	11.32	9.77	9.02	10.40	10.30	10.27	9.05	9.36	9.14	9.21	10.64

Quote Date		Data Type:	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC
11/8/2012		Commodity:	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
		POD:	COB N-S	COB N-S	PV	PV	MID-C	MID-C	NP15	NP15	SP15	SP15	HENRYHUB	SOCALBOR	SANJUAN	ROCKOPAL	MALINGAS	STANFLDS	SUMAS5	AECO	GADSBY	CURRCRK	LAKESIDE	Z_CHEBRN
			COB		Palo Verde		Mid-Columbia		NP 15		SP 15		Henry Hub Gas	SOCALBOR	SANJUAN	Opal Gas	Malin Gas	Stanfield Gas	SUMAS	AECO	GADSBY	Currant Creek	Lakeside	Z_CHEBRN*
Start	End	Peak Type:	Forward Prices		Forward Prices		Forward Prices		Forward Prices		Forward Prices		Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price
			HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat
01/01/13	01/31/13	Jan 2013	36.92	31.05	33.58	27.55	34.72	29.43	41.20	32.50	42.75	32.13	3.74	3.89	3.62	3.70	3.76	3.72	4.13	3.42	3.99	3.79	3.83	4.41
02/01/13	02/28/13	Feb 2013	36.21	29.33	33.25	26.48	33.08	28.07	40.80	31.25	41.92	31.50	3.75	3.90	3.63	3.70	3.76	3.73	3.96	3.42	3.99	3.80	3.84	4.23
03/01/13	03/31/13	Mar 2013	33.37	25.88	32.92	26.22	30.46	24.25	38.00	30.00	39.84	30.87	3.72	3.86	3.58	3.64	3.73	3.70	3.75	3.40	3.93	3.74	3.78	4.01
04/01/13	04/30/13	Apr 2013	33.00	18.62	33.37	22.80	27.14	17.29	36.34	25.73	40.34	26.98	3.71	3.85	3.55	3.58	3.66	3.62	3.60	3.33	3.86	3.66	3.70	3.83
05/01/13	05/31/13	May 2013	28.80	11.60	35.50	23.50	23.46	8.27	37.49	26.78	40.75	27.52	3.74	3.89	3.59	3.61	3.69	3.66	3.60	3.36	3.90	3.70	3.73	3.79
06/01/13	06/30/13	Jun 2013	28.20	8.16	37.63	24.21	18.40	2.95	40.93	26.25	41.16	27.25	3.78	3.93	3.63	3.65	3.73	3.70	3.61	3.38	3.94	3.74	3.77	3.83
07/01/13	07/31/13	Jul 2013	39.99	26.32	46.20	29.21	34.58	19.76	45.00	33.08	51.01	33.22	3.83	3.97	3.67	3.70	3.78	3.74	3.72	3.41	3.98	3.78	3.82	3.95
08/01/13	08/31/13	Aug 2013	45.15	32.07	44.44	29.80	40.66	28.86	46.35	34.76	52.02	35.28	3.85	3.99	3.69	3.72	3.80	3.76	3.75	3.42	4.01	3.80	3.84	3.98
09/01/13	09/30/13	Sep 2013	43.86	32.37	41.36	29.50	38.76	29.38	43.65	33.41	48.48	34.25	3.85	3.99	3.69	3.72	3.80	3.76	3.74	3.46	4.01	3.80	3.84	3.97
10/01/13	10/31/13	Oct 2013	37.26	33.12	36.98	29.00	35.04	29.80	43.31	32.64	45.39	32.40	3.88	4.03	3.73	3.75	3.83	3.80	3.77	3.49	4.04	3.84	3.88	4.00
11/01/13	11/30/13	Nov 2013	40.91	33.81	36.25	28.42	39.27	32.42	43.31	34.34	43.61	33.75	3.99	4.13	3.85	3.90	3.98	3.94	4.45	3.63	4.20	3.99	4.03	4.73
12/01/13	12/31/13	Dec 2013	43.34	36.57	35.53	29.58	41.58	36.03	44.63	35.02	44.50	35.10	4.19	4.33	4.04	4.12	4.17	4.14	4.62	3.81	4.42	4.22	4.25	4.92
01/01/14	01/31/14	Jan 2014	43.68	35.96	39.00	29.90	41.61	34.06	47.25	36.92	48.10	36.31	4.29	4.43	4.15	4.22	4.28	4.24	4.70	3.88	4.53	4.32	4.36	5.00
02/01/14	02/28/14	Feb 2014	42.84	34.25	38.25	29.04	39.64	33.08	45.90	35.86	47.18	35.25	4.28	4.42	4.13	4.20	4.26	4.23	4.70	3.88	4.51	4.30	4.34	5.00
03/01/14	03/31/14	Mar 2014	39.48	32.54	35.25	27.31	36.50	31.11	41.85	33.73	43.48	34.19	4.20	4.34	4.06	4.12	4.19	4.15	4.64	3.82	4.42	4.21	4.25	4.93
04/01/14	04/30/14	Apr 2014	38.70	24.25	36.10	28.82	33.63	20.07	40.32	31.91	42.92	33.63	4.03	4.18	3.89	3.91	3.99	3.96	3.97	3.66	4.20	4.00	4.03	4.22
05/01/14	05/31/14	May 2014	33.73	16.49	37.24	23.46	27.65	12.45	41.58	26.74	43.81	27.44	4.04	4.19	3.90	3.92	4.00	3.97	3.95	3.66	4.21	4.01	4.04	4.19
06/01/14	06/30/14	Jun 2014	34.08	17.46	40.66	24.23	24.23	11.43	44.10	27.60	46.02	27.44	4.07	4.22	3.92	3.94	4.03	3.99	3.96	3.66	4.24	4.03	4.10	4.20
07/01/14	07/31/14	Jul 2014	47.77	26.07	50.62	30.08	38.68	23.68	51.00	35.41	56.36	35.41	4.10	4.25	3.95	3.97	4.06	4.02	4.02	3.68	4.27	4.06	4.13	4.26
08/01/14	08/31/14	Aug 2014	51.22	36.30	49.66	33.28	45.48	30.75	52.53	38.33	56.91	37.60	4.12	4.27	3.97	3.99	4.07	4.04	4.06	3.69	4.29	4.08	4.15	4.31
09/01/14	09/30/14	Sep 2014	48.76	36.63	42.98	32.64	45.48	37.82	49.47	35.77	52.49	36.50	4.12	4.27	3.97	3.99	4.08	4.04	4.07	3.72	4.29	4.08	4.15	4.32
10/01/14	10/31/14	Oct 2014	42.55	36.96	39.91	30.75	39.33	34.55	47.03	34.91	45.36	34.91	4.16	4.31	4.01	4.03	4.12	4.08	4.08	3.75	4.33	4.12	4.19	4.33
11/01/14	11/30/14	Nov 2014	45.29	37.73	39.14	30.14	43.18	36.38	47.03	36.02	47.75	35.65	4.24	4.39	4.10	4.16	4.21	4.18	4.71	3.87	4.46	4.26	4.32	5.03
12/01/14	12/31/14	Dec 2014	49.41	40.81	37.20	31.37	45.74	39.32	48.45	39.32	50.14	39.69	4.43	4.58	4.29	4.37	4.40	4.36	4.89	4.04	4.68	4.47	4.54	5.21
01/01/15	01/31/15	Jan 2015	45.93	37.86	41.00	30.90	43.36	35.31	49.25	38.67	50.10	38.06	4.54	4.70	4.40	4.48	4.52	4.48	4.98	4.11	4.79	4.58	4.64	5.30
02/01/15	02/28/15	Feb 2015	45.09	36.15	40.25	30.04	41.39	34.33	47.90	37.61	49.18	37.00	4.51	4.67	4.37	4.44	4.49	4.45	4.93	4.08	4.76	4.54	4.61	5.25
03/01/15	03/31/15	Mar 2015	41.73	34.44	37.25	28.31	38.25	32.36	43.85	35.48	45.48	35.94	4.42	4.58	4.28	4.35	4.40	4.37	4.86	4.01	4.66	4.45	4.51	5.18
04/01/15	04/30/15	Apr 2015	40.95	26.15	37.60	28.82	34.88	22.32	41.82	32.41	44.42	34.13	4.19	4.36	4.05	4.06	4.15	4.11	4.13	3.82	4.36	4.16	4.22	4.38
05/01/15	05/31/15	May 2015	35.98	18.39	38.74	23.46	28.90	14.70	43.08	27.24	45.31	27.94	4.20	4.37	4.06	4.08	4.16	4.13	4.13	3.80	4.38	4.17	4.23	4.39
06/01/15	06/30/15	Jun 2015	36.33	19.36	42.16	24.23	25.48	13.68	45.60	28.10	47.52	27.94	4.23	4.39	4.09	4.10	4.18	4.15	4.12	3.80	4.40	4.19	4.26	4.38
07/01/15	07/31/15	Jul 2015	50.02	27.97	52.87	31.83	40.93	25.43	53.25	37.41	58.61	37.16	4.26	4.43	4.12	4.13	4.22	4.18	4.14	3.83	4.44	4.23	4.30	4.40
08/01/15	08/31/15	Aug 2015	53.47	38.20	51.91	35.03	47.73	32.50	54.78	40.33	59.16	39.35	4.28	4.45	4.14	4.15	4.24	4.20	4.16	3.84	4.46	4.25	4.31	4.42
09/01/15	09/30/15	Sep 2015	51.01	38.53	45.23	34.39	47.73	39.57	51.72	37.77	54.74	38.25	4.28	4.45	4.14	4.16	4.24	4.21	4.18	3.86	4.46	4.25	4.32	4.44
10/01/15	10/31/15	Oct 2015	44.80	38.86	42.66	32.75	41.83	36.55	49.53	37.41	47.86	36.66	4.32	4.49	4.18	4.19	4.28	4.24	4.22	3.90	4.50	4.29	4.36	4.48
11/01/15	11/30/15	Nov 2015	47.54	39.63	41.89	32.14	45.68	38.38	49.53	38.52	50.25	37.40	4.41	4.57	4.25	4.31	4.38	4.34	4.86	4.02	4.62	4.41	4.48	5.18
12/01/15	12/31/15	Dec 2015	51.66	42.71	39.95	33.37	48.24	41.32	50.95	41.82	52.64	41.44	4.60	4.76	4.44	4.52	4.57	4.53	4.99	4.19	4.84	4.62	4.69	5.32

Quote Date	Data Type:	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC
10/31/2012	Commodity:	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
	POD:	COB N-S	COB N-S	PV	PV	MID-C	MID-C	NP15	NP15	SP15	SP15	HENRYHUB	SOCALBOR	SANJUAN	ROCKOPAL	MALINGAS	STANFLD5	SUMASS	AECO	GADSBY	CURRCK	LAKESIDE	Z_CHEBRN		
		COB		Palo Verde		Mid-Columbia		NP 15		SP 15		Henry Hub Gas	SOCALBOR	SANJUAN	Opal Gas	Malin Gas	Stanfield Gas	SUMAS	AECO	GADSBY	Current Creek	Lakeside	Z_CHEBRN*		
Start	End	Forward Prices		Forward Prices		Forward Prices		Forward Prices		Forward Prices		Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price
		HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat
01/01/13	01/31/13	Jan 2013	38.22	31.30	34.59	27.81	36.04	29.97	41.97	33.28	44.03	32.90	3.82	3.96	3.71	3.78	3.84	3.80	4.26	3.49	4.07	3.88	3.91	4.54	
02/01/13	02/28/13	Feb 2013	37.49	30.13	34.25	26.73	34.34	28.58	41.57	32.00	43.18	32.25	3.83	3.97	3.71	3.78	3.84	3.81	4.08	3.48	4.07	3.88	3.92	4.36	
03/01/13	03/31/13	Mar 2013	34.55	26.33	33.91	26.46	31.62	24.70	38.71	30.72	41.04	31.61	3.79	3.93	3.65	3.72	3.80	3.77	3.87	3.47	4.01	3.82	3.86	4.13	
04/01/13	04/30/13	Apr 2013	32.77	17.85	34.08	22.80	28.32	17.39	37.05	26.71	41.58	27.97	3.77	3.92	3.62	3.64	3.72	3.69	3.67	3.40	3.93	3.73	3.76	3.90	
05/01/13	05/31/13	May 2013	28.42	11.60	36.25	23.50	24.48	8.27	38.22	27.80	42.00	28.53	3.80	3.95	3.65	3.67	3.75	3.72	3.64	3.42	3.96	3.76	3.79	3.86	
06/01/13	06/30/13	Jun 2013	25.81	8.80	38.43	24.21	19.20	2.85	41.73	27.25	42.42	28.25	3.84	3.99	3.69	3.71	3.79	3.76	3.67	3.44	4.00	3.80	3.83	3.90	
07/01/13	07/31/13	Jul 2013	42.48	27.23	47.25	29.70	35.72	21.33	46.50	33.32	52.52	33.71	3.88	4.03	3.73	3.75	3.83	3.80	3.78	3.47	4.04	3.84	3.87	4.01	
08/01/13	08/31/13	Aug 2013	46.46	31.76	45.45	30.30	42.00	29.97	47.90	35.02	53.56	35.79	3.90	4.05	3.75	3.77	3.85	3.82	3.81	3.48	4.06	3.86	3.90	4.05	
09/01/13	09/30/13	Sep 2013	43.81	31.76	42.30	30.00	40.04	29.70	45.11	33.66	49.92	34.75	3.90	4.05	3.76	3.77	3.86	3.82	3.80	3.52	4.07	3.86	3.90	4.04	
10/01/13	10/31/13	Oct 2013	37.95	34.32	38.63	29.00	35.72	30.94	45.05	32.78	46.92	33.01	3.94	4.09	3.79	3.81	3.89	3.86	3.83	3.54	4.10	3.90	3.94	4.07	
11/01/13	11/30/13	Nov 2013	41.66	35.04	37.88	28.42	40.04	33.66	45.05	33.81	45.08	33.71	4.04	4.19	3.91	3.97	4.04	4.00	4.49	3.69	4.26	4.06	4.09	4.78	
12/01/13	12/31/13	Dec 2013	44.14	37.90	36.00	29.58	42.39	37.40	46.41	36.92	46.00	37.53	4.24	4.39	4.10	4.19	4.24	4.20	4.67	3.88	4.49	4.28	4.32	4.97	
01/01/14	01/31/14	Jan 2014	44.46	36.75	39.78	30.68	42.67	34.84	48.30	37.96	49.14	37.08	4.34	4.49	4.21	4.29	4.34	4.30	4.74	3.95	4.59	4.38	4.42	5.05	
02/01/14	02/28/14	Feb 2014	43.61	35.00	39.02	29.80	40.65	33.84	46.92	36.87	48.20	36.00	4.33	4.47	4.19	4.26	4.32	4.29	4.74	3.94	4.57	4.36	4.40	5.04	
03/01/14	03/31/14	Mar 2014	40.19	33.25	35.96	28.03	37.43	31.83	42.78	34.68	44.42	34.92	4.25	4.39	4.11	4.18	4.24	4.21	4.67	3.88	4.48	4.28	4.31	4.97	
04/01/14	04/30/14	Apr 2014	38.97	25.00	37.05	29.10	34.22	20.89	41.28	32.75	44.38	34.20	4.07	4.23	3.94	3.94	4.04	4.01	4.01	3.73	4.24	4.04	4.07	4.25	
05/01/14	05/31/14	May 2014	33.96	17.00	38.22	23.69	28.13	12.96	42.57	27.44	45.29	27.90	4.08	4.24	3.95	3.95	4.05	4.02	3.97	3.71	4.25	4.04	4.08	4.22	
06/01/14	06/30/14	Jun 2014	34.32	18.00	41.73	24.46	24.65	11.90	45.15	28.32	47.58	27.90	4.11	4.27	3.97	3.98	4.08	4.04	3.98	3.71	4.28	4.07	4.14	4.23	
07/01/14	07/31/14	Jul 2014	48.26	26.27	52.21	30.55	40.27	23.87	53.00	35.89	58.40	35.89	4.14	4.30	4.00	4.01	4.11	4.07	4.05	3.73	4.31	4.10	4.17	4.30	
08/01/14	08/31/14	Aug 2014	51.74	36.58	51.22	33.80	47.35	31.00	54.59	38.85	58.97	38.11	4.16	4.32	4.02	4.03	4.13	4.09	4.09	3.75	4.33	4.12	4.19	4.34	
09/01/14	09/30/14	Sep 2014	49.25	36.91	44.33	33.15	47.35	38.13	51.41	36.26	54.39	37.00	4.16	4.32	4.02	4.03	4.13	4.10	4.10	3.77	4.33	4.12	4.19	4.35	
10/01/14	10/31/14	Oct 2014	42.78	37.20	40.69	31.50	39.79	34.78	47.77	35.63	46.08	35.63	4.20	4.36	4.06	4.07	4.17	4.13	4.11	3.80	4.37	4.16	4.23	4.36	
11/01/14	11/30/14	Nov 2014	45.54	37.98	39.90	30.87	43.68	36.63	47.77	36.75	48.50	36.38	4.28	4.44	4.15	4.21	4.26	4.22	4.75	3.92	4.51	4.31	4.37	5.06	
12/01/14	12/31/14	Dec 2014	49.68	41.08	37.92	32.13	46.28	39.59	49.22	40.13	50.93	40.50	4.47	4.63	4.34	4.42	4.45	4.41	4.93	4.08	4.73	4.52	4.59	5.25	
01/01/15	01/31/15	Jan 2015	46.71	38.65	41.53	31.68	44.17	36.09	50.05	39.71	50.64	38.83	4.58	4.74	4.43	4.52	4.57	4.53	5.01	4.17	4.84	4.62	4.69	5.34	
02/01/15	02/28/15	Feb 2015	45.86	36.90	40.77	30.80	42.15	35.09	48.67	38.62	49.70	37.75	4.55	4.71	4.40	4.49	4.54	4.50	4.96	4.14	4.80	4.59	4.66	5.29	
03/01/15	03/31/15	Mar 2015	42.44	35.15	37.71	29.03	38.93	33.08	44.53	36.43	45.92	36.67	4.46	4.62	4.31	4.39	4.45	4.42	4.90	4.07	4.70	4.49	4.56	5.22	
04/01/15	04/30/15	Apr 2015	41.22	26.90	38.30	29.60	35.47	22.89	42.53	33.25	45.63	34.70	4.24	4.40	4.09	4.11	4.21	4.17	4.17	3.88	4.41	4.20	4.27	4.43	
05/01/15	05/31/15	May 2015	36.21	18.90	39.47	24.19	29.38	14.96	43.82	27.94	46.54	28.40	4.25	4.41	4.11	4.12	4.22	4.19	4.18	3.87	4.43	4.22	4.28	4.44	
06/01/15	06/30/15	Jun 2015	36.57	19.90	42.98	24.96	25.90	13.90	46.40	28.82	48.83	28.40	4.27	4.44	4.13	4.14	4.24	4.21	4.17	3.87	4.45	4.24	4.31	4.43	
07/01/15	07/31/15	Jul 2015	50.51	28.17	54.21	32.30	42.27	25.62	55.00	37.89	60.40	37.64	4.31	4.47	4.17	4.18	4.28	4.25	4.19	3.89	4.49	4.28	4.35	4.45	
08/01/15	08/31/15	Aug 2015	53.99	38.48	53.22	35.55	49.35	32.75	56.59	40.85	60.97	39.86	4.33	4.49	4.19	4.20	4.30	4.26	4.21	3.91	4.51	4.30	4.36	4.47	
09/01/15	09/30/15	Sep 2015	51.50	38.81	46.33	34.90	49.35	39.88	53.41	38.26	56.39	38.75	4.33	4.50	4.19	4.20	4.30	4.27	4.23	3.93	4.51	4.30	4.37	4.49	
10/01/15	10/31/15	Oct 2015	45.03	39.10	43.19	33.50	42.04	36.78	50.02	38.13	48.33	37.38	4.37	4.53	4.23	4.24	4.34	4.30	4.27	3.96	4.55	4.34	4.41	4.54	
11/01/15	11/30/15	Nov 2015	47.79	39.88	42.40	32.87	45.93	38.63	50.02	39.25	50.75	38.13	4.46	4.60	4.31	4.37	4.44	4.40	4.91	4.08	4.68	4.47	4.54	5.23	
12/01/15	12/31/15	Dec 2015	51.93	42.98	40.42	34.13	48.53	41.59	51.47	42.63	53.18	42.25	4.65	4.79	4.50	4.58	4.63	4.59	5.04	4.25	4.89	4.68	4.75	5.37	

01/01/18	01/31/18	Jan 2018	51.91	43.64	47.51	38.13	50.34	41.83	54.73	45.40	56.10	44.28	5.11	5.26	4.93	4.99	5.07	5.03	5.32	4.68	5.32	5.10	5.17	5.67
02/01/18	02/28/18	Feb 2018	51.08	41.90	46.76	37.25	48.39	40.83	53.39	44.31	55.18	43.20	5.08	5.23	4.90	4.96	5.04	5.00	5.28	4.65	5.28	5.06	5.14	5.63
03/01/18	03/31/18	Mar 2018	47.76	40.16	43.74	35.48	45.27	38.84	49.39	42.14	51.48	42.12	5.00	5.15	4.82	4.87	4.96	4.92	5.22	4.59	5.19	4.97	5.05	5.56
04/01/18	04/30/18	Apr 2018	47.99	33.71	44.56	30.30	42.52	29.36	48.30	39.25	50.90	40.65	4.79	4.97	4.61	4.60	4.73	4.69	4.68	4.43	4.92	4.70	4.77	4.96
05/01/18	05/31/18	May 2018	42.95	25.21	45.73	29.89	36.37	20.78	49.58	33.85	51.80	34.35	4.81	4.99	4.63	4.62	4.75	4.71	4.62	4.42	4.94	4.72	4.79	4.90
06/01/18	06/30/18	Jun 2018	43.31	26.28	49.21	30.66	32.86	19.62	52.13	34.75	54.05	34.35	5.42	5.02	4.66	4.65	4.78	4.74	4.62	4.42	4.97	4.75	4.82	4.90
07/01/18	07/31/18	Jul 2018	55.31	33.42	60.97	38.25	48.18	31.37	60.00	43.34	65.89	43.09	4.89	5.07	4.70	4.70	4.82	4.78	4.73	4.46	5.01	4.80	4.87	5.01
08/01/18	08/31/18	Aug 2018	58.67	43.73	59.98	41.50	54.98	38.50	61.57	46.30	66.45	45.31	4.91	5.09	4.72	4.72	4.85	4.81	4.80	4.47	5.04	4.82	4.89	5.09
09/01/18	09/30/18	Sep 2018	56.27	44.06	53.05	40.85	54.98	45.63	58.43	43.71	61.91	44.20	4.92	5.10	4.73	4.72	4.85	4.81	4.81	4.50	5.04	4.83	4.90	5.10
10/01/18	10/31/18	Oct 2018	50.37	43.63	50.72	40.45	48.39	41.83	55.77	44.53	54.56	42.59	4.96	5.14	4.77	4.76	4.89	4.85	4.79	4.54	5.08	4.87	4.94	5.08
11/01/18	11/30/18	Nov 2018	53.84	45.49	50.77	41.45	54.45	44.04	59.57	51.77	60.57	51.17	5.48	5.59	5.34	5.18	5.32	5.27	5.25	4.88	5.51	5.29	5.36	5.60
12/01/18	12/31/18	Dec 2018	56.46	47.48	51.13	42.78	55.44	45.97	60.26	54.04	61.07	53.80	5.62	5.75	5.50	5.33	5.47	5.35	5.38	4.99	5.66	5.44	5.52	5.73
01/01/19	01/31/19	Jan 2019	51.37	45.78	50.18	42.68	50.14	44.28	57.01	50.85	58.19	50.86	5.74	5.80	5.55	5.43	5.55	5.52	5.75	5.11	5.77	5.54	5.62	6.12
02/01/19	02/28/19	Feb 2019	50.44	44.76	48.77	42.00	48.75	43.53	55.73	50.31	57.01	50.16	5.75	5.80	5.54	5.43	5.55	5.52	5.75	5.12	5.76	5.54	5.62	6.11
03/01/19	03/31/19	Mar 2019	47.84	43.48	46.33	40.90	45.72	41.63	53.00	48.92	54.92	49.23	5.64	5.69	5.44	5.32	5.44	5.35	5.50	5.05	5.65	5.43	5.51	5.86
04/01/19	04/30/19	Apr 2019	49.02	39.85	49.69	40.68	47.47	36.56	53.35	47.18	55.24	48.58	5.54	5.59	5.32	5.12	5.25	5.15	5.09	4.89	5.44	5.22	5.30	5.39
05/01/19	05/31/19	May 2019	44.35	32.27	50.11	38.42	38.77	29.25	53.24	44.21	56.64	45.75	5.58	5.63	5.34	5.12	5.28	5.18	5.05	4.90	5.44	5.23	5.30	5.35
06/01/19	06/30/19	Jun 2019	45.44	35.65	54.41	39.13	39.22	30.52	54.35	45.34	57.31	45.76	5.65	5.66	5.37	5.15	5.31	5.21	5.06	4.93	5.47	5.25	5.33	5.36
07/01/19	07/31/19	Jul 2019	58.56	40.94	67.29	44.66	55.96	39.02	64.89	50.47	69.08	51.55	5.74	5.78	5.47	5.20	5.39	5.27	5.15	4.97	5.53	5.31	5.38	5.46
08/01/19	08/31/19	Aug 2019	62.17	46.42	67.87	46.43	60.93	43.49	67.62	52.14	71.36	52.83	5.77	5.81	5.50	5.22	5.42	5.29	5.20	4.98	5.55	5.33	5.40	5.50
09/01/19	09/30/19	Sep 2019	59.54	45.95	58.96	44.61	59.57	46.26	63.81	50.26	66.95	51.36	5.67	5.74	5.44	5.21	5.40	5.28	5.17	4.95	5.54	5.32	5.39	5.47
10/01/19	10/31/19	Oct 2019	54.05	45.90	53.75	43.88	52.54	44.17	60.06	50.69	59.86	50.15	5.67	5.77	5.47	5.26	5.44	5.31	5.17	4.98	5.59	5.37	5.44	5.48
11/01/19	11/30/19	Nov 2019	56.87	48.33	53.88	45.00	58.98	46.20	65.63	59.75	66.38	60.90	6.15	6.22	6.04	5.72	5.88	5.83	5.45	5.33	6.04	5.83	5.90	5.90
12/01/19	12/31/19	Dec 2019	58.08	49.28	56.64	46.36	58.43	47.16	65.55	60.83	64.96	62.07	6.24	6.35	6.16	5.79	5.98	5.79	5.52	5.39	6.13	5.90	5.98	5.87
01/01/20	01/31/20	Jan 2020	50.83	47.93	52.85	47.22	49.93	46.73	59.30	56.29	60.27	57.44	6.38	6.34	6.16	5.87	6.02	6.01	6.18	5.55	6.21	5.99	6.06	6.55
02/01/20	02/29/20	Feb 2020	49.79	47.61	50.78	46.75	49.11	46.23	58.07	56.31	58.85	57.12	6.42	6.38	6.18	5.90	6.06	6.06	6.22	5.58	6.24	6.02	6.09	6.58
03/01/20	03/31/20	Mar 2020	47.91	46.79	48.93	46.33	46.16	44.42	56.62	55.70	58.37	56.33	6.27	6.22	6.06	5.77	5.92	5.78	5.78	5.52	6.11	5.88	5.96	6.13
04/01/20	04/30/20	Apr 2020	50.04	45.99	54.81	46.07	52.43	43.77	58.40	55.10	59.58	56.51	6.29	6.21	6.04	5.63	5.76	5.61	5.51	5.35	5.96	5.74	5.81	5.83
05/01/20	05/31/20	May 2020	45.75	39.32	54.49	46.94	41.17	37.72	56.90	54.57	61.47	57.14	6.34	6.26	6.05	5.62	5.81	5.64	5.49	5.38	5.94	5.72	5.80	5.79
06/01/20	06/30/20	Jun 2020	47.56	45.02	59.61	47.60	45.58	41.42	56.57	55.92	60.57	57.17	6.45	6.30	6.08	5.64	5.85	5.69	5.50	5.43	5.97	5.75	5.82	5.80
07/01/20	07/31/20	Jul 2020	61.80	48.46	73.60	51.07	63.74	46.66	69.78	57.59	72.27	60.01	6.59	6.50	6.25	5.70	5.95	5.76	5.58	5.48	6.03	5.81	5.88	5.89
08/01/20	08/31/20	Aug 2020	65.67	49.11	75.76	51.36	66.89	48.47	73.67	57.98	76.27	60.34	6.63	6.53	6.28	5.73	5.99	5.78	5.60	5.48	6.05	5.83	5.91	5.90
09/01/20	09/30/20	Sep 2020	62.80	47.84	64.86	48.36	64.17	46.89	69.19	56.81	71.99	58.51	6.42	6.37	6.15	5.70	5.95	5.74	5.52	5.41	6.03	5.81	5.88	5.83
10/01/20	10/31/20	Oct 2020	57.73	48.16	56.77	47.31	56.68	46.51	64.36	56.85	65.95	57.72	6.38	6.40	6.17	5.75	5.98	5.77	5.55	5.42	6.08	5.86	5.93	5.86
11/01/20	11/30/20	Nov 2020	56.50	49.36	56.40	48.07	57.75	46.14	64.46	58.21	64.71	58.52	6.45	6.47	6.28	5.89	6.09	5.92	5.96	5.55	6.22	6.00	6.07	6.31
12/01/20	12/31/20	Dec 2020	57.70	50.01	56.53	48.96	60.16	47.78	63.37	58.82	62.83	59.12	6.52	6.58	6.38	5.99	6.17	6.14	6.20	5.63	6.32	6.10	6.18	6.56
01/01/21	01/31/21	Jan 2021	53.93	50.64	55.83	49.75	53.18	49.19	62.66	59.49	63.41	60.18	6.69	6.63	6.44	6.09	6.30	6.30	6.36	5.77	6.43	6.21	6.28	6.72
02/01/21	02/28/21	Feb 2021	52.86	50.78	55.09	49.03	51.61	48.96	61.22	58.97	61.68	59.63	6.73	6.67	6.46	6.12	6.34	6.34	6.39	5.81	6.46	6.24	6.31	6.76
03/01/21	03/31/21	Mar 2021	51.77	49.77	53.07	48.64	49.14	46.50	60.36	58.50	61.99	59.11	6.58	6.52	6.35	6.02	6.18	6.05	6.23	5.78	6.36	6.14	6.21	6.58
04/01/21	04/30/21	Apr 2021	54.00	48.33	58.41	48.18	55.79	46.98	61.92	57.21	63.45	58.84	6.58	6.46	6.29	5.86	6.00	5.86	5.74	5.60	6.18	5.97	6.04	6.04
05/01/21	05/31/21	May 2021	51.22	47.17	57.12	48.89	49.52	44.03	59.67	58.58	64.59	59.59	6.64	6.51	6.30	5.85	6.05	5.89	5.65	5.64	6.17	5.95	6.03	5.95
06/01/21	06/30/21	Jun 2021	52.19	50.33	63.09	49.68	52.05	45.77	59.99	58.07	63.32	59.44	6.77	6.58	6.35	5.88	6.09	5.93	5.68	5.69	6.20	5.99	6.06	5.98
07/01/21	07/31/21	Jul 2021	65.27	50.94	77.07	53.93	62.58	49.66	73.64	60.38	76.03	62.98	6.91	6.80	6.50	5.96	6.19	6.01	5.83	5.74	6.29	6.07	6.14	6.14
08/01/21	08/31/21	Aug 2021	69.72	52.26	80.48	53.53	69.80	53.13	78.19	61.02	80.70	62.89	6.95	6.83	6.54	5.97	6.22	6.03	5.80	5.62	6.30	6.08	6.16	6.10
09/01/21	09/30/21	Sep 2021	64.54	49.94	65.67	49.41	66.37	51.05	71.96	58.49	73.31	59.97	6.57	6.52	6.30	5.80	6.13	5.91	5.55	5.53	6.13	5.91	5.98	5.86
10/01/21	10/31/21	Oct 2021	60.48	48.98	60.15	48.58	62.08	48.38	67.70	57.97	69.40	59.33	6.53	6.55	6.32	5.84	6.16	5.94	5.69	5.54	6.17	5.95	6.02	6.00
11/01/21	11/30/21	Nov 2021	59.73	50.97	59.44	49.21	60.59	50.17	67.31	59.86	67.12	60.27	6.61	6.64	6.42	5.99	6.26	6.23	6.29	5.68	6.31	6.09	6.17	6.64
12/01/21	12/31/21	Dec 2021	60.92	52.34	58.38	50.41	63.98	51.24	65.31	60.82	64.84	61.15	6.68	6.79	6.54	6.06	6.34	6.32	6.38	5.72	6.39	6.17	6.25	6.73
01/01/22	01/31/22	Jan 2022	58.98	56.03	63.78	58.24	59.34	54.10	63.49	60.54	64.09	60.69	6.85	6.76	6.55	6.16	6.42	6.42	6.54	5.87	6.50	6.27	6.35	6.90

02/01/24	02/29/24	Feb 2024	62.51	59.38	65.33	61.12	61.36	58.15	66.70	63.83	67.49	63.89	7.48	7.28	7.03	6.37	6.85	6.84	6.90	6.22	6.71	6.48	6.56	7.27
03/01/24	03/31/24	Mar 2024	59.15	57.17	62.61	59.04	57.27	54.90	64.85	62.24	65.45	62.10	7.06	6.89	6.66	6.02	6.46	6.29	6.48	5.96	6.35	6.13	6.20	6.84
04/01/24	04/30/24	Apr 2024	61.56	57.87	68.85	59.73	60.69	53.75	66.03	62.10	67.11	62.54	7.04	6.88	6.66	5.92	6.38	6.17	6.00	5.82	6.25	6.03	6.10	6.30
05/01/24	05/31/24	May 2024	58.27	55.69	67.43	59.30	57.20	52.17	63.35	61.63	66.93	62.32	7.10	6.93	6.68	5.87	6.32	6.13	5.88	5.84	6.20	5.98	6.05	6.18
06/01/24	06/30/24	Jun 2024	59.15	56.87	71.10	60.67	58.16	53.84	63.65	61.95	67.20	62.57	7.22	7.02	6.76	5.90	6.40	6.21	5.92	5.93	6.22	6.00	6.08	6.22
07/01/24	07/31/24	Jul 2024	73.74	58.64	85.79	63.96	73.62	57.34	78.71	64.66	80.93	66.39	7.38	7.21	6.93	6.01	6.50	6.28	6.06	5.96	6.33	6.11	6.19	6.36
08/01/24	08/31/24	Aug 2024	77.43	59.70	88.48	63.99	76.32	57.50	83.00	65.26	84.96	66.31	7.43	7.26	6.98	6.04	6.54	6.32	6.03	6.00	6.37	6.15	6.22	6.33
09/01/24	09/30/24	Sep 2024	73.16	59.05	76.36	61.74	71.87	55.75	77.62	64.62	79.44	64.82	7.28	7.16	6.88	6.00	6.48	6.26	5.93	5.94	6.33	6.11	6.18	6.24
10/01/24	10/31/24	Oct 2024	68.13	58.51	69.75	60.74	67.63	54.96	72.04	63.92	72.98	63.79	7.23	7.19	6.89	6.07	6.56	6.32	6.10	5.94	6.40	6.18	6.26	6.41
11/01/24	11/30/24	Nov 2024	67.28	59.35	68.67	60.82	68.44	60.36	71.85	64.70	71.76	64.09	7.29	7.21	6.96	6.19	6.76	6.70	6.76	6.08	6.51	6.29	6.37	7.10
12/01/24	12/31/24	Dec 2024	70.15	60.48	67.44	62.00	73.51	61.05	70.90	65.53	70.61	64.88	7.45	7.35	7.13	6.32	6.83	6.77	6.83	6.11	6.65	6.43	6.50	7.19
01/01/25	01/31/25	Jan 2025	64.64	60.97	68.48	62.93	63.34	57.70	69.19	66.22	69.80	65.79	7.64	7.44	7.20	6.44	6.93	6.91	7.00	6.27	6.78	6.55	6.63	7.37
02/01/25	02/28/25	Feb 2025	62.96	61.18	66.13	62.63	62.08	58.01	68.01	65.95	68.71	65.55	7.68	7.47	7.21	6.47	6.97	6.95	7.04	6.30	6.81	6.59	6.66	7.41
03/01/25	03/31/25	Mar 2025	61.47	59.65	65.05	61.10	59.51	57.08	66.48	64.84	67.01	64.45	7.40	7.18	6.94	6.23	6.75	6.58	6.77	6.21	6.56	6.34	6.42	7.13
04/01/25	04/30/25	Apr 2025	63.58	59.27	71.12	61.69	63.07	55.63	68.50	64.45	67.42	64.21	7.40	7.17	6.94	5.99	6.43	6.42	6.24	6.05	6.32	6.10	6.17	6.54
05/01/25	05/31/25	May 2025	61.13	58.59	69.35	61.44	59.64	55.55	66.08	63.45	68.96	63.92	7.46	7.22	6.99	5.91	6.55	6.36	6.11	6.06	6.24	6.02	6.09	6.41
06/01/25	06/30/25	Jun 2025	61.91	59.14	74.03	62.75	61.32	55.62	66.43	64.58	69.96	65.03	7.56	7.33	7.06	5.94	6.62	6.42	6.12	6.13	6.27	6.05	6.12	6.42
07/01/25	07/31/25	Jul 2025	76.20	61.09	88.09	66.26	76.12	59.53	81.42	66.94	83.56	68.22	7.75	7.54	7.26	6.07	6.74	6.52	6.36	6.21	6.40	6.18	6.25	6.66
08/01/25	08/31/25	Aug 2025	80.11	62.22	91.30	66.60	78.83	59.30	85.80	67.81	87.79	68.54	7.80	7.58	7.30	6.10	6.77	6.55	6.28	6.23	6.43	6.21	6.28	6.59
09/01/25	09/30/25	Sep 2025	75.37	61.11	78.60	63.70	74.15	57.71	79.62	66.57	81.60	66.76	7.59	7.42	7.15	6.10	6.71	6.47	6.13	6.11	6.43	6.21	6.28	6.44
10/01/25	10/31/25	Oct 2025	69.29	60.50	71.33	62.55	68.86	57.09	73.46	65.73	74.45	65.56	7.51	7.42	7.12	6.18	6.76	6.52	6.30	6.11	6.51	6.29	6.36	6.64
11/01/25	11/30/25	Nov 2025	69.46	61.74	70.89	63.13	70.51	62.73	74.13	67.12	73.93	66.48	7.57	7.45	7.05	6.60	7.03	6.97	7.04	6.34	6.92	6.70	6.78	7.38
12/01/25	12/31/25	Dec 2025	73.77	62.69	69.23	63.83	78.25	63.13	72.93	67.89	72.50	67.09	7.71	7.61	7.21	6.72	7.10	7.04	7.11	6.38	7.06	6.83	6.91	7.47
01/01/26	01/31/26	Jan 2026	66.66	63.34	70.51	65.08	66.14	60.45	71.49	68.30	72.06	67.89	7.90	7.65	7.34	6.87	7.20	7.19	7.28	6.54	7.21	6.99	7.06	7.65
02/01/26	02/28/26	Feb 2026	65.35	63.63	68.78	64.76	64.48	59.93	70.41	68.35	71.08	67.84	7.95	7.70	7.38	6.91	7.25	7.23	7.33	6.57	7.25	7.03	7.10	7.69
03/01/26	03/31/26	Mar 2026	63.14	61.17	67.13	62.49	61.81	59.37	67.80	65.97	68.47	65.46	7.97	7.70	7.30	6.98	6.58	6.89	6.95	6.37	6.91	6.69	6.76	7.31
04/01/26	04/30/26	Apr 2026	65.17	60.56	72.27	62.65	63.72	57.03	69.83	65.71	70.62	65.32	7.56	7.28	6.93	6.44	6.78	6.58	6.39	6.19	6.77	6.55	6.62	6.89
05/01/26	05/31/26	May 2026	62.10	58.94	70.74	62.77	60.57	55.55	67.65	64.75	70.63	65.50	7.61	7.34	6.97	6.45	6.79	6.57	6.29	6.23	6.78	6.56	6.63	6.59
06/01/26	06/30/26	Jun 2026	62.83	60.77	75.14	63.79	61.96	58.16	67.62	64.59	70.68	65.32	7.77	7.38	7.01	6.49	6.85	6.64	6.16	6.31	6.82	6.60	6.67	6.45
07/01/26	07/31/26	Jul 2026	77.84	62.66	89.85	67.04	77.85	60.27	83.11	68.46	84.89	69.12	7.92	7.50	7.12	6.59	6.91	6.68	6.52	6.35	6.92	6.70	6.77	6.83
08/01/26	08/31/26	Aug 2026	81.37	63.65	92.19	67.11	80.61	60.38	86.74	69.16	88.29	69.31	7.97	7.53	7.16	6.62	6.95	6.72	6.44	6.38	6.95	6.73	6.81	6.75
09/01/26	09/30/26	Sep 2026	77.09	62.69	80.27	65.19	75.74	59.37	81.42	68.09	83.31	68.08	7.74	7.55	7.13	6.60	6.98	6.73	6.37	6.33	6.93	6.71	6.78	6.68
10/01/26	10/31/26	Oct 2026	71.82	62.36	73.69	64.22	71.19	59.01	76.07	67.41	77.12	66.93	7.69	7.58	7.11	6.63	7.01	6.76	6.54	6.33	6.96	6.74	6.81	6.85
11/01/26	11/30/26	Nov 2026	70.91	63.35	72.50	64.76	72.99	64.60	75.56	68.32	75.62	67.50	7.74	7.69	7.22	6.67	7.20	7.15	7.22	6.49	7.10	6.88	6.95	7.56
12/01/26	12/31/26	Dec 2026	75.50	64.59	70.68	65.23	78.08	65.08	74.36	69.38	74.06	68.49	7.88	7.78	7.34	6.87	7.26	7.22	7.32	6.53	7.21	6.99	7.06	7.68
01/01/27	01/31/27	Jan 2027	67.89	65.06	72.08	66.81	67.23	62.24	72.65	69.51	73.26	68.88	8.08	7.79	7.46	6.99	7.38	7.37	7.50	6.69	7.32	7.10	7.18	7.87
02/01/27	02/28/27	Feb 2027	67.53	64.91	70.23	66.08	66.39	62.34	72.02	69.34	72.62	68.80	8.11	7.83	7.49	7.02	7.42	7.42	7.55	6.73	7.35	7.13	7.21	7.91
03/01/27	03/31/27	Mar 2027	64.10	62.13	68.54	63.31	62.96	60.51	68.83	66.83	69.47	66.23	7.62	7.36	7.03	6.59	6.97	6.96	7.02	6.42	6.93	6.70	6.78	7.38
04/01/27	04/30/27	Apr 2027	66.93	61.36	73.82	64.03	64.63	58.17	71.52	66.65	72.30	66.41	7.60	7.32	6.97	6.44	6.84	6.64	6.44	6.24	6.77	6.55	6.62	6.74
05/01/27	05/31/27	May 2027	63.81	60.03	71.73	63.57	62.57	58.23	68.64	65.77	70.90	65.95	7.66	7.38	7.01	6.48	6.86	6.63	6.35	6.28	6.81	6.59	6.66	6.65
06/01/27	06/30/27	Jun 2027	64.36	61.61	76.09	64.44	63.81	58.35	69.32	66.35	71.69	66.51	7.82	7.42	7.05	6.52	6.92	6.69	6.18	6.34	6.84	6.63	6.70	6.48
07/01/27	07/31/27	Jul 2027	78.60	63.71	90.23	67.91	78.45	61.42	83.98	69.45	85.67	69.98	7.99	7.57	7.14	6.60	6.97	6.73	6.56	6.38	6.93	6.71	6.78	6.87
08/01/27	08/31/27	Aug 2027	82.96	64.26	93.63	67.63	82.13	61.30	88.17	69.76	89.66	69.90	8.03	7.58	7.18	6.64	7.01	6.77	6.50	6.41	6.96	6.74	6.82	6.81
09/01/27	09/30/27	Sep 2027	77.09	63.45	80.12	65.80	75.85	60.40	81.63	68.75	82.89	68.68	7.77	7.61	7.15	6.62	7.04	6.79	6.43	6.38	6.94	6.72	6.80	6.74
10/01/27	10/31/27	Oct 2027	73.20	63.26	75.23	64.97	72.31	59.59	77.23	68.52	78.51	68.04	7.74	7.64	7.15	6.65	7.08	6.83	6.60	6.38	6.98	6.76	6.83	6.91
11/01/27	11/30/27	Nov 2027	71.84	64.28	73.38	65.51	73.20	65.42	76.70	69.04	76.74	68.36	7.82	7.75	7.27	6.80	7.26	7.23	7.29	6.58	7.12	6.90	6.98	7.64
12/01/27	12/31/27	Dec 2027	75.97	65.92	71.52	66.27	78.48	66.38	75.05	70.17	74.82	69.34	7.97	7.86	7.41	6.92	7.35	7.32	7.40	6.62	7.25	7.03	7.10	7.76
01/01/28	01/31/28	Jan 2028	68.92	66.13	73.96	67.57	69.13	64.06	73.59	70.41	74.17	69.97	8.17	7.86	7.52	7.04	7.46	7.45	7.58	6.78	7.38	7.15	7.23	7.95
02/01/28	02/29/28	Feb 2028	67.57	66.36	71.28	67.01	67.47	63.65	72.79	70.29	73.34	69.53	8.20	7.89	7.54	7.06	7.50	7.49	7.63	6.82	7.39	7.17	7.24	7.99

03/01/30	03/31/30	Mar 2030	69.05	67.21	72.10	68.21	68.24	65.67	73.90	71.53	74.37	70.63	8.08	7.87	7.40	6.84	7.47	7.46	7.53	6.88	7.18	7.03	7.89
04/01/30	04/30/30	Apr 2030	71.41	66.55	76.81	68.39	70.58	62.71	75.80	71.39	76.63	70.73	8.10	7.84	7.33	6.76	7.34	7.12	6.89	6.67	7.09	6.87	7.20
05/01/30	05/31/30	May 2030	67.82	64.52	75.97	68.37	66.18	61.74	73.62	70.66	75.53	70.61	8.16	7.91	7.36	6.79	7.36	7.13	6.81	6.71	7.12	6.90	7.10
06/01/30	06/30/30	Jun 2030	68.59	66.52	79.73	69.42	67.83	63.38	73.65	71.03	76.29	71.08	8.33	6.93	7.95	7.41	6.83	7.42	7.18	6.61	6.78	7.16	6.91
07/01/30	07/31/30	Jul 2030	84.61	68.91	96.35	72.83	84.26	66.33	89.76	74.67	91.40	74.99	8.56	8.13	7.59	6.93	7.50	7.25	7.06	6.86	7.26	7.04	7.11
08/01/30	08/31/30	Aug 2030	88.73	69.80	98.96	72.90	87.86	66.62	93.98	75.26	95.27	75.14	8.61	8.17	7.63	6.97	7.54	7.28	7.07	6.88	7.29	7.07	7.15
09/01/30	09/30/30	Sep 2030	82.25	69.05	85.81	70.95	80.39	66.12	87.07	74.12	88.69	73.90	8.40	8.19	7.57	6.99	7.57	7.31	7.04	6.88	7.31	7.09	7.17
10/01/30	10/31/30	Oct 2030	77.67	68.76	79.37	69.85	77.02	65.42	81.70	73.19	82.78	72.57	8.34	8.22	7.61	7.03	7.66	7.39	7.14	6.89	7.36	7.14	7.21
11/01/30	11/30/30	Nov 2030	77.18	70.18	78.48	70.36	79.10	71.07	81.40	74.00	81.42	73.04	8.40	8.37	7.74	7.14	7.84	7.82	7.88	7.09	7.46	7.24	7.32
12/01/30	12/31/30	Dec 2030	84.43	72.36	76.23	71.25	86.66	73.22	80.59	74.96	79.93	74.08	8.57	8.42	7.90	7.30	7.93	7.92	8.37	7.19	7.63	7.41	7.48
01/01/31	01/31/31	Jan 2031	74.66	72.50	79.64	73.55	74.31	70.64	80.10	76.62	80.60	75.70	8.79	8.64	8.07	7.45	8.12	8.10	8.59	7.37	7.79	7.56	7.64
02/01/31	02/28/31	Feb 2031	73.76	72.71	77.16	72.68	72.17	69.39	79.15	76.25	79.69	75.22	8.84	8.63	8.11	7.49	8.17	8.15	8.64	7.42	7.83	7.61	7.68
03/01/31	03/31/31	Mar 2031	71.19	69.82	74.80	70.30	70.00	68.11	76.14	73.85	76.68	72.91	8.37	8.14	7.67	7.06	7.75	7.75	7.82	7.16	7.39	7.17	7.25
04/01/31	04/30/31	Apr 2031	73.09	69.05	79.49	70.66	72.96	65.38	77.94	73.69	78.70	73.00	8.40	8.13	7.59	7.00	7.61	7.39	7.17	6.94	7.32	7.10	7.18
05/01/31	05/31/31	May 2031	71.54	68.48	78.56	70.88	70.81	66.52	76.92	72.00	77.94	72.46	8.46	8.20	7.62	7.04	7.66	7.59	7.08	6.99	7.36	7.14	7.22
06/01/31	06/30/31	Jun 2031	71.82	68.82	83.32	71.97	71.24	65.77	76.82	73.17	79.15	73.48	8.62	8.25	7.67	7.08	7.72	7.49	6.91	7.08	7.41	7.19	7.26
07/01/31	07/31/31	Jul 2031	87.71	71.74	99.68	75.63	87.33	68.78	92.80	77.63	94.49	77.78	8.86	8.45	7.89	7.18	7.81	7.55	7.36	7.14	7.51	7.29	7.37
08/01/31	08/31/31	Aug 2031	91.98	72.63	102.18	75.82	91.16	69.78	97.26	77.99	98.52	77.89	8.91	8.48	7.92	7.21	7.85	7.58	7.37	7.17	7.54	7.32	7.40
09/01/31	09/30/31	Sep 2031	85.19	71.53	88.88	73.52	83.23	68.52	90.09	76.86	91.60	76.66	8.67	8.48	7.88	7.22	7.89	7.62	7.33	7.16	7.55	7.33	7.40
10/01/31	10/31/31	Oct 2031	79.70	71.48	81.92	72.27	79.05	67.97	83.71	75.70	84.89	75.01	8.59	8.52	7.86	7.26	7.95	7.68	7.42	7.17	7.58	7.36	7.44
11/01/31	11/30/31	Nov 2031	79.76	72.84	80.94	72.79	81.08	73.67	81.21	76.31	84.08	75.36	8.65	8.57	7.98	7.40	8.12	8.10	8.17	7.36	7.72	7.51	7.58
12/01/31	12/31/31	Dec 2031	87.28	74.76	78.94	73.74	89.16	75.80	83.05	77.47	82.58	76.68	8.86	8.72	8.18	7.56	8.24	8.23	8.75	7.49	7.89	7.67	7.75
01/01/32	01/31/32	Jan 2032	76.42	74.27	81.07	75.41	76.02	72.55	81.88	78.29	82.29	77.41	8.97	8.81	8.23	7.60	8.28	8.27	8.76	7.52	7.94	7.71	7.79
02/01/32	02/29/32	Feb 2032	75.52	74.37	78.63	74.22	72.86	71.05	80.81	77.56	81.22	76.53	9.02	8.80	8.27	7.64	8.33	8.31	8.81	7.57	7.98	7.76	7.83
03/01/32	03/31/32	Mar 2032	72.96	71.57	76.27	71.70	71.31	69.57	78.35	75.26	78.67	74.28	8.54	8.30	7.82	7.20	7.90	7.90	7.97	7.30	7.53	7.31	7.39
04/01/32	04/30/32	Apr 2032	74.34	70.62	80.68	72.31	74.17	66.72	79.38	75.40	80.09	74.64	8.56	8.30	7.75	7.14	7.77	7.54	7.31	7.08	7.46	7.24	7.32
05/01/32	05/31/32	May 2032	71.23	66.92	79.20	72.69	70.44	65.77	77.67	74.35	79.14	74.17	8.63	8.36	7.77	7.18	7.81	7.74	7.22	7.13	7.29	7.36	7.52
06/01/32	06/30/32	Jun 2032	72.59	69.87	84.55	73.46	71.56	67.71	77.48	73.73	80.73	74.30	8.79	8.41	7.82	7.22	7.88	7.64	7.05	7.22	7.55	7.28	7.40
07/01/32	07/31/32	Jul 2032	88.48	73.60	100.41	77.47	88.12	70.49	93.89	79.51	95.60	79.46	9.04	8.62	8.05	7.33	7.96	7.70	7.50	7.29	7.66	7.44	7.51
08/01/32	08/31/32	Aug 2032	94.32	74.13	104.38	77.27	93.42	71.29	99.20	79.42	100.43	79.26	9.09	8.65	8.08	7.36	8.01	7.73	7.52	7.31	7.69	7.47	7.54
09/01/32	09/30/32	Sep 2032	86.06	73.09	89.21	75.01	83.76	70.19	90.60	78.11	92.00	77.81	8.84	8.65	8.03	7.36	8.05	7.77	7.48	7.30	7.69	7.47	7.55
10/01/32	10/31/32	Oct 2032	81.46	73.15	84.15	73.86	80.29	69.52	85.34	77.35	87.37	76.53	8.76	8.69	8.01	7.40	8.11	7.83	7.57	7.32	7.73	7.51	7.58
11/01/32	11/30/32	Nov 2032	81.11	74.54	81.69	73.69	82.46	75.25	84.70	77.10	84.65	76.20	8.82	8.74	8.14	7.55	8.29	8.26	8.34	7.51	7.87	7.65	7.73
12/01/32	12/31/32	Dec 2032	88.88	76.98	79.91	75.12	90.22	77.82	84.12	78.69	83.70	77.90	9.04	8.90	8.34	7.71	8.41	8.39	8.93	7.64	8.04	7.82	7.90
01/01/33	01/31/33	Jan 2033	77.89	76.10	82.80	76.87	78.39	74.64	83.13	79.43	83.74	78.58	9.15	8.99	8.39	7.75	8.45	8.43	8.93	7.67	8.09	7.86	7.94
02/01/33	02/28/33	Feb 2033	77.37	76.18	80.84	75.98	75.03	73.26	82.70	79.48	83.18	78.47	9.20	8.98	8.44	7.80	8.50	8.48	8.98	7.72	8.13	7.91	7.99
03/01/33	03/31/33	Mar 2033	74.53	73.27	78.06	73.66	72.92	71.27	79.98	76.71	80.22	75.70	8.71	8.47	7.98	7.34	8.06	8.06	8.13	7.45	7.68	7.46	7.53
04/01/33	04/30/33	Apr 2033	75.79	72.20	82.08	74.17	74.85	68.32	80.90	76.91	81.69	76.11	8.73	8.46	7.90	7.28	7.92	7.69	7.46	7.22	7.60	7.39	7.46
05/01/33	05/31/33	May 2033	74.30	71.83	81.62	74.62	73.56	69.83	79.78	75.54	81.44	76.19	8.81	8.53	7.93	7.32	7.97	7.90	7.37	7.27	7.65	7.43	7.50
06/01/33	06/30/33	Jun 2033	75.17	71.69	86.74	75.40	74.82	69.78	79.74	75.35	82.44	75.88	8.97	8.58	7.97	7.37	8.04	7.79	7.19	7.37	7.69	7.47	7.55
07/01/33	07/31/33	Jul 2033	90.98	75.28	102.65	79.40	90.60	72.71	96.17	80.99	97.75	80.93	9.22	8.79	8.21	7.47	8.12	7.85	7.65	7.43	7.80	7.58	7.66
08/01/33	08/31/33	Aug 2033	96.18	75.88	106.24	79.00	95.50	72.82	101.32	81.20	102.37	80.87	9.27	8.82	8.24	7.50	8.17	7.89	7.67	7.46	7.83	7.61	7.69
09/01/33	09/30/33	Sep 2033	87.36	74.93	90.60	76.66	84.30	71.92	92.17	79.63	93.23	79.09	9.02	8.62	8.19	7.51	8.21	7.92	7.63	7.45	7.84	7.62	7.69
10/01/33	10/31/33	Oct 2033	83.50	74.97	86.05	75.78	82.21	71.41	87.25	78.78	89.08	77.93	8.93	8.86	8.17	7.55	8.27	7.99	7.72	7.46	7.88	7.66	7.73
11/01/33	11/30/33	Nov 2033	82.77	76.30	83.57	75.74	85.02	77.12	86.25	79.04	86.29	78.20	9.00	8.92	8.30	7.70	8.45	8.43	8.50	7.66	8.02	7.81	7.88
12/01/33	12/31/33	Dec 2033	90.50	79.64	81.67	77.15	90.57	80.32	86.16	79.86	85.27	79.48	9.22	9.07	8.51	7.87	8.58	8.56	9.11	7.79	8.20	7.98	8.05
01/01/34	01/31/34	Jan 2034	79.66	77.86	85.19	79.06	80.34	76.54	84.98	80.90	85.53	80.09	9.33	9.17	8.56	7.91	8.62	8.60	9.11	7.83	8.24	8.02	8.10
02/01/34	02/28/34	Feb 2034	79.35	77.90	82.60	77.99	76.68	75.29	84.67	81.37	85.00	80.38	9.38	9.16	8.61	7.95	8.66	8.65	9.16	7.87	8.29	8.07	8.14
03/01/34	03/31/34	Mar 2034	76.31	75.08	79.75	75.77	75.44	73.15	81.78	79.04	81.95	78.04	8.88	8.63	8.14	7.49	8.22	8.22	8.30	7.60	8.29	7.60	7.68
04/01/34	04/30/34	Apr 2034	78.00	74.05	83.80	76.72	76.09	70.32	83.01	78.81	83.58	78.11	8.91	8.63	8.06	7.42	8.08	7.84	7.61	7.37	7.75	7.53	7.60
05/01/34	05/31/34	May 2034	75.65	73.02	83.67	76.75	73.93	69.39	81.16	76.85	82.25	76.74	8.98	8.70	8.09	7.47	8.13	8.05</					

04/01/36	04/30/36	Apr 2036	81.51	77.56	88.55	80.20	81.02	73.78	86.41	82.10	87.33	81.63	9.27	8.98	8.39	7.72	8.41	8.16	7.91	7.66	8.05	7.93	7.90	8.22
05/01/36	05/31/36	May 2036	80.08	76.74	88.31	80.73	78.22	73.21	85.47	81.14	87.90	81.69	9.34	9.05	8.41	7.77	8.45	8.38	7.82	7.72	8.10	7.88	7.95	8.12
06/01/36	06/30/36	Jun 2036	80.79	77.88	93.22	82.04	79.64	74.73	85.62	81.52	88.89	81.86	9.52	9.11	8.46	7.82	8.53	8.26	7.63	7.82	8.14	7.92	8.00	7.93
07/01/36	07/31/36	Jul 2036	97.73	80.83	109.11	85.28	97.34	77.78	102.68	86.90	104.04	86.80	9.78	9.33	8.71	7.93	8.62	8.33	8.12	7.89	8.26	8.04	8.11	8.42
08/01/36	08/31/36	Aug 2036	102.67	81.63	112.38	85.36	101.61	77.57	107.50	87.17	108.62	87.07	9.84	9.36	8.74	7.96	8.67	8.37	8.14	7.92	8.29	8.07	8.15	8.44
09/01/36	09/30/36	Sep 2036	93.46	80.82	96.55	82.72	91.07	78.58	98.42	85.13	99.32	84.74	9.57	9.36	8.70	7.97	8.71	8.41	8.09	7.90	8.30	8.08	8.15	8.40
10/01/36	10/31/36	Oct 2036	87.76	80.60	89.78	81.91	86.66	76.87	91.66	84.39	92.46	83.63	9.48	9.40	8.67	8.01	8.78	8.48	8.19	7.92	8.34	8.12	8.19	8.50
11/01/36	11/30/36	Nov 2036	88.16	82.25	88.98	82.41	89.05	83.48	92.23	85.20	92.05	84.25	9.55	9.46	8.81	8.17	8.97	8.94	9.02	8.13	8.49	8.28	8.35	9.37
12/01/36	12/31/36	Dec 2036	96.76	85.36	87.37	82.96	98.64	86.26	92.19	85.81	91.47	85.21	9.78	9.63	9.03	8.35	9.10	9.08	9.66	8.26	8.68	8.46	8.53	10.02
01/01/37	01/31/37	Jan 2037	86.26	83.91	92.13	85.88	86.52	82.18	91.44	87.26	91.93	86.27	9.90	9.73	9.08	8.39	9.14	9.13	9.67	8.31	8.73	8.50	8.58	10.03
02/01/37	02/28/37	Feb 2037	85.71	84.14	89.14	84.62	83.11	81.18	91.03	87.46	91.33	86.47	9.96	9.72	9.13	8.44	9.20	9.18	9.73	8.35	8.78	8.55	8.63	10.09
03/01/37	03/31/37	Mar 2037	82.78	80.81	86.37	81.57	79.75	77.95	88.18	85.01	88.48	84.12	9.42	9.16	8.64	7.95	8.73	8.73	8.80	8.06	8.28	8.06	8.14	9.16
04/01/37	04/30/37	Apr 2037	83.67	79.10	90.79	82.30	82.90	75.65	88.79	83.34	89.57	83.46	9.45	9.16	8.55	7.88	8.57	8.32	8.07	7.82	8.20	7.99	8.06	8.37
05/01/37	05/31/37	May 2037	81.84	77.30	90.28	83.16	79.72	75.85	87.31	82.15	88.70	82.55	9.53	9.24	8.58	7.93	8.62	8.55	7.97	7.87	8.25	8.03	8.11	8.27
06/01/37	06/30/37	Jun 2037	82.83	78.84	95.44	84.30	82.08	76.81	87.57	82.81	90.30	82.96	9.71	9.29	8.63	7.97	8.70	8.43	7.79	7.98	8.30	8.08	8.15	8.08
07/01/37	07/31/37	Jul 2037	99.48	82.72	111.79	87.57	99.34	79.85	104.36	88.27	106.15	88.43	9.98	9.52	8.89	8.09	8.79	8.50	8.28	8.04	8.42	8.20	8.27	8.59
08/01/37	08/31/37	Aug 2037	104.55	83.47	114.92	87.44	103.82	80.84	109.48	88.67	110.69	88.73	10.03	9.55	8.92	8.12	8.84	8.54	8.30	8.07	8.45	8.23	8.31	8.61
09/01/37	09/30/37	Sep 2037	95.43	82.66	99.33	84.86	94.32	79.31	100.11	87.04	101.60	86.66	9.76	9.55	8.87	8.13	8.89	8.58	8.26	8.06	8.46	8.24	8.31	8.57
10/01/37	10/31/37	Oct 2037	90.83	82.34	92.65	84.20	89.56	78.58	94.19	86.05	95.41	86.00	9.67	9.59	8.85	8.17	8.96	8.65	8.36	8.08	8.50	8.28	8.35	8.67
11/01/37	11/30/37	Nov 2037	90.53	84.25	91.52	84.42	91.23	84.61	94.82	86.86	94.57	85.91	9.74	9.65	8.98	8.33	9.15	9.12	9.20	8.29	8.66	8.44	8.51	9.55
12/01/37	12/31/37	Dec 2037	97.93	87.39	89.51	85.19	100.19	88.04	93.82	88.30	93.07	87.38	9.98	9.82	9.21	8.51	9.28	9.26	9.86	8.43	8.85	8.62	8.70	10.22
01/01/38	01/31/38	Jan 2038	88.78	86.02	94.95	87.94	90.77	84.96	93.50	88.85	94.05	87.85	10.10	9.93	9.27	8.56	9.33	9.31	9.86	8.47	8.89	8.67	8.75	10.23
02/01/38	02/28/38	Feb 2038	87.97	86.34	91.20	86.73	87.08	84.17	93.17	89.56	93.37	88.57	10.16	9.91	9.32	8.61	9.36	9.36	9.92	8.52	8.94	8.72	8.80	10.28
03/01/38	03/31/38	Mar 2038	84.60	82.94	88.74	83.27	82.60	81.38	90.09	85.96	90.46	85.05	9.61	9.35	8.81	8.11	8.90	8.90	8.98	8.22	8.44	8.22	8.29	9.34
04/01/38	04/30/38	Apr 2038	85.65	81.02	92.94	83.75	85.56	77.30	90.70	85.54	91.57	85.05	9.64	9.34	8.72	8.04	8.75	8.49	8.23	7.97	8.36	8.14	8.22	8.54
05/01/38	05/31/38	May 2038	83.10	78.90	92.58	85.19	81.39	75.58	89.44	84.65	91.14	84.83	9.72	9.42	8.75	8.08	8.80	8.72	8.13	8.03	8.41	8.19	8.26	8.43
06/01/38	06/30/38	Jun 2038	85.82	79.83	97.54	86.08	84.96	79.77	90.41	84.42	92.56	84.72	9.90	9.47	8.81	8.13	8.87	8.60	7.94	8.14	8.46	8.24	8.31	8.24
07/01/38	07/31/38	Jul 2038	102.20	85.06	114.04	89.94	102.50	82.72	107.26	90.79	108.69	90.74	10.18	9.71	9.07	8.25	8.97	8.67	8.45	8.21	8.58	8.36	8.43	8.75
08/01/38	08/31/38	Aug 2038	108.97	85.85	118.70	89.63	108.32	83.83	113.41	91.49	114.47	91.14	10.24	9.74	9.09	8.29	9.02	8.71	8.46	8.24	8.61	8.39	8.47	8.77
09/01/38	09/30/38	Sep 2038	99.18	84.94	102.02	86.86	98.44	82.10	103.79	89.48	104.77	89.06	9.96	9.74	9.05	8.29	9.07	8.75	8.42	8.22	8.62	8.40	8.48	8.73
10/01/38	10/31/38	Oct 2038	95.13	84.48	96.76	86.18	93.67	81.46	98.61	88.35	99.54	87.67	9.86	9.78	9.02	8.33	9.14	8.82	8.53	8.24	8.66	8.44	8.52	8.83
11/01/38	11/30/38	Nov 2038	94.19	86.64	93.49	86.53	96.46	87.18	96.15	88.45	96.19	87.66	9.94	9.85	9.16	8.50	9.33	9.31	9.39	8.46	8.82	8.61	8.68	9.73
12/01/38	12/31/38	Dec 2038	102.20	89.53	92.00	87.46	102.10	90.55	96.52	89.63	95.69	89.35	10.18	10.02	9.39	8.68	9.47	9.45	10.05	8.60	9.02	8.79	8.87	10.41
01/01/39	01/31/39	Jan 2039	90.72	88.22	96.99	90.01	91.56	86.99	95.60	90.96	96.13	89.99	10.30	10.12	9.45	8.73	9.51	9.50	10.06	8.64	9.07	8.84	8.92	10.42
02/01/39	02/28/39	Feb 2039	90.18	88.52	93.44	88.80	89.09	86.19	95.42	91.78	95.60	90.78	10.36	10.11	9.50	8.78	9.57	9.55	10.12	8.69	9.12	8.89	8.97	10.48
03/01/39	03/31/39	Mar 2039	86.62	84.98	90.46	84.94	84.34	83.08	91.99	87.43	92.29	86.49	9.80	9.53	8.99	8.27	9.08	9.16	8.39	8.60	8.38	8.46	8.52	9.52
04/01/39	04/30/39	Apr 2039	88.25	83.10	94.02	85.84	87.86	80.11	93.45	87.32	94.26	87.31	9.84	9.53	8.90	8.20	8.92	8.66	8.40	8.13	8.52	8.30	8.38	8.70
05/01/39	05/31/39	May 2039	86.21	81.29	94.66	86.84	84.50	79.07	92.13	86.71	93.75	87.38	9.92	9.61	8.93	8.25	8.97	8.89	8.30	8.19	8.57	8.35	8.43	8.60
06/01/39	06/30/39	Jun 2039	87.89	81.69	99.68	88.24	87.40	81.64	92.46	86.46	94.58	86.59	10.10	9.66	8.98	8.30	9.05	8.77	8.10	8.30	8.62	8.40	8.48	8.40
07/01/39	07/31/39	Jul 2039	104.34	86.84	116.35	92.26	104.20	84.14	109.48	93.07	111.06	93.03	10.38	9.90	9.25	8.42	9.14	8.84	8.62	8.37	8.74	8.53	8.60	8.92
08/01/39	08/31/39	Aug 2039	111.06	87.70	120.94	91.58	110.35	85.33	115.77	93.31	116.88	93.06	10.44	9.93	9.28	8.45	9.20	8.88	8.63	8.40	8.78	8.56	8.63	8.94
09/01/39	09/30/39	Sep 2039	99.84	87.08	103.05	88.94	99.19	84.10	104.53	91.05	105.51	90.57	10.16	9.93	9.23	8.46	9.25	8.92	8.59	8.39	8.79	8.57	8.64	8.90
10/01/39	10/31/39	Oct 2039	95.78	86.88	97.34	88.24	94.51	83.41	99.26	90.41	100.24	89.78	10.06	9.98	9.20	8.50	9.32	9.00	8.70	8.40	8.83	8.61	8.68	9.00
11/01/39	11/30/39	Nov 2039	96.17	88.28	95.54	88.57	97.36	89.27	98.60	90.79	98.49	89.90	10.13	10.04	9.35	8.67	9.52	9.49	9.57	8.63	8.99	8.78	8.85	9.92
12/01/39	12/31/39	Dec 2039	102.50	91.90	93.90	89.67	102.93	92.22	98.29	92.30	97.46	91.69	10.38	10.22	9.58	8.86	9.64	10.25	8.77	9.19	8.97	9.04	9.01	10.61
01/01/40	01/31/40	Jan 2040	92.78	90.44	99.58	92.21	92.18	88.84	98.00	93.09	98.42	92.09	10.51	10.33	9.64	8.90	9.70	9.69	10.26	8.81	9.24	9.02	9.09	10.62
02/01/40	02/29/40	Feb 2040	92.43	90.72	95.81	90.95	90.62	88.08	97.71	93.47	97.90	92.79	10.57	10.31	9.69	8.96	9.76	9.74	10.32	8.86	9.29	9.07	9.14	10.68
03/01/40	03/31/40	Mar 2040	88.90	87.15	92.13	87.28	86.39	85.41	94.26	90.35	94.52	89.45	10.00	9.72	9.17	8.44	9.26	9.26	9.34	8.55	8.77	8.55	8.62	9.70
04/01/40	04/30/40	Apr 2040	89.87	84.59	96.58	87.89	89.99	82.02	95.26	88.60	96.08	88.45	10.03	9.72</										

05/01/42	05/31/42	May 2042	92.46	85.79	101.71	92.94	90.39	83.72	99.02	92.70	100.51	93.05	10.52	10.20	9.48	8.75	9.52	9.44	8.80	8.69	9.08	8.86	8.93	9.10
06/01/42	06/30/42	Jun 2042	93.52	87.77	105.93	94.84	93.09	87.90	98.81	92.73	100.64	92.73	10.72	10.25	9.53	8.80	9.60	9.31	8.60	8.81	9.13	8.91	8.98	8.89
07/01/42	07/31/42	Jul 2042	111.78	92.66	123.92	98.69	111.88	89.77	116.88	99.38	118.53	99.43	11.02	10.51	9.81	8.93	9.70	9.39	9.14	8.88	9.26	9.04	9.11	9.45
08/01/42	08/31/42	Aug 2042	118.02	94.08	127.78	98.25	117.62	91.99	122.74	99.99	123.90	99.68	11.08	10.54	9.84	8.97	9.76	9.43	9.16	8.91	9.30	9.08	9.15	9.47
09/01/42	09/30/42	Sep 2042	108.32	93.42	111.50	95.61	107.68	91.06	112.92	97.77	113.93	97.37	10.78	10.54	9.79	8.98	9.81	9.47	9.12	8.90	9.31	9.09	9.16	9.43
52140	52170	52140	101.8572	93.2382	103.428	94.1154	100.868	89.4234	105.733	96.5838	106.641	95.9004	10.6752	10.588722	9.76752	9.020778	9.888798	9.549036	\$ 9.229	\$ 8.919	9.357174	9.132264	9.207948	9.542916

11/01/17	11/30/17	Nov 2017	54.17	43.05	52.57	37.68	54.18	43.42	61.29	44.37	60.08	43.72	4.50	4.66	4.33	4.31	4.47	4.44	4.84	4.15	4.61	4.42	4.49	5.17	
12/01/17	12/31/17	Dec 2017	56.67	45.87	50.71	38.83	56.52	46.08	62.67	47.45	61.00	47.51	4.69	4.85	4.52	4.53	4.66	4.62	5.03	4.32	4.84	4.62	4.73	5.37	
01/01/18	01/31/18	Jan 2018	52.49	41.55	50.27	37.96	51.46	42.14	58.92	45.83	59.73	45.01	4.78	4.95	4.61	4.66	4.75	4.71	5.13	4.38	4.98	4.79	4.86	5.48	
02/01/18	02/28/18	Feb 2018	49.75	39.25	49.35	36.75	49.31	40.54	57.75	44.95	58.50	43.80	4.75	4.91	4.58	4.63	4.71	4.67	5.09	4.35	4.94	4.75	4.82	5.44	
03/01/18	03/31/18	Mar 2018	47.01	36.95	48.43	35.54	46.23	37.33	56.58	44.07	57.27	43.50	4.67	4.83	4.50	4.54	4.63	4.60	5.01	4.29	4.85	4.66	4.73	5.36	
04/01/18	04/30/18	Apr 2018	45.62	32.37	49.66	32.84	40.06	27.80	54.37	36.19	56.59	36.84	4.43	4.67	4.26	4.23	4.42	4.38	4.28	4.11	4.52	4.34	4.41	4.56	
05/01/18	05/31/18	May 2018	43.77	26.91	50.01	31.37	38.38	21.90	52.86	35.71	54.96	35.37	4.44	4.68	4.27	4.24	4.43	4.39	4.29	4.09	4.54	4.35	4.42	4.57	
06/01/18	06/30/18	Jun 2018	41.12	23.22	51.39	31.79	35.02	16.30	57.02	35.71	59.45	36.10	4.47	4.71	4.29	4.26	4.45	4.41	4.31	4.10	4.56	4.37	4.44	4.59	
07/01/18	07/31/18	Jul 2018	59.24	36.30	64.47	40.75	52.99	33.15	66.28	46.52	69.44	45.82	4.50	4.74	4.33	4.30	4.49	4.45	4.35	4.12	4.60	4.41	4.48	4.63	
08/01/18	08/31/18	Aug 2018	62.62	46.01	67.25	45.20	62.50	43.58	70.60	54.67	72.75	54.73	5.35	5.43	5.13	4.93	5.09	4.97	4.47	4.78	4.64	5.24	5.05	5.12	5.07
09/01/18	09/30/18	Sep 2018	60.58	47.11	58.61	42.77	59.19	44.48	67.21	52.67	69.14	53.54	5.27	5.38	5.09	4.93	4.97	4.95	4.75	4.61	5.23	5.04	5.12	5.03	
10/01/18	10/31/18	Oct 2018	52.02	45.50	53.22	42.06	51.06	43.80	62.43	51.93	62.64	52.28	5.26	5.41	5.11	4.96	5.10	5.05	4.78	4.63	5.26	5.08	5.15	5.07	
11/01/18	11/30/18	Nov 2018	56.98	46.53	53.76	41.57	57.47	46.19	64.69	52.67	64.18	52.75	5.33	5.44	5.18	5.01	5.18	5.13	5.14	4.74	5.32	5.13	5.20	5.49	
12/01/18	12/31/18	Dec 2018	59.31	48.46	52.90	42.83	59.43	48.74	64.69	54.87	63.51	55.23	5.46	5.60	5.34	5.16	5.32	5.21	5.27	4.86	5.48	5.29	5.36	5.63	
01/01/19	01/31/19	Jan 2019	53.84	44.81	51.57	42.57	52.48	45.10	60.50	51.41	60.81	51.46	5.58	5.64	5.38	5.27	5.38	5.36	5.65	4.97	5.58	5.39	5.47	6.02	
02/01/19	02/28/19	Feb 2019	50.67	43.78	50.44	42.09	50.74	44.03	58.64	51.08	59.26	50.92	5.58	5.65	5.38	5.27	5.39	5.36	5.65	4.97	5.58	5.39	5.47	6.02	
03/01/19	03/31/19	Mar 2019	48.14	41.98	49.31	40.89	47.18	41.19	57.09	49.97	57.71	50.25	5.47	5.53	5.28	5.16	5.28	5.19	5.39	4.90	5.47	5.28	5.35	5.75	
04/01/19	04/30/19	Apr 2019	49.70	39.40	52.88	40.05	45.96	36.30	58.88	46.26	59.83	46.87	5.36	5.44	5.15	4.93	5.09	5.00	4.89	4.73	5.23	5.05	5.12	5.18	
05/01/19	05/31/19	May 2019	45.96	34.40	51.34	39.26	41.75	30.92	56.15	46.20	57.44	46.39	5.39	5.47	5.16	4.93	5.12	5.02	4.89	4.74	5.23	5.04	5.11	5.18	
06/01/19	06/30/19	Jun 2019	45.71	34.73	55.33	39.97	41.74	29.85	57.71	46.14	60.50	46.94	5.46	5.51	5.19	4.95	5.15	5.05	4.91	4.77	5.26	5.07	5.14	5.20	
07/01/19	07/31/19	Jul 2019	60.51	42.83	68.63	46.77	57.22	40.58	68.98	53.42	71.10	53.56	5.55	5.62	5.29	5.00	5.22	5.00	4.97	4.80	5.30	5.12	5.19	5.26	
08/01/19	08/31/19	Aug 2019	66.10	48.73	72.47	50.77	68.52	49.00	75.74	63.16	76.65	63.93	6.33	6.28	6.07	5.70	5.83	5.62	5.35	5.30	6.00	5.82	5.89	5.64	
09/01/19	09/30/19	Sep 2019	62.02	50.30	60.22	47.66	63.85	48.00	70.90	61.23	71.55	62.58	6.18	6.18	5.98	5.69	5.79	5.59	5.28	5.22	5.98	5.80	5.88	5.56	
10/01/19	10/31/19	Oct 2019	53.62	48.65	53.13	45.86	52.22	45.84	63.56	60.53	63.35	61.54	6.11	6.20	5.99	5.72	5.82	5.75	5.31	5.23	6.02	5.83	5.90	5.60	
11/01/19	11/30/19	Nov 2019	59.79	50.01	54.95	45.46	60.75	48.96	60.98	60.98	68.29	61.78	6.15	6.22	6.04	5.72	5.88	5.83	5.45	5.33	6.02	5.84	5.91	5.80	
12/01/19	12/31/19	Dec 2019	61.95	51.06	55.09	46.83	62.33	51.41	66.71	62.29	66.02	62.94	6.24	6.35	6.16	5.79	5.98	5.79	5.52	5.39	6.11	5.92	5.99	5.87	
01/01/20	01/31/20	Jan 2020	55.18	48.06	52.87	47.18	53.49	48.05	62.08	56.99	61.88	57.92	6.28	6.34	6.16	5.87	6.02	6.01	6.18	5.55	6.19	6.00	6.07	6.55	
02/01/20	02/29/20	Feb 2020	51.58	48.30	51.53	47.43	52.17	47.52	59.53	57.21	60.01	58.04	6.42	6.38	6.18	5.90	6.06	6.05	6.22	5.58	6.22	6.03	6.10	6.58	
03/01/20	03/31/20	Mar 2020	49.27	47.00	50.19	46.25	48.12	45.05	57.59	55.86	58.14	57.00	6.27	6.22	6.06	5.78	5.92	5.78	5.78	5.52	6.09	5.90	5.97	6.13	
04/01/20	04/30/20	Apr 2020	53.78	46.44	56.10	47.26	51.85	44.80	63.38	56.32	63.07	56.91	6.29	6.29	6.21	6.04	6.63	5.76	5.61	5.51	5.35	5.94	5.75	5.82	5.80
05/01/20	05/31/20	May 2020	48.15	41.89	52.68	47.14	45.12	40.53	59.43	56.69	59.92	57.41	6.24	6.26	6.05	5.73	6.62	5.81	5.64	5.49	5.38	5.92	5.73	5.80	5.78
06/01/20	06/30/20	Jun 2020	50.31	46.24	59.28	48.14	48.45	42.80	58.41	56.57	61.55	57.77	6.45	6.30	6.08	5.64	5.85	5.69	5.50	5.43	5.95	5.76	5.83	5.79	
07/01/20	07/31/20	Jul 2020	61.78	49.35	72.78	52.78	61.45	48.01	71.68	60.33	72.76	61.31	6.59	6.50	6.25	5.70	5.95	5.58	5.48	6.01	5.82	5.89	5.88	5.88	
08/01/20	08/31/20	Aug 2020	63.86	50.24	73.20	52.64	66.78	49.67	73.05	60.63	73.82	61.66	6.63	6.53	6.28	5.73	5.99	5.78	5.60	5.48	6.03	5.84	5.91	5.88	
09/01/20	09/30/20	Sep 2020	60.39	48.13	61.80	48.81	62.72	47.48	68.01	57.60	68.41	59.10	6.42	6.37	6.15	5.70	5.95	5.74	5.52	5.41	6.00	5.81	5.89	5.80	
10/01/20	10/31/20	Oct 2020	52.42	47.80	53.46	47.64	52.19	46.15	60.12	57.42	60.27	58.33	6.38	6.40	6.17	5.75	5.95	5.72	5.55	5.42	6.05	5.86	5.94	5.84	
11/01/20	11/30/20	Nov 2020	59.70	50.62	58.77	49.14	59.06	48.92	65.61	59.13	65.21	58.85	6.45	6.47	6.28	5.89	6.09	5.92	5.96	5.55	6.20	6.01	6.08	6.31	
12/01/20	12/31/20	Dec 2020	62.81	51.95	55.23	49.95	63.53	50.20	63.74	59.79	62.84	59.50	6.52	6.58	6.38	5.99	6.17	6.14	6.20	5.63	6.30	6.11	6.19	6.56	
01/01/21	01/31/21	Jan 2021	57.68	51.31	55.63	50.09	56.24	48.82	65.12	60.28	64.76	60.48	6.69	6.63	6.44	6.09	6.30	6.30	6.36	5.77	6.41	6.22	6.30	6.72	
02/01/21	02/28/21	Feb 2021	54.67	51.14	54.81	49.95	54.71	49.16	62.59	59.95	62.78	60.35	6.63	6.63	6.46	6.34	6.30	6.34	6.39	5.81	6.44	6.25	6.32	6.76	
03/01/21	03/31/21	Mar 2021	53.38	50.54	53.71	48.76	54.55	47.71	61.08	59.05	60.86	59.77	6.58	6.52	6.35	6.02	6.18	6.05	6.23	5.78	6.34	6.15	6.22	6.58	
04/01/21	04/30/21	Apr 2021	57.27	49.12	58.39	48.81	56.76	47.89	65.39	58.54	65.14	59.42	6.58	6.46	6.29	5.97	5.86	6.00	5.68	6.16	6.36	6.15	6.05	6.03	
05/01/21	05/31/21	May 2021	52.50	48.58	55.05	49.01	51.52	45.83	61.83	59.22	62.41	59.91	6.64	6.51	6.30	5.85	6.05	5.89	5.65	5.64	6.15	5.96	6.03	5.94	
06/01/21	06/30/21	Jun 2021	53.82	50.13	61.59	49.86	54.03	46.57	62.09	58.95	64.36	60.29	6.77	6.58	6.35	5.88	6.09	5.93	5.68	5.69	6.18	5.99	6.07	5.97	
07/01/21	07/31/21	Jul 2021	65.53	52.23	75.42	54.96	67.00	51.19	75.01	63.10	76.02	64.12	6.91	6.80	6.50	5.96	6.19	6.01	5.83	5.74	6.27	6.08	6.15	6.13	
08/01/21	08/31/21	Aug 2021	68.16	53.16	76.50	54.61	70.88	53.59	76.54	62.75	77.15	63.54	6.95	6.83	6.54	5.97	6.22	6.03	5.80	5.75	6.28	6.09	6.16	6.08	
09/01/21	09/30/21	Sep 2021	61.72	50.24	62.27	49.72	64.34	50.67	69.13	59.50	69.43	60.12	6.57	6.52	6.30	5.80	6.13	5.91	5.55	5.53	6.10	5.91	5.98	5.83	
10/01/21	10/31/21	Oct 2021	55.68	49.08	55.11	48.83	55.16	47.19	62.38	59.36	62.42	60.04	6.53	6.55	6.32	5.84	6.16	5.94	5.69	5.54	6.14	5.95	6.02	5.98	
11/01/21	11/30/21	Nov 2021	63.31	52.53	59.24	49.74	61.44	50.97	67.20	61.09	66.25	60.58	6.61	6.64	6.42	5.99	6.26	6.23	6.29	5.68	6.29				

01/01/24	01/31/24	Jan 2024	63.05	59.66	67.78	62.01	63.65	58.87	68.53	65.26	69.13	65.20	7.43	7.25	7.02	6.34	6.81	6.80	6.89	6.18	6.65	6.46	6.54	7.26
02/01/24	02/29/24	Feb 2024	62.60	59.98	65.02	61.86	62.16	57.68	67.65	65.45	68.28	65.12	7.48	7.28	7.03	6.37	6.85	6.84	6.90	6.22	6.69	6.50	6.57	7.27
03/01/24	03/31/24	Mar 2024	59.65	57.41	62.34	59.61	58.04	55.72	64.42	62.76	65.04	62.82	7.06	6.89	6.66	6.02	6.46	6.29	6.48	5.96	6.33	6.14	6.22	6.84
04/01/24	04/30/24	Apr 2024	63.85	57.44	66.04	59.95	63.38	54.66	68.68	62.64	69.27	63.27	7.04	6.88	6.66	5.92	6.38	6.17	6.00	6.02	6.23	6.04	6.11	6.28
05/01/24	05/31/24	May 2024	59.31	56.77	63.64	59.91	57.97	54.88	64.88	62.46	66.44	63.18	7.10	6.93	6.68	5.87	6.32	6.13	5.88	5.84	6.18	5.99	6.06	6.17
06/01/24	06/30/24	Jun 2024	60.64	57.40	71.46	61.35	60.03	55.15	65.85	62.82	68.18	63.81	7.22	7.02	6.76	6.01	6.40	6.21	5.92	5.93	6.00	5.91	6.08	6.21
07/01/24	07/31/24	Jul 2024	73.66	60.26	84.91	65.48	73.18	58.39	79.87	66.64	80.74	67.49	7.38	7.21	6.93	6.01	6.50	6.28	6.06	5.96	6.31	6.12	6.20	6.35
08/01/24	08/31/24	Aug 2024	76.28	60.45	84.34	64.93	76.37	57.61	81.63	66.89	82.16	67.48	7.43	7.26	6.98	6.04	6.54	6.32	6.03	6.00	6.34	6.15	6.23	6.31
09/01/24	09/30/24	Sep 2024	70.54	59.40	73.15	62.23	70.33	56.30	75.25	64.83	75.87	65.09	7.28	7.16	6.88	6.00	6.48	6.26	5.93	5.94	6.30	6.11	6.19	6.21
10/01/24	10/31/24	Oct 2024	62.66	58.89	64.27	61.02	61.34	55.71	66.83	63.93	67.39	63.93	7.23	7.19	6.89	6.07	6.56	6.32	6.10	5.94	6.38	6.19	6.26	6.38
11/01/24	11/30/24	Nov 2024	70.86	60.20	69.18	61.97	68.84	61.26	72.88	65.67	72.44	65.09	7.29	7.21	6.96	6.19	6.76	6.70	6.76	6.08	6.49	6.30	6.38	7.10
12/01/24	12/31/24	Dec 2024	74.73	61.50	66.60	62.63	75.63	63.44	70.79	66.35	69.88	65.90	7.45	7.35	7.13	6.32	6.83	6.77	6.83	6.11	6.63	6.44	6.51	7.19
01/01/25	01/31/25	Jan 2025	64.86	61.39	68.92	63.50	64.37	60.09	70.11	66.86	70.53	66.60	7.64	7.44	7.20	6.44	6.93	6.91	7.00	6.27	6.76	6.56	6.64	7.37
02/01/25	02/28/25	Feb 2025	64.11	61.39	66.03	63.16	62.95	59.05	69.06	66.93	69.62	66.41	7.68	7.47	7.21	6.47	6.97	6.95	7.04	6.30	6.79	6.60	6.68	7.41
03/01/25	03/31/25	Mar 2025	61.78	60.17	64.39	61.95	59.46	57.86	66.77	65.00	67.26	64.75	7.40	7.18	6.94	6.23	6.75	6.58	6.77	6.24	6.54	6.35	6.43	7.13
04/01/25	04/30/25	Apr 2025	64.65	59.33	67.71	62.01	64.24	56.00	68.85	64.64	69.77	65.23	7.40	7.17	6.94	5.99	6.63	6.42	6.24	6.05	6.30	6.11	6.18	6.52
05/01/25	05/31/25	May 2025	61.01	59.07	65.29	62.00	59.02	56.49	66.38	63.79	68.28	64.62	7.46	7.22	6.99	5.91	6.55	6.36	6.11	6.06	6.21	6.03	6.10	6.40
06/01/25	06/30/25	Jun 2025	63.20	59.56	74.75	63.54	62.34	57.62	68.33	65.09	71.17	65.87	7.56	7.33	7.06	5.94	6.62	6.42	6.12	6.13	6.24	6.06	6.13	6.61
07/01/25	07/31/25	Jul 2025	76.37	62.63	87.53	67.77	75.51	60.23	82.72	68.96	83.58	69.85	7.75	7.54	7.26	6.07	6.52	6.36	6.21	6.38	6.19	6.26	6.36	6.45
08/01/25	08/31/25	Aug 2025	78.48	62.97	87.39	67.51	78.68	60.07	84.09	69.22	84.76	70.00	7.80	7.58	7.30	6.10	6.77	6.55	6.28	6.23	6.40	6.21	6.29	6.56
09/01/25	09/30/25	Sep 2025	72.55	61.59	75.82	64.47	72.69	58.54	77.58	66.10	78.23	66.82	7.59	7.42	7.15	6.10	6.67	6.47	6.13	6.11	6.40	6.21	6.28	6.42
10/01/25	10/31/25	Oct 2025	64.15	60.79	65.89	63.06	62.60	57.35	68.93	66.22	69.40	66.23	7.51	7.42	7.12	6.18	6.76	6.52	6.30	6.11	6.48	6.29	6.36	6.59
11/01/25	11/30/25	Nov 2025	72.22	62.48	70.92	64.19	70.90	63.46	74.46	67.90	74.11	67.39	7.57	7.45	7.05	6.07	7.03	6.97	7.04	6.34	6.90	6.71	6.79	7.38
12/01/25	12/31/25	Dec 2025	76.60	63.53	68.45	64.84	76.95	65.10	72.50	68.59	71.61	68.19	7.71	7.61	7.21	6.72	7.10	7.04	7.11	6.38	7.04	6.85	6.92	7.46
01/01/26	01/31/26	Jan 2026	66.94	63.91	71.53	65.66	67.05	62.60	72.13	68.84	72.54	68.61	7.90	7.65	7.34	6.07	7.20	7.19	7.28	6.54	7.19	7.00	7.08	7.65
02/01/26	02/28/26	Feb 2026	66.61	63.67	68.55	65.42	65.54	61.67	71.49	69.05	71.93	68.52	7.95	7.70	7.38	6.91	7.25	7.23	7.33	6.57	7.23	7.04	7.11	7.69
03/01/26	03/31/26	Mar 2026	62.78	61.16	64.96	62.65	61.38	60.04	67.84	66.11	68.28	65.48	7.57	7.30	6.98	6.58	6.90	6.95	6.37	6.89	6.70	6.77	7.31	7.69
04/01/26	04/30/26	Apr 2026	66.81	60.86	69.49	63.44	66.02	57.97	71.47	65.95	72.21	66.67	7.56	7.28	6.93	6.44	6.78	6.58	6.39	6.19	6.75	6.56	6.63	6.67
05/01/26	05/31/26	May 2026	62.06	60.72	66.72	63.17	59.82	57.42	68.30	65.96	68.81	66.18	7.61	7.34	6.97	6.57	6.79	6.57	6.29	6.23	6.76	6.57	6.64	6.58
06/01/26	06/30/26	Jun 2026	64.11	60.71	75.82	64.40	63.12	58.78	69.04	66.34	72.37	66.87	7.77	7.38	7.01	6.49	6.85	6.64	6.16	6.31	6.80	6.61	6.68	6.45
07/01/26	07/31/26	Jul 2026	77.42	63.71	88.81	68.50	76.75	61.27	83.62	69.99	84.41	70.62	7.92	7.50	7.12	6.59	6.91	6.68	6.52	6.35	6.90	6.71	6.78	6.81
08/01/26	08/31/26	Aug 2026	79.26	63.96	88.14	68.16	79.21	60.98	85.05	70.09	85.57	70.64	7.97	7.53	7.16	6.62	6.95	6.72	6.44	6.38	6.93	6.74	6.81	6.72
09/01/26	09/30/26	Sep 2026	74.42	62.95	77.33	65.85	74.03	59.50	79.43	68.49	80.14	69.00	7.74	7.55	7.13	6.60	6.98	6.73	6.37	6.33	6.90	6.71	6.78	6.65
10/01/26	10/31/26	Oct 2026	65.74	62.52	67.47	64.43	64.60	59.25	70.31	67.89	70.85	67.63	7.69	7.58	7.11	6.63	7.01	6.76	6.54	6.33	6.93	6.74	6.82	6.83
11/01/26	11/30/26	Nov 2026	73.40	63.80	72.37	65.91	72.28	65.17	75.89	69.39	75.30	68.95	7.74	7.69	7.22	6.77	7.20	7.15	7.22	6.49	7.08	6.89	6.96	7.56
12/01/26	12/31/26	Dec 2026	76.97	65.10	69.92	66.42	79.00	66.26	74.17	70.06	73.26	69.54	7.88	7.78	7.34	6.87	7.26	7.22	7.32	6.53	7.19	7.00	7.07	7.68
01/01/27	01/31/27	Jan 2027	68.31	64.93	72.54	67.06	68.21	64.22	73.47	70.36	74.05	70.10	8.08	7.79	7.46	6.99	7.37	7.50	6.69	7.30	7.11	7.19	7.19	7.87
02/01/27	02/28/27	Feb 2027	67.94	64.82	69.51	66.25	66.59	62.83	72.47	69.92	73.01	69.44	8.11	7.83	7.49	7.14	7.02	7.42	7.55	6.73	7.33	7.14	7.22	7.91
03/01/27	03/31/27	Mar 2027	63.92	62.12	66.47	63.87	62.26	60.91	69.37	67.28	69.81	66.63	7.62	7.36	7.03	6.59	6.97	6.96	7.02	6.47	6.91	6.71	6.79	7.38
04/01/27	04/30/27	Apr 2027	67.18	61.47	70.63	64.17	66.74	58.17	72.23	66.64	73.07	66.82	7.60	7.32	6.97	6.44	6.84	6.64	6.42	6.24	6.51	6.56	6.63	6.73
05/01/27	05/31/27	May 2027	63.51	61.03	67.68	64.48	61.42	58.29	68.91	66.42	70.62	67.03	7.66	7.38	7.01	6.48	6.86	6.63	6.35	6.28	6.78	6.60	6.67	6.64
06/01/27	06/30/27	Jun 2027	65.69	61.37	76.91	65.16	65.18	59.86	70.83	66.56	73.09	67.32	7.82	7.42	7.05	6.63	6.92	6.69	6.18	6.34	6.82	6.63	6.71	6.47
07/01/27	07/31/27	Jul 2027	77.88	64.72	89.10	69.41	77.17	62.01	84.14	70.93	84.90	71.48	7.99	7.57	7.14	6.60	6.97	6.73	6.56	6.38	6.91	6.72	6.79	6.85
08/01/27	08/31/27	Aug 2027	80.62	64.77	89.80	68.60	79.92	61.58	85.94	70.81	86.37	71.18	8.03	7.58	7.18	6.64	7.01	6.77	6.50	6.41	6.94	6.75	6.82	6.78
09/01/27	09/30/27	Sep 2027	74.16	63.67	77.69	66.39	73.94	60.46	78.74	69.16	79.39	69.35	7.77	7.61	7.15	6.62	7.04	6.79	6.43	6.38	6.92	6.73	6.80	6.71
10/01/27	10/31/27	Oct 2027	66.55	63.12	68.55	65.23	63.86	59.96	71.68	68.47	71.97	68.27	7.74	7.64	7.15	6.65	7.08	6.83	6.60	6.38	6.95	6.76	6.83	6.88
11/01/27	11/30/27	Nov 2027	71.86	64.56	72.40	66.33	72.24	65.75	75.75	70.14	75.35	69.56	7.82	7.75	7.27	6.80	7.26	7.23	7.29	6.58	7.10	6.91	6.99	7.64
12/01/27	12/31/27	Dec 2027	76.49	65.86	70.72	67.32	78.98	67.03	74.66	70.83	73.95	70.34	7.97	7.86	7.41	6.92	7.35	7.32	7.40	6.62	7.23	7.04	7.11	7.76
01/01/28	01/31/28	Jan 2028	68.94	65.61	73.44	67.88	69.06	65.42	74.19	71.07	74.82	70.81	8.17	7.86	7.52	7.04	7.46	7.45	7.58	6.78	7.36	7.16	7.24	7.95

03/01/30	03/31/30	Mar 2030	68.57	65.97	70.89	68.17	67.51	66.10	73.73	71.40	74.35	70.81	8.08	7.87	7.40	6.84	7.47	7.46	6.53	6.88	7.16	6.97	7.04	7.89	
04/01/30	04/30/30	Apr 2030	72.67	66.21	75.19	68.56	71.56	63.05	76.98	71.39	77.61	71.22	8.10	7.84	7.33	6.76	7.34	7.12	6.89	6.67	7.07	6.88	6.95	7.18	
05/01/30	05/31/30	May 2030	67.86	65.67	71.90	68.64	64.54	62.04	73.96	71.60	75.25	71.47	8.16	7.91	7.36	6.79	7.36	7.13	6.81	6.71	7.10	6.91	6.98	7.09	
06/01/30	06/30/30	Jun 2030	69.63	67.09	81.62	70.34	68.08	63.60	74.96	71.91	78.22	72.37	8.33	7.95	7.41	6.83	7.42	7.18	6.61	6.78	7.14	6.95	7.02	6.90	
07/01/30	07/31/30	Jul 2030	83.89	70.03	95.88	74.41	82.68	67.23	90.73	75.99	91.51	76.67	8.56	8.13	7.59	6.93	7.50	7.25	7.06	6.86	7.24	7.05	7.12	7.35	
08/01/30	08/31/30	Aug 2030	86.37	70.23	95.76	73.93	86.08	66.94	92.20	76.02	92.67	76.59	8.61	8.17	7.63	6.97	7.54	7.28	7.07	6.88	7.27	7.08	7.15	7.35	
09/01/30	09/30/30	Sep 2030	79.86	69.30	83.59	71.80	78.89	66.37	84.37	74.61	85.02	74.63	8.40	8.19	7.57	6.99	7.57	7.31	7.04	6.88	7.29	7.10	7.17	7.32	
10/01/30	10/31/30	Oct 2030	71.71	68.11	74.09	70.22	68.87	65.88	76.93	73.39	76.86	73.08	8.34	8.22	7.61	7.03	7.66	7.39	7.14	6.89	7.33	7.14	7.21	7.42	
11/01/30	11/30/30	Nov 2030	78.74	70.28	77.99	71.67	78.22	71.88	81.49	75.37	80.89	74.71	8.40	8.37	7.74	7.14	7.84	7.82	7.88	7.09	7.44	7.26	7.33	8.23	
12/01/30	12/31/30	Dec 2030	85.51	72.55	75.87	72.05	84.75	71.66	80.30	76.29	79.43	75.45	8.57	8.42	7.90	7.30	7.93	7.82	8.37	7.19	7.61	7.42	7.50	8.73	
01/01/31	01/31/31	Jan 2031	75.76	72.03	79.77	74.02	74.90	71.47	81.16	77.12	81.66	76.77	8.79	8.64	8.07	7.45	8.12	8.10	8.59	7.37	7.77	7.58	7.65	8.95	
02/01/31	02/28/31	Feb 2031	74.87	71.01	77.05	73.22	73.89	70.65	80.05	76.06	80.52	75.81	8.84	8.63	8.11	7.49	8.17	8.15	8.64	7.42	7.81	7.62	7.70	9.00	
03/01/31	03/31/31	Mar 2031	71.32	69.71	73.48	70.63	69.79	68.47	76.60	74.18	77.09	73.42	8.37	8.14	7.67	7.06	7.75	7.75	7.62	7.16	7.37	7.18	7.26	8.18	
04/01/31	04/30/31	Apr 2031	72.89	68.26	76.53	71.33	71.65	65.10	78.03	73.48	78.99	73.92	8.40	8.13	7.59	7.00	7.61	7.39	7.17	6.94	7.30	7.11	7.18	7.46	
05/01/31	05/31/31	May 2031	70.04	67.64	75.11	71.33	66.75	63.61	76.59	73.82	78.48	74.01	8.46	8.20	7.62	7.15	7.04	7.66	7.59	7.08	6.99	7.34	7.15	7.23	7.37
06/01/31	06/30/31	Jun 2031	72.48	69.00	84.87	72.63	71.22	66.97	77.81	73.62	81.00	74.50	8.62	8.25	7.67	7.08	7.72	7.49	6.91	7.08	7.39	7.20	7.27	7.20	
07/01/31	07/31/31	Jul 2031	87.23	72.77	99.06	77.15	86.40	69.91	93.43	78.09	94.32	78.91	8.86	8.45	7.89	7.18	7.81	7.55	7.35	7.14	7.49	7.30	7.37	7.65	
08/01/31	08/31/31	Aug 2031	89.00	73.11	98.97	76.85	88.55	69.97	94.81	78.25	95.53	78.90	8.91	8.48	7.92	7.21	7.85	7.58	7.37	7.17	7.51	7.33	7.40	7.65	
09/01/31	09/30/31	Sep 2031	81.76	71.88	86.15	74.07	81.16	68.86	86.64	76.79	87.40	76.73	8.67	8.48	7.88	7.22	7.89	7.62	7.33	7.16	7.52	7.33	7.41	7.61	
10/01/31	10/31/31	Oct 2031	73.97	70.67	76.31	72.61	71.33	67.65	79.26	75.64	79.43	75.29	8.59	8.52	7.86	7.26	7.95	7.68	7.42	7.17	7.56	7.37	7.44	7.71	
11/01/31	11/30/31	Nov 2031	79.51	72.81	80.10	73.83	79.21	73.97	83.68	77.59	83.13	76.88	8.65	8.57	7.98	7.40	8.12	8.10	8.17	7.36	7.71	7.52	7.59	8.52	
12/01/31	12/31/31	Dec 2031	86.99	74.43	78.14	74.54	87.44	75.92	82.13	78.80	81.53	77.95	8.86	8.72	8.18	7.56	8.24	8.23	8.75	7.49	7.87	7.68	7.76	9.11	
01/01/32	01/31/32	Jan 2032	76.94	73.50	80.96	76.78	76.64	72.82	82.44	78.74	82.95	78.43	8.97	8.81	8.23	7.60	8.28	8.27	8.76	7.52	7.92	7.72	7.80	9.12	
02/01/32	02/29/32	Feb 2032	76.45	72.95	78.55	74.80	75.46	71.84	81.49	77.91	82.01	77.48	9.02	8.80	8.27	7.64	8.33	8.31	8.81	7.57	7.96	7.77	7.85	9.17	
03/01/32	03/31/32	Mar 2032	73.19	70.13	75.03	72.01	71.66	70.27	78.20	75.51	78.74	74.71	8.54	8.30	7.82	7.30	7.90	7.97	7.30	7.51	7.32	7.40	7.40	8.33	
04/01/32	04/30/32	Apr 2032	74.16	69.92	77.83	72.24	72.53	66.46	79.15	75.05	80.15	74.80	8.56	8.30	7.75	7.14	7.77	7.54	7.31	7.08	7.44	7.25	7.32	7.60	
05/01/32	05/31/32	May 2032	70.27	68.87	76.14	72.99	67.20	65.01	77.91	75.32	79.54	75.65	8.63	8.36	7.77	7.18	7.81	7.74	7.22	7.13	7.48	7.29	7.37	7.51	
06/01/32	06/30/32	Jun 2032	73.09	69.14	86.52	74.23	70.79	67.61	78.55	74.72	82.71	75.65	8.79	8.41	7.82	7.22	7.88	7.64	7.05	7.22	7.53	7.34	7.41	7.34	
07/01/32	07/31/32	Jul 2032	88.36	74.21	100.15	79.13	87.55	71.16	94.07	79.49	95.18	80.41	9.04	8.62	8.05	7.33	7.96	7.70	7.50	7.29	7.63	7.44	7.52	7.79	
08/01/32	08/31/32	Aug 2032	90.99	74.44	101.40	78.33	90.53	70.93	96.23	79.81	97.12	80.60	9.09	8.65	8.08	7.36	8.01	7.73	7.52	7.31	7.66	7.47	7.54	7.80	
09/01/32	09/30/32	Sep 2032	82.58	72.97	87.50	75.55	81.61	70.11	87.58	78.28	88.30	78.32	8.84	8.65	8.03	7.36	8.05	7.77	7.48	7.30	7.67	7.48	7.55	7.76	
10/01/32	10/31/32	Oct 2032	75.77	71.26	77.79	73.71	72.73	69.40	80.95	76.62	81.18	76.49	8.76	8.69	8.01	7.40	8.11	7.83	7.57	7.32	7.70	7.51	7.59	7.86	
11/01/32	11/30/32	Nov 2032	80.30	74.04	80.64	75.04	78.71	75.31	83.48	78.55	83.45	77.86	8.82	8.74	8.14	7.55	8.29	8.26	8.34	7.51	7.85	7.66	7.74	8.68	
12/01/32	12/31/32	Dec 2032	87.10	75.94	79.49	76.17	87.79	77.75	83.59	80.02	83.08	79.21	9.04	8.90	8.34	7.71	8.41	8.39	8.93	7.64	8.02	7.83	7.91	9.29	
01/01/33	01/31/33	Jan 2033	78.43	74.08	82.48	77.29	77.72	74.85	83.90	79.41	84.43	79.64	9.15	8.99	8.39	7.75	8.45	8.43	8.93	7.67	8.07	7.88	7.95	9.30	
02/01/33	02/28/33	Feb 2033	78.33	73.96	80.60	76.76	77.10	73.80	83.65	79.20	84.04	79.27	9.20	8.98	8.44	7.80	8.50	8.48	8.98	7.72	8.11	7.92	8.00	9.35	
03/01/33	03/31/33	Mar 2033	74.02	71.19	76.76	73.70	73.39	72.08	79.58	76.37	80.17	76.28	8.71	8.47	7.98	7.34	8.06	8.13	7.45	7.66	7.47	7.54	8.49		
04/01/33	04/30/33	Apr 2033	76.40	72.10	79.80	74.61	74.37	69.06	81.37	76.41	82.24	76.64	8.73	8.46	7.90	7.28	7.92	7.69	7.46	7.22	7.58	7.39	7.47	7.75	
05/01/33	05/31/33	May 2033	73.70	70.82	78.55	75.07	70.38	66.76	80.20	77.84	81.72	77.80	8.81	8.53	7.93	7.32	7.97	7.90	7.37	7.27	7.63	7.44	7.51	7.66	
06/01/33	06/30/33	Jun 2033	75.94	72.48	88.95	76.36	73.85	69.76	81.00	76.77	84.89	77.44	8.97	8.58	7.98	7.37	8.04	7.79	7.19	7.37	7.67	7.48	7.56	7.48	
07/01/33	07/31/33	Jul 2033	90.86	76.17	102.81	81.46	89.94	73.23	96.91	81.58	97.93	82.35	9.22	8.79	8.21	7.47	8.12	7.85	7.65	7.43	7.78	7.59	7.66	7.94	
08/01/33	08/31/33	Aug 2033	93.43	76.28	103.90	80.22	93.13	72.86	98.83	81.67	99.70	82.14	9.27	8.82	8.24	7.62	8.10	7.67	7.46	7.81	7.62	7.59	7.69	7.95	
09/01/33	09/30/33	Sep 2033	83.98	74.58	89.41	77.34	82.66	72.21	88.91	79.88	89.61	79.93	9.02	8.82	8.19	7.51	8.21	7.92	7.63	7.45	7.81	7.63	7.70	7.91	
10/01/33	10/31/33	Oct 2033	77.42	72.62	79.83	75.74	74.16	71.24	82.71	78.09	82.92	78.41	8.93	8.86	8.17	7.55	8.27	7.99	7.72	7.46	7.85	7.66	7.74	8.01	
11/01/33	11/30/33	Nov 2033	81.64	75.43	82.89	76.97	81.48	77.54	85.76	80.35	85.67	79.76	9.00	8.92	8.30	7.70	8.45	8.43	8.50	7.66	8.00	7.82	7.89	8.85	
12/01/33	12/31/33	Dec 2033	87.47	77.87	81.50	78.16	88.52	79.03	85.51	81.93	84.96	81.16	9.22	9.07	8.51	7.87	8.58	8.56	9.11	7.79	8.18	7.99	8.06	9.46	
01/01/34	01/31/34	Jan 2034	80.61	76.52	84.77	79.21	79.99	76.79	85.86	81.86	86.51	81.52	9.33	9.17	8.56	7.91	8.62	8.60	9.11	7.83	8.22	8.03	8.11	9.48	
02/01/34	02/28/34	Feb 2034	79.58	75.32	82.08	78.19	78.77	75.91	84.99	80.79	85.63	80.66	9.38	9.16	8.67	7.95	8.66	8.65	9.16	7.87	8.27	8.08	8.15	9.53	
03/01/34	03/31/34	Mar 2034	76.33	74.46	78.81	75.99	74.90	73.71	81.77	79.01	82.36	78.44	8.98	8.63	8.14	7.49	8.22	8.22	8.30	7.60	7.80	7.61	7.69	8.65</	

05/01/36	05/31/36	May 2036	77.41	74.63	84.62	81.53	73.87	70.41	85.84	83.53	87.77	83.97	9.34	9.05	8.41	7.77	8.45	8.38	7.82	7.72	8.07	7.89	7.96	8.11
06/01/36	06/30/36	Jun 2036	79.53	75.60	94.82	83.26	76.96	74.17	85.88	81.45	90.00	82.08	9.52	9.11	8.46	7.82	8.53	8.26	7.63	7.82	8.12	7.93	8.01	7.92
07/01/36	07/31/36	Jul 2036	96.88	81.29	109.89	87.54	95.96	78.41	102.80	86.59	104.14	87.36	9.78	9.33	8.71	7.93	8.62	8.33	8.12	7.89	8.24	8.05	8.12	8.41
08/01/36	08/31/36	Aug 2036	98.73	81.60	110.03	86.76	98.34	78.72	104.55	87.05	105.49	87.60	9.84	9.36	8.74	7.96	8.67	8.37	8.14	7.89	8.27	8.08	8.15	8.42
09/01/36	09/30/36	Sep 2036	89.74	78.65	95.45	83.59	87.91	77.56	94.47	84.16	94.96	84.60	9.57	9.36	8.70	7.97	8.71	8.41	8.09	7.90	8.27	8.08	8.16	8.38
10/01/36	10/31/36	Oct 2036	83.05	77.81	85.04	82.15	79.54	76.72	88.12	83.29	88.49	83.78	9.48	9.40	8.67	8.01	8.78	8.48	8.19	7.92	8.31	8.12	8.20	8.48
11/01/36	11/30/36	Nov 2036	87.03	81.14	88.60	83.06	86.12	83.95	91.46	86.00	91.35	85.51	9.55	9.46	8.81	8.17	8.97	8.94	9.02	8.13	8.48	8.29	8.36	9.37
12/01/36	12/31/36	Dec 2036	96.17	82.84	87.24	83.69	94.79	85.25	91.29	86.83	90.71	86.19	9.78	9.63	9.03	8.37	9.10	9.08	9.66	8.26	8.66	8.47	8.54	10.02
01/01/37	01/31/37	Jan 2037	86.27	80.76	92.03	85.47	87.19	82.87	91.56	86.29	92.29	86.79	9.90	9.73	9.08	8.39	9.14	9.13	9.67	8.31	8.71	8.52	8.59	10.03
02/01/37	02/28/37	Feb 2037	85.77	82.27	88.30	84.83	85.32	81.90	91.08	87.66	91.81	87.05	9.96	9.72	9.13	8.44	9.20	9.18	9.73	8.35	8.76	8.56	8.64	10.09
03/01/37	03/31/37	Mar 2037	81.91	78.76	84.73	82.06	80.84	79.23	87.42	84.08	88.16	84.44	9.42	9.16	8.64	7.95	8.73	8.73	8.80	8.06	8.26	8.07	8.15	9.16
04/01/37	04/30/37	Apr 2037	83.33	78.72	87.94	82.51	80.48	75.86	88.49	83.86	89.58	84.48	9.45	9.16	8.55	7.88	8.57	8.32	8.07	7.82	8.18	7.99	8.07	8.36
05/01/37	05/31/37	May 2037	79.72	76.43	87.09	83.81	76.24	72.24	88.37	84.73	90.06	85.52	9.53	9.24	8.58	7.93	8.62	8.55	7.97	7.87	8.23	8.04	8.11	8.26
06/01/37	06/30/37	Jun 2037	82.67	77.75	97.84	85.46	81.25	76.30	88.71	83.51	92.64	83.84	9.71	9.29	8.63	7.97	8.70	8.43	7.79	7.98	8.28	8.09	8.16	8.08
07/01/37	07/31/37	Jul 2037	100.40	83.60	113.04	90.08	99.37	80.70	105.96	88.97	107.19	89.70	9.98	9.52	8.89	8.09	8.79	8.50	8.28	8.04	8.40	8.21	8.28	8.57
08/01/37	08/31/37	Aug 2037	101.93	83.92	112.90	89.08	101.69	80.95	107.54	89.14	108.46	89.67	10.03	9.55	8.92	8.12	8.84	8.54	8.30	8.07	8.42	8.24	8.31	8.58
09/01/37	09/30/37	Sep 2037	93.20	81.05	98.03	85.81	91.88	79.66	97.82	86.52	98.49	87.13	9.76	9.55	8.87	8.13	8.89	8.58	8.26	8.06	8.43	8.24	8.32	8.54
10/01/37	10/31/37	Oct 2037	85.54	80.18	87.60	84.40	82.70	78.73	90.57	85.60	91.05	86.31	9.67	9.59	8.85	8.17	8.96	8.65	8.36	8.08	8.47	8.29	8.36	8.64
11/01/37	11/30/37	Nov 2037	90.05	83.39	91.48	85.39	90.17	85.68	94.29	88.73	94.29	87.94	9.74	9.65	8.98	8.33	9.15	9.12	9.20	8.29	8.64	8.45	8.33	9.55
12/01/37	12/31/37	Dec 2037	98.59	85.66	89.83	85.85	97.99	88.32	93.81	89.51	93.15	88.44	9.98	9.82	9.21	8.51	9.28	9.26	9.86	8.43	8.83	8.64	8.71	10.21
01/01/38	01/31/38	Jan 2038	90.06	83.34	95.13	88.04	91.85	86.66	94.86	88.81	95.53	89.26	10.10	9.93	9.27	8.53	9.33	9.31	9.86	8.47	8.87	8.68	8.76	10.23
02/01/38	02/28/38	Feb 2038	88.88	83.84	91.06	87.09	88.42	85.23	93.61	89.37	94.30	89.30	10.16	9.91	9.32	8.61	9.38	9.36	9.92	8.52	8.92	8.73	8.81	10.28
03/01/38	03/31/38	Mar 2038	84.84	81.08	87.09	84.25	83.47	81.58	89.72	86.20	90.55	86.44	9.61	9.35	8.81	8.11	8.90	8.90	9.98	8.22	8.42	8.23	8.31	9.34
04/01/38	04/30/38	Apr 2038	85.84	79.84	90.27	84.85	83.70	77.96	91.12	85.01	92.00	85.80	9.64	9.34	8.72	8.04	8.75	8.49	8.23	7.97	8.34	8.15	8.22	8.52
05/01/38	05/31/38	May 2038	80.43	78.16	89.58	86.24	77.48	74.31	90.34	86.88	91.98	87.64	9.72	9.42	8.75	8.08	8.80	8.72	8.13	8.03	8.39	8.20	8.27	8.42
06/01/38	06/30/38	Jun 2038	84.44	79.24	100.00	87.68	82.99	77.31	90.69	85.36	94.88	85.65	9.90	9.47	8.81	8.13	8.87	8.60	7.94	8.14	8.44	8.25	8.32	8.23
07/01/38	07/31/38	Jul 2038	101.83	85.22	115.10	92.53	100.40	82.41	108.28	91.13	109.40	91.75	10.18	9.71	9.07	8.25	8.97	8.67	8.45	8.21	8.56	8.37	8.44	8.74
08/01/38	08/31/38	Aug 2038	105.43	85.82	116.49	91.15	105.20	82.99	111.27	91.39	111.98	91.99	10.24	9.74	9.09	8.29	9.02	8.71	8.46	8.24	8.59	8.40	8.47	8.75
09/01/38	09/30/38	Sep 2038	95.80	83.12	100.41	88.22	94.17	82.27	100.79	88.62	101.16	89.31	9.96	9.74	9.05	8.29	9.07	8.75	8.42	8.22	8.59	8.41	8.48	8.70
10/01/38	10/31/38	Oct 2038	88.16	81.88	89.91	86.45	85.28	81.39	93.08	87.45	93.28	88.14	9.86	9.78	9.02	8.33	9.14	8.82	8.53	8.24	8.64	8.45	8.52	8.81
11/01/38	11/30/38	Nov 2038	94.67	85.50	93.08	87.25	93.28	87.52	95.78	89.81	95.50	88.90	9.94	9.85	9.16	8.62	9.33	9.31	9.39	8.46	8.91	8.62	8.69	9.73
12/01/38	12/31/38	Dec 2038	98.72	87.81	91.43	88.03	101.55	90.37	95.67	91.39	95.01	90.66	10.18	10.02	9.39	8.68	9.47	9.45	10.05	8.60	9.00	8.81	8.88	10.41
01/01/39	01/31/39	Jan 2039	91.27	84.99	96.01	90.32	91.06	88.25	96.47	90.69	96.99	91.12	10.30	10.12	9.45	8.73	9.51	9.50	10.06	8.64	9.05	8.85	8.93	10.42
02/01/39	02/28/39	Feb 2039	90.36	85.14	93.03	89.21	89.59	86.78	95.66	90.60	96.05	91.11	10.36	10.11	9.50	8.78	9.57	9.55	10.12	8.69	9.10	8.91	8.98	10.48
03/01/39	03/31/39	Mar 2039	84.70	81.61	89.00	85.66	85.31	83.48	91.88	86.91	92.55	87.81	9.80	9.53	8.99	8.27	9.08	9.08	9.16	8.39	8.58	8.39	8.47	9.52
04/01/39	04/30/39	Apr 2039	87.29	82.13	92.67	86.98	85.85	80.21	93.33	87.28	94.58	88.14	9.84	9.53	8.90	8.20	8.92	8.66	8.40	8.13	8.50	8.31	8.38	8.69
05/01/39	05/31/39	May 2039	82.60	80.08	91.41	88.17	79.64	76.07	92.90	89.72	94.25	90.28	9.92	9.61	8.93	8.25	8.97	8.89	8.30	8.19	8.55	8.36	8.43	8.59
06/01/39	06/30/39	Jun 2039	87.39	81.91	102.43	89.81	85.53	79.40	93.06	87.75	97.38	88.01	10.10	9.60	8.98	8.41	9.30	9.05	8.70	8.10	8.30	8.60	8.49	8.39
07/01/39	07/31/39	Jul 2039	104.42	87.56	117.97	95.09	103.49	84.82	111.07	93.31	112.14	94.07	10.38	9.90	9.25	8.42	9.14	8.84	8.62	8.37	8.72	8.53	8.61	8.91
08/01/39	08/31/39	Aug 2039	107.98	88.00	119.87	93.32	107.72	85.14	113.80	93.36	114.35	93.61	10.44	9.93	9.28	8.57	9.20	8.84	8.63	8.40	8.75	8.57	8.64	8.92
09/01/39	09/30/39	Sep 2039	97.34	85.16	102.30	90.38	95.79	84.67	102.36	90.51	102.68	90.43	10.16	9.66	9.23	8.46	9.25	8.92	8.59	8.39	8.76	8.57	8.64	8.87
10/01/39	10/31/39	Oct 2039	90.21	84.05	92.07	88.61	87.22	83.35	96.50	89.60	95.54	90.24	10.06	9.80	9.20	8.50	9.32	9.00	8.70	8.40	8.80	8.62	8.69	8.98
11/01/39	11/30/39	Nov 2039	96.62	88.26	95.35	89.34	96.18	89.99	98.60	91.86	97.92	91.04	10.13	10.04	9.35	8.67	9.52	9.49	9.57	8.63	8.98	8.79	8.86	9.92
12/01/39	12/31/39	Dec 2039	101.69	90.76	93.64	90.46	102.67	91.76	98.13	94.11	97.23	93.23	10.18	10.18	10.22	9.58	9.66	9.64	10.25	8.77	9.17	8.98	9.05	10.61
01/01/40	01/31/40	Jan 2040	93.97	87.42	98.35	92.64	94.02	90.78	99.14	93.00	99.52	93.53	10.51	10.33	9.64	8.90	9.70	9.69	10.26	8.81	9.22	9.03	9.11	10.62
02/01/40	02/29/40	Feb 2040	92.76	87.30	95.64	91.61	92.02	89.61	97.98	92.85	98.69	93.39	10.57	10.31	9.67	8.96	9.76	9.74	10.32	8.86	9.27	9.08	9.16	10.68
03/01/40	03/31/40	Mar 2040	88.40	84.61	91.27	88.11	87.49	85.95	93.81	89.96	94.57	90.68	10.00	9.72	9.17	8.44	9.26	9.26	9.34	8.55	8.75	8.56	8.63	9.70
04/01/40	04/30/40	Apr 2040	90.99	85.12	94.72	89.04	87.80	82.09	95.76	90.00	96.59	90.79	10.03	9.72	9.08	8.36	9.10	8.83	8.57	8.30	8.66	8.48	8.55	8.85
05/01/40	05/31/40	May 2040	82.86	81.98	93.96	90.39	80.37	77.75	95.77	91.10	96.67	91.77	10.11	9.80										

52048	52078	52048	112.658	94.2276	127.1124	102.0714	110.9556	90.984	119.8704	100.2456	120.7374	100.8168	11.0161	10.507224	9.81342	8.932038	9.704586	9.386346	\$	9.144	\$	8.882	9.244056	9.051582	9.126144	9.441324
-------	-------	-------	---------	---------	----------	----------	----------	--------	----------	----------	----------	----------	---------	-----------	---------	----------	----------	----------	----	-------	----	-------	----------	----------	----------	----------

08/01/17	08/31/17	Aug 2017	55.51	40.00	57.91	37.05	53.34	36.00	60.44	43.48	63.63	41.96	4.71	4.73	4.46	4.52	4.60	4.56	4.48	4.25	4.84	4.62	4.70	4.77
09/01/17	09/30/17	Sep 2017	54.71	40.28	53.35	35.46	51.53	38.50	58.79	41.41	61.86	41.10	4.72	4.74	4.46	4.52	4.60	4.57	4.49	4.27	4.85	4.63	4.70	4.77
10/01/17	10/31/17	Oct 2017	49.38	40.70	51.83	36.50	49.01	39.39	58.55	43.16	59.10	42.09	4.75	4.77	4.50	4.56	4.64	4.60	4.53	4.31	4.89	4.66	4.74	4.81
11/01/17	11/30/17	Nov 2017	52.89	41.35	51.11	35.97	51.55	40.94	58.55	44.12	57.50	42.69	4.85	4.89	4.64	4.65	4.75	4.71	5.02	4.43	4.99	4.76	4.83	5.41
12/01/17	12/31/17	Dec 2017	55.23	43.95	49.31	37.03	54.09	43.42	59.76	46.97	58.30	46.02	5.05	5.09	4.83	4.87	4.95	4.91	5.22	4.60	5.22	4.98	5.06	5.62
01/01/18	01/31/18	Jan 2018	51.35	39.62	48.17	36.34	48.66	38.82	56.05	43.34	56.40	41.66	5.15	5.19	4.93	4.96	5.07	5.03	5.33	4.68	5.31	5.08	5.15	5.73
02/01/18	02/28/18	Feb 2018	48.75	36.97	47.56	35.52	46.60	37.78	55.70	42.50	56.05	40.85	5.12	5.17	4.90	4.93	5.04	5.00	5.30	4.66	5.28	5.05	5.13	5.70
03/01/18	03/31/18	Mar 2018	46.15	35.91	46.03	33.89	43.65	34.14	55.35	41.66	55.70	40.04	5.05	5.09	4.83	4.85	4.97	4.93	5.22	4.61	5.20	4.97	5.04	5.62
04/01/18	04/30/18	Apr 2018	46.21	30.25	47.50	30.21	39.13	26.73	52.01	35.46	54.38	36.61	4.85	4.88	4.60	4.65	4.74	4.70	4.63	4.47	4.98	4.76	4.83	4.99
05/01/18	05/31/18	May 2018	43.58	32.73	48.18	36.59	39.97	32.31	56.26	44.74	57.97	43.94	5.48	5.42	5.21	5.11	5.17	5.13	5.06	4.93	5.44	5.22	5.29	5.42
06/01/18	06/30/18	Jun 2018	44.09	30.59	52.35	37.57	40.92	28.76	56.85	44.50	58.75	45.48	5.52	5.46	5.24	5.14	5.20	5.16	5.09	4.95	5.47	5.25	5.32	5.45
07/01/18	07/31/18	Jul 2018	55.45	40.21	66.09	43.68	54.61	38.82	68.13	53.66	69.66	53.00	5.62	5.55	5.32	5.18	5.25	5.20	5.13	4.97	5.51	5.29	5.37	5.49
08/01/18	08/31/18	Aug 2018	59.20	44.52	66.19	43.51	58.15	41.85	70.09	54.96	71.80	53.87	5.65	5.58	5.35	5.21	5.27	5.23	5.15	4.99	5.54	5.32	5.39	5.51
09/01/18	09/30/18	Sep 2018	59.06	41.96	57.52	41.22	58.29	40.77	65.63	51.56	67.12	51.23	5.44	5.43	5.19	5.11	5.17	5.11	5.02	4.86	5.44	5.22	5.29	5.39
10/01/18	10/31/18	Oct 2018	52.46	41.07	54.17	40.71	51.53	39.83	63.01	51.98	63.08	51.21	5.42	5.45	5.22	5.13	5.19	5.13	5.04	4.87	5.46	5.24	5.31	5.40
11/01/18	11/30/18	Nov 2018	54.63	43.96	54.82	40.60	53.39	43.50	63.01	52.68	62.09	51.53	5.48	5.52	5.33	5.18	5.26	5.22	5.32	4.97	5.53	5.29	5.37	5.72
12/01/18	12/31/18	Dec 2018	59.47	45.36	52.91	41.72	58.98	45.38	63.52	54.45	62.38	53.67	5.62	5.67	5.48	5.33	5.41	5.37	5.38	5.10	5.69	5.45	5.53	5.79
01/01/19	01/31/19	Jan 2019	50.55	41.41	50.20	41.40	48.17	40.55	58.01	49.48	57.93	48.28	5.76	5.73	5.52	5.41	5.49	5.46	5.49	5.22	5.77	5.53	5.61	5.91
02/01/19	02/28/19	Feb 2019	48.46	39.62	49.29	40.93	46.23	38.99	57.54	48.91	57.43	47.84	5.76	5.73	5.52	5.41	5.49	5.46	5.49	5.22	5.77	5.53	5.61	5.91
03/01/19	03/31/19	Mar 2019	46.56	38.61	46.79	38.75	43.61	36.47	56.66	48.15	56.33	46.87	5.59	5.57	5.37	5.26	5.35	5.32	5.36	5.10	5.62	5.38	5.46	5.77
04/01/19	04/30/19	Apr 2019	47.06	35.44	48.88	37.65	43.50	33.17	55.45	44.76	56.69	45.30	5.51	5.45	5.24	5.26	5.34	5.30	5.04	4.93	5.41	5.19	5.27	5.41
05/01/19	05/31/19	May 2019	48.24	43.15	52.86	46.02	46.14	45.59	64.94	59.83	66.05	59.75	6.33	6.20	6.04	5.79	5.83	5.78	5.71	5.64	6.12	5.89	5.97	6.07
06/01/19	06/30/19	Jun 2019	49.81	42.99	58.69	47.05	50.61	42.39	65.19	61.12	66.62	60.88	6.39	6.24	6.08	5.82	5.86	5.82	5.75	5.69	6.15	5.93	6.00	6.12
07/01/19	07/31/19	Jul 2019	60.61	48.94	74.69	51.10	61.68	47.89	77.89	66.20	77.91	65.76	6.54	6.39	6.21	5.87	5.92	5.87	5.79	5.72	6.20	5.98	6.05	6.16
08/01/19	08/31/19	Aug 2019	62.89	49.04	74.46	49.97	62.97	47.69	79.75	66.45	79.98	65.79	6.58	6.43	6.24	5.90	5.95	5.90	5.81	5.73	6.23	6.01	6.08	6.18
09/01/19	09/30/19	Sep 2019	63.41	43.65	61.70	46.99	65.06	43.04	72.48	61.70	72.39	61.36	6.16	6.11	5.92	5.69	5.73	5.66	5.55	5.44	6.02	5.80	5.87	5.92
10/01/19	10/31/19	Oct 2019	55.53	41.43	56.50	44.91	54.05	40.26	67.47	60.79	67.05	60.34	6.09	6.12	5.94	5.70	5.74	5.66	5.54	5.43	6.03	5.81	5.88	5.91
11/01/19	11/30/19	Nov 2019	56.37	46.56	58.52	45.22	55.23	46.05	67.47	61.24	66.67	60.36	6.12	6.14	6.02	5.71	5.76	5.72	5.62	5.51	6.06	5.82	5.90	6.02
12/01/19	12/31/19	Dec 2019	63.70	46.77	56.50	46.41	63.87	47.33	67.27	61.92	66.46	61.32	6.20	6.25	6.13	5.79	5.88	5.83	5.53	5.60	6.15	5.91	5.99	5.94
01/01/20	01/31/20	Jan 2020	49.74	43.20	52.24	46.45	47.68	42.27	59.97	55.62	59.46	54.89	6.36	6.27	6.12	5.86	5.92	5.89	5.65	5.74	6.22	5.98	6.06	6.07
02/01/20	02/29/20	Feb 2020	48.17	42.27	51.03	46.34	45.86	40.19	59.37	55.32	58.81	54.82	6.39	6.30	6.15	5.89	5.94	5.91	5.68	5.77	6.25	6.01	6.09	6.10
03/01/20	03/31/20	Mar 2020	46.97	41.31	47.54	43.62	43.58	38.80	57.97	54.64	56.96	53.69	6.14	6.05	5.91	5.67	5.73	5.70	5.50	5.59	6.03	5.79	5.87	5.91
04/01/20	04/30/20	Apr 2020	47.91	40.62	50.25	45.09	47.87	39.61	58.88	54.05	59.00	53.99	6.16	6.01	5.89	5.50	5.55	5.51	5.45	5.39	5.84	5.62	5.69	5.82
05/01/20	05/31/20	May 2020	43.60	40.64	50.35	44.52	45.23	39.82	57.18	53.79	58.55	54.36	6.21	6.03	5.87	5.52	5.59	5.55	5.49	5.42	5.85	5.63	5.70	5.85
06/01/20	06/30/20	Jun 2020	47.60	41.35	57.92	45.44	49.00	41.95	58.54	53.89	59.82	54.05	6.27	6.07	5.89	5.55	5.62	5.59	5.53	5.48	5.88	5.66	5.73	5.89
07/01/20	07/31/20	Jul 2020	58.43	46.53	70.84	50.12	59.95	45.58	69.72	59.06	70.61	59.36	6.42	6.20	5.97	5.58	5.69	5.64	5.57	5.51	5.92	5.69	5.77	5.94
08/01/20	08/31/20	Aug 2020	60.98	47.32	72.14	49.85	61.54	46.32	72.53	59.13	73.02	59.12	6.46	6.23	6.00	5.61	5.69	5.65	5.58	5.52	5.94	5.72	5.79	5.95
09/01/20	09/30/20	Sep 2020	61.81	43.94	61.55	46.01	63.89	42.01	68.22	56.70	67.96	56.34	6.24	6.15	5.95	5.57	5.72	5.66	5.56	5.46	5.90	5.68	5.76	5.92
10/01/20	10/31/20	Oct 2020	54.35	41.97	54.51	45.57	54.31	39.92	62.74	55.08	62.69	54.55	6.24	6.17	6.01	5.63	5.75	5.68	5.57	5.46	5.96	5.74	5.81	5.94
11/01/20	11/30/20	Nov 2020	57.77	47.11	56.51	45.51	56.24	46.81	63.65	56.82	62.84	55.88	6.26	6.24	6.12	5.77	5.86	5.82	5.72	5.62	6.12	5.88	5.96	6.12
12/01/20	12/31/20	Dec 2020	65.19	47.84	56.00	47.38	65.20	49.12	63.13	57.52	62.32	56.68	6.37	6.33	6.21	5.86	5.96	5.92	5.76	5.72	6.21	5.98	6.06	6.17
01/01/21	01/31/21	Jan 2021	61.60	54.38	59.83	54.46	59.41	53.71	64.09	57.96	63.30	57.15	6.53	6.49	6.29	5.99	6.04	6.01	5.77	5.86	6.35	6.11	6.19	6.19
02/01/21	02/28/21	Feb 2021	60.26	53.89	58.60	54.28	57.48	52.73	62.46	57.60	61.80	56.84	6.56	6.49	6.33	6.02	6.08	6.05	5.81	5.90	6.38	6.14	6.22	6.23
03/01/21	03/31/21	Mar 2021	57.63	52.99	56.62	54.04	54.03	52.52	60.63	57.69	59.87	56.86	6.44	6.34	6.21	5.94	6.00	5.98	5.79	5.88	6.29	6.06	6.14	6.20
04/01/21	04/30/21	Apr 2021	61.41	53.27	63.24	55.31	59.60	51.52	66.00	57.77	66.42	58.41	6.44	6.33	6.19	5.81	5.90	5.85	5.77	5.68	6.14	5.92	6.00	6.14
05/01/21	05/31/21	May 2021	57.94	53.20	60.87	55.78	57.84	51.12	62.44	58.21	63.25	58.48	6.50	6.38	6.20	5.82	5.95	5.90	5.81	5.73	6.15	5.93	6.00	6.17
06/01/21	06/30/21	Jun 2021	58.51	53.16	68.19	56.36	58.34	49.94	63.01	58.61	65.20	58.78	6.57	6.45	6.24	5.85	5.99	5.94	5.86	5.79	6.19	5.96	6.04	6.23
07/01/21	07/31/21	Jul 2021	69.60	57.35	79.64	61.46	70.08	55.91	74.90	63.21	75.83	63.51	6.75	6.55	6.34	5.91	6.02	5.97	5.90	5.82	6.24	6.02	6.09	6.26
08/01/21	08/31/21	Aug 2021	73.15	58.80	80.72	60.58	73.01	57.30	78.04	63.41	78.48	63.26	6.79	6.58	6.37	5.93	6.06	6.00	5.92	5.83	6.26	6.04	6.11	6.28

10/01/23	10/31/23	Oct 2023	71.41	59.64	70.67	60.86	71.17	57.57	74.28	64.20	73.96	63.75	7.27	7.19	7.02	6.61	6.78	6.68	6.54	6.39	6.94	6.72	6.79	6.91
11/01/23	11/30/23	Nov 2023	75.84	61.41	70.50	61.49	74.87	63.68	74.24	65.31	73.59	64.44	7.33	7.29	7.15	6.75	6.89	6.84	6.70	6.57	7.10	6.86	6.94	7.10
12/01/23	12/31/23	Dec 2023	78.89	64.44	70.84	62.50	80.32	66.96	75.57	66.46	74.65	65.72	7.43	7.40	7.26	6.84	6.95	6.89	6.89	6.61	7.19	6.96	7.03	7.30
01/01/24	01/31/24	Jan 2024	69.03	61.42	67.78	62.54	69.26	60.66	71.93	66.02	71.23	65.48	7.61	7.49	7.34	6.95	7.02	6.98	6.70	6.78	7.31	7.08	7.15	7.11
02/01/24	02/29/24	Feb 2024	67.43	61.04	67.19	62.18	65.00	60.10	70.97	65.80	70.43	65.17	7.65	7.52	7.37	6.99	7.06	7.02	6.74	6.82	7.35	7.11	7.19	7.15
03/01/24	03/31/24	Mar 2024	60.82	58.71	63.26	60.90	59.54	57.55	65.61	63.92	66.13	63.67	7.23	7.12	6.98	6.63	6.69	6.67	6.44	6.52	6.98	6.63	6.83	6.85
04/01/24	04/30/24	Apr 2024	66.20	58.75	68.36	61.31	65.09	57.10	70.63	63.65	71.26	64.23	7.20	7.06	6.91	6.49	6.55	6.49	6.40	6.31	6.83	6.61	6.68	6.77
05/01/24	05/31/24	May 2024	63.06	58.36	66.70	61.55	62.57	55.88	67.84	63.70	69.27	64.13	7.26	7.11	6.92	6.45	6.60	6.54	6.45	6.35	6.78	6.56	6.63	6.81
06/01/24	06/30/24	Jun 2024	64.06	59.11	74.58	62.89	63.03	56.36	68.46	64.42	71.89	65.04	7.35	7.17	6.98	6.49	6.64	6.59	6.50	6.41	6.83	6.60	6.68	6.86
07/01/24	07/31/24	Jul 2024	78.01	63.90	88.31	68.46	78.27	61.81	83.64	69.89	84.54	70.63	7.56	7.33	7.13	6.54	6.68	6.62	6.54	6.67	6.87	6.65	6.72	6.90
08/01/24	08/31/24	Aug 2024	80.45	64.48	89.20	67.45	80.68	62.69	85.61	69.68	86.23	70.18	7.61	7.38	7.16	6.57	6.72	6.66	6.56	6.47	6.90	6.68	6.76	6.93
09/01/24	09/30/24	Sep 2024	78.21	62.09	77.46	63.51	77.26	60.52	80.55	66.65	80.41	66.38	7.40	7.27	7.07	6.60	6.76	6.68	6.56	6.44	6.93	6.71	6.78	6.93
10/01/24	10/31/24	Oct 2024	72.42	59.77	71.61	61.71	71.54	58.62	75.21	64.95	74.78	64.49	7.37	7.29	7.12	6.64	6.79	6.71	6.58	6.45	6.98	6.76	6.83	6.95
11/01/24	11/30/24	Nov 2024	76.07	62.33	70.65	62.16	75.17	64.19	74.70	65.89	73.96	64.99	7.41	7.34	7.20	6.79	6.92	6.87	6.74	6.60	7.14	6.90	6.98	7.13
12/01/24	12/31/24	Dec 2024	80.05	64.10	71.14	63.31	82.17	67.30	75.80	67.20	74.82	66.36	7.60	7.50	7.34	6.90	7.01	6.96	6.90	6.71	7.25	7.02	7.10	7.31
01/01/25	01/31/25	Jan 2025	70.47	62.79	68.96	63.76	68.40	61.81	73.13	67.35	72.34	66.56	7.80	7.62	7.45	7.01	7.14	7.09	6.79	6.88	7.37	7.13	7.21	7.21
02/01/25	02/28/25	Feb 2025	68.95	62.23	68.44	63.87	66.12	61.00	72.13	67.12	71.53	66.53	7.85	7.65	7.49	7.05	7.18	7.14	6.84	6.92	7.41	7.17	7.25	7.25
03/01/25	03/31/25	Mar 2025	63.04	61.23	65.30	62.96	61.04	59.74	67.81	66.21	68.36	65.68	7.57	7.38	7.24	6.83	6.89	6.87	6.66	6.75	7.18	6.95	7.03	7.08
04/01/25	04/30/25	Apr 2025	68.10	60.44	70.73	63.44	67.65	59.05	72.13	65.81	72.98	66.25	7.53	7.34	7.20	6.74	6.78	6.62	6.63	6.54	6.97	6.75	6.83	7.00
05/01/25	05/31/25	May 2025	65.44	60.77	68.31	63.73	63.70	57.75	69.14	66.12	70.56	66.36	7.59	7.39	7.20	6.66	6.84	6.77	6.68	6.58	6.99	6.76	6.84	7.04
06/01/25	06/30/25	Jun 2025	68.00	61.56	77.62	65.25	67.42	58.67	72.38	66.82	74.88	67.47	7.69	7.43	7.24	6.69	6.88	6.82	6.73	6.64	7.03	6.80	6.88	7.09
07/01/25	07/31/25	Jul 2025	80.97	66.44	91.21	71.09	81.15	64.31	86.49	72.08	87.49	72.95	7.94	7.61	7.41	6.73	6.91	6.86	6.77	6.68	7.07	6.84	6.92	7.13
08/01/25	08/31/25	Aug 2025	83.42	67.25	92.35	70.53	82.93	65.92	88.40	72.25	89.15	72.88	7.98	7.66	7.44	6.77	6.95	6.89	6.80	6.70	7.10	6.88	6.95	7.16
09/01/25	09/30/25	Sep 2025	81.32	63.89	81.37	66.09	80.50	62.91	84.18	68.86	84.21	69.02	7.74	7.56	7.35	6.78	7.00	6.92	6.80	6.68	7.12	6.89	6.97	7.17
10/01/25	10/31/25	Oct 2025	74.60	62.08	74.00	64.05	73.66	60.63	77.75	67.19	77.57	66.97	7.67	7.54	7.37	6.83	7.03	6.94	6.80	6.66	7.16	6.94	7.01	7.17
11/01/25	11/30/25	Nov 2025	78.20	64.43	73.13	64.39	77.76	66.65	77.04	68.07	76.43	67.22	7.69	7.57	7.38	7.08	7.15	7.09	6.95	6.80	7.43	7.20	7.27	7.35
12/01/25	12/31/25	Dec 2025	81.06	66.00	73.57	65.73	82.32	68.82	78.58	69.62	77.59	68.77	7.93	7.77	7.57	7.21	7.27	7.22	7.14	6.96	7.56	7.33	7.40	7.56
01/01/26	01/31/26	Jan 2026	72.95	65.40	71.80	66.14	72.51	64.62	75.93	69.80	75.25	69.04	8.12	7.90	7.66	7.37	7.44	7.39	7.05	7.13	7.73	7.49	7.57	7.47
02/01/26	02/28/26	Feb 2026	72.08	64.89	71.25	66.29	70.49	63.65	74.86	69.67	74.31	69.08	8.17	7.94	7.71	7.41	7.48	7.43	7.10	7.18	7.77	7.53	7.61	7.51
03/01/26	03/31/26	Mar 2026	65.36	64.20	67.65	65.07	64.13	62.78	70.52	68.58	70.62	67.89	7.90	7.66	7.48	7.22	7.28	7.24	6.97	7.05	7.57	7.33	7.41	7.38
04/01/26	04/30/26	Apr 2026	71.40	63.46	73.77	66.08	70.87	61.71	75.23	68.44	71.11	68.93	7.86	7.64	7.41	7.17	7.03	6.92	6.81	7.39	7.17	7.24	7.30	7.30
05/01/26	05/31/26	May 2026	67.84	62.98	71.63	66.36	66.70	60.84	72.54	68.22	73.94	68.88	7.92	7.66	7.43	7.08	7.16	7.09	6.98	6.87	7.41	7.19	7.26	7.34
06/01/26	06/30/26	Jun 2026	70.04	63.79	80.39	67.82	69.70	60.50	74.52	69.06	77.05	69.74	8.06	7.73	7.47	7.12	7.20	7.14	7.04	6.95	7.45	7.23	7.30	7.41
07/01/26	07/31/26	Jul 2026	85.00	69.33	95.45	74.57	85.54	68.19	90.44	75.03	91.34	75.89	8.31	7.95	7.62	7.18	7.26	7.20	7.09	6.99	7.51	7.29	7.36	7.46
08/01/26	08/31/26	Aug 2026	87.32	70.46	96.41	73.91	87.32	69.66	92.09	75.42	92.82	76.18	8.36	8.00	7.66	7.21	7.30	7.23	7.12	7.00	7.54	7.32	7.40	7.49
09/01/26	09/30/26	Sep 2026	84.26	66.41	84.58	68.32	83.36	65.94	87.75	71.16	87.76	71.26	8.05	7.84	7.59	7.22	7.34	7.25	7.11	6.97	7.56	7.33	7.41	7.48
10/01/26	10/31/26	Oct 2026	77.20	64.86	77.16	66.70	76.33	63.87	80.90	69.92	80.64	69.49	8.02	7.86	7.62	7.26	7.37	7.27	7.12	6.97	7.59	7.37	7.45	7.49
11/01/26	11/30/26	Nov 2026	80.93	67.12	75.72	67.16	80.50	69.45	79.57	70.85	78.88	69.95	8.05	7.71	7.51	7.40	7.50	7.43	7.26	7.09	7.74	7.51	7.59	7.66
12/01/26	12/31/26	Dec 2026	86.48	69.51	76.80	68.70	86.73	71.77	81.42	72.40	80.46	71.67	8.28	8.10	7.87	7.50	7.60	7.55	7.33	7.26	7.85	7.62	7.70	7.95
01/01/27	01/31/27	Jan 2027	67.15	73.33	71.54	64.64	68.86	74.65	67.57	78.92	72.28	78.22	71.76	8.49	8.23	7.98	7.74	7.69	7.36	7.44	8.03	7.79	7.87	7.78
02/01/27	02/28/27	Feb 2027	73.94	66.82	73.93	68.75	73.05	66.25	77.76	72.03	77.19	71.69	8.53	8.27	8.03	7.71	7.79	7.74	7.41	7.49	8.07	7.83	7.91	7.83
03/01/27	03/31/27	Mar 2027	69.00	66.32	70.69	68.18	66.68	64.93	73.57	71.54	73.97	71.04	8.25	8.02	7.82	7.51	7.57	7.54	7.26	7.34	8.06	7.82	7.70	7.67
04/01/27	04/30/27	Apr 2027	75.06	66.17	77.21	69.01	74.64	63.54	79.11	71.22	79.91	71.89	8.24	7.96	7.73	7.33	7.39	7.32	7.21	7.10	7.67	7.45	7.52	7.58
05/01/27	05/31/27	May 2027	71.09	66.49	74.65	69.53	69.54	63.58	76.20	71.67	77.25	72.21	8.31	8.00	7.73	7.33	7.45	7.38	7.28	7.17	7.66	7.44	7.51	7.64
06/01/27	06/30/27	Jun 2027	74.10	66.68	84.18	70.97	73.68	64.25	78.97	72.00	80.75	72.76	8.46	8.10	7.78	7.37	7.50	7.44	7.34	7.25	7.70	7.47	7.55	7.71
07/01/27	07/31/27	Jul 2027	88.44	72.65	99.08	78.32	88.73	71.27	94.00	78.22	95.02	79.14	8.72	8.32	7.95	7.48	7.57	7.50	7.39	7.29	7.81	7.59	7.66	7.76
08/01/27	08/31/27	Aug 2027	90.83	73.20	100.32	77.09	91.13	72.05	95.75	78.39	96.63	79.28	8.76	8.37	7.98	7.50	7.59	7.52	7.42	7.31	7.84	7.62	7.69	7.78
09/01/27	09/30/27	Sep 2027	85.36	68.68	85.80	70.83	84.82	68.17	88.97	73.78	89.02	73.69	8.37	8.14	7.89	7.43	7.63	7.53	7.39	7.24	7.77	7.54	7.62	7.76
10/01/27	10/31/27	Oct 2027	80.14	67.34	80.30	69.26	79.11	66.10	84.24	72.62	83.88	72.17	8.34	8.15	7.90	7.47	7.67	7.56	7.39	7.22	7.80	7.58	7.66	7.76

12/01/29	12/31/29	Dec 2029	93.47	75.54	83.74	75.48	93.89	77.86	88.12	78.81	87.25	78.47	9.06	8.82	8.56	7.99	8.26	8.20	8.21	7.89	8.34	8.11	8.18	8.62	
01/01/30	01/31/30	Jan 2030	82.86	73.63	82.39	76.08	83.30	74.15	86.06	78.92	85.35	78.88	9.29	8.97	8.71	8.17	8.43	8.37	8.02	8.10	8.53	8.29	8.37	8.43	
02/01/30	02/28/30	Feb 2030	79.91	73.01	80.95	76.12	81.15	73.55	84.37	78.54	84.18	79.02	9.33	9.00	8.73	8.21	8.48	8.42	8.07	8.14	8.56	8.33	8.41	8.48	
03/01/30	03/31/30	Mar 2030	73.45	70.67	76.42	73.50	71.97	69.40	78.68	76.24	79.36	76.35	8.85	8.52	8.25	7.73	7.93	7.91	7.68	7.77	8.09	7.85	7.93	8.10	
04/01/30	04/30/30	Apr 2030	78.78	70.39	80.98	73.65	77.50	67.76	82.91	75.86	83.56	76.59	8.82	8.39	8.10	7.57	7.84	7.76	7.63	7.51	7.91	7.68	7.76	8.01	
05/01/30	05/31/30	May 2030	74.01	70.10	80.09	74.42	72.55	68.11	78.31	75.30	82.88	76.45	8.89	8.45	8.15	7.60	7.90	7.82	7.69	7.56	7.94	7.71	7.79	8.05	
06/01/30	06/30/30	Jun 2030	76.54	71.39	90.34	77.32	75.52	68.72	80.71	76.80	85.99	77.94	9.14	8.61	8.23	7.65	7.95	7.88	7.76	7.65	7.98	7.76	7.83	8.13	
07/01/30	07/31/30	Jul 2030	94.45	77.75	106.31	85.34	94.41	75.89	99.70	83.29	101.18	84.21	9.49	8.85	8.36	7.76	8.06	7.97	7.84	7.71	8.10	7.87	7.95	8.21	
08/01/30	08/31/30	Aug 2030	96.13	77.89	105.92	83.25	96.17	76.42	101.14	83.15	102.35	84.05	9.54	8.90	8.40	7.80	8.12	8.03	7.88	7.74	8.13	7.91	7.98	8.25	
09/01/30	09/30/30	Sep 2030	90.98	73.98	92.18	77.25	90.11	73.23	94.82	79.29	95.11	79.83	9.16	8.70	8.33	7.73	8.09	8.00	7.85	7.70	8.06	7.84	7.92	8.22	
10/01/30	10/31/30	Oct 2030	84.85	71.84	85.62	74.43	84.05	71.17	88.92	77.27	88.90	77.26	9.01	8.69	8.36	7.76	8.13	8.02	7.85	7.69	8.10	7.87	7.95	8.22	
11/01/30	11/30/30	Nov 2030	87.62	74.65	83.39	75.08	87.85	77.21	87.35	78.66	86.58	77.98	9.05	8.76	8.48	7.86	8.31	8.23	8.05	7.86	8.21	7.98	8.05	8.45	
12/01/30	12/31/30	Dec 2030	95.08	76.33	85.95	77.25	95.19	79.44	89.85	79.92	89.16	80.13	9.24	8.95	8.67	8.05	8.38	8.32	8.35	7.99	8.40	8.17	8.25	8.76	
01/01/31	01/31/31	Jan 2031	82.93	74.95	84.14	77.97	84.40	75.37	87.37	80.39	86.86	80.68	9.48	9.13	8.85	8.22	8.58	8.44	8.13	8.20	8.58	8.34	8.42	8.55	
02/01/31	02/28/31	Feb 2031	81.44	75.12	82.15	78.03	80.71	74.24	86.15	80.60	85.58	80.79	9.54	9.15	8.88	8.25	8.63	8.49	8.18	8.25	8.60	8.37	8.45	8.59	
03/01/31	03/31/31	Mar 2031	74.60	71.73	77.24	74.66	72.91	70.12	79.54	77.23	80.29	77.53	8.96	8.55	8.28	7.74	7.97	7.87	7.70	7.79	8.10	7.86	7.94	8.11	
04/01/31	04/30/31	Apr 2031	78.46	71.17	81.39	74.38	77.65	68.38	82.72	76.69	83.90	77.20	8.92	8.42	8.12	7.51	7.83	7.67	7.41	7.53	7.85	7.62	7.70	7.78	
05/01/31	05/31/31	May 2031	76.46	70.30	81.12	75.07	75.24	68.81	80.70	75.47	83.60	76.70	8.99	8.48	8.10	7.51	7.79	7.64	7.44	7.58	7.84	7.62	7.69	7.80	
06/01/31	06/30/31	Jun 2031	76.96	71.42	91.25	77.49	75.72	69.00	81.12	76.83	87.05	77.98	9.25	8.58	8.16	7.55	7.84	7.72	7.51	7.66	7.89	7.74	7.87	8.01	
07/01/31	07/31/31	Jul 2031	95.21	77.91	107.66	85.79	95.36	75.91	100.45	83.33	101.92	84.14	9.55	8.90	8.36	7.61	7.91	7.76	7.56	7.70	7.94	7.72	7.79	7.92	
08/01/31	08/31/31	Aug 2031	96.51	78.03	106.70	83.70	96.52	76.62	101.62	83.37	102.83	84.27	9.61	8.88	8.40	7.74	7.93	7.84	7.56	7.71	7.97	7.74	7.82	7.93	
09/01/31	09/30/31	Sep 2031	95.97	78.00	97.28	81.15	95.12	76.47	99.98	83.30	100.24	83.86	9.74	9.22	8.82	8.22	8.59	8.41	8.09	8.22	8.55	8.33	8.40	8.46	
10/01/31	10/31/31	Oct 2031	90.54	78.36	91.82	80.69	90.07	76.55	95.02	83.83	95.04	83.66	9.84	9.42	9.18	8.58	9.03	8.81	8.44	8.56	8.92	8.69	8.77	8.81	
11/01/31	11/30/31	Nov 2031	93.85	80.62	89.61	81.05	94.07	82.48	93.65	84.65	92.92	84.00	9.87	9.55	9.22	8.61	9.08	8.86	8.56	8.61	9.06	8.72	8.80	8.96	
12/01/31	12/31/31	Dec 2031	101.99	82.50	92.03	83.11	102.61	85.09	96.32	86.01	95.44	85.99	9.97	9.84	9.35	8.78	9.13	9.12	8.60	8.65	9.02	8.78	8.86	9.01	
01/01/32	01/31/32	Jan 2032	85.93	77.20	85.62	79.40	85.98	76.87	89.31	82.69	88.67	82.34	9.66	9.30	9.02	8.37	8.74	8.60	8.28	8.36	8.73	8.49	8.57	8.70	
02/01/32	02/29/32	Feb 2032	83.31	76.96	83.51	79.21	83.34	75.83	87.64	82.41	86.96	82.08	9.72	9.32	9.05	8.40	8.79	8.65	8.33	8.41	8.76	8.52	8.60	8.75	
03/01/32	03/31/32	Mar 2032	75.90	73.03	78.21	75.24	74.14	72.17	80.95	78.57	81.44	78.09	9.13	8.71	8.44	7.89	8.12	8.02	7.84	7.94	8.24	8.01	8.09	8.26	
04/01/32	04/30/32	Apr 2032	79.92	72.58	82.42	75.91	78.89	69.93	84.37	78.08	85.33	78.43	9.09	8.58	8.27	7.65	7.98	7.82	7.55	7.67	7.99	7.77	7.84	7.92	
05/01/32	05/31/32	May 2032	75.87	72.27	82.48	76.94	73.88	69.53	80.30	77.28	84.53	78.61	9.17	8.64	8.26	7.65	7.94	7.79	7.58	7.72	7.98	7.76	7.84	7.95	
06/01/32	06/30/32	Jun 2032	77.79	72.59	93.05	79.17	77.33	70.17	82.06	77.89	88.35	79.23	9.43	8.75	8.32	7.70	7.99	7.86	7.65	7.80	8.03	7.81	7.88	8.02	
07/01/32	07/31/32	Jul 2032	95.96	78.46	108.70	87.44	96.05	76.89	101.40	83.95	103.05	84.95	9.73	9.07	8.52	7.75	8.06	7.91	7.70	7.84	8.08	7.86	7.94	8.06	
08/01/32	08/31/32	Aug 2032	97.53	78.36	108.55	84.85	97.71	77.12	102.78	83.67	104.22	84.63	9.79	9.05	8.56	7.78	8.09	7.93	7.71	7.86	8.11	7.89	7.97	8.07	
09/01/32	09/30/32	Sep 2032	96.44	78.89	97.82	82.20	95.84	77.85	100.50	84.34	100.73	84.81	9.92	9.40	8.99	8.38	8.75	8.57	8.25	8.37	8.71	8.49	8.56	8.61	
10/01/32	10/31/32	Oct 2032	92.55	80.20	93.71	82.04	91.99	78.43	96.86	85.51	97.19	85.06	10.03	9.70	9.36	8.74	9.20	8.98	8.60	8.73	9.08	8.85	8.93	8.97	
11/01/32	11/30/32	Nov 2032	93.47	81.48	90.36	81.90	93.89	84.01	94.16	85.74	93.42	85.07	10.06	9.73	9.40	8.77	9.25	9.25	8.72	8.77	9.12	8.88	8.96	9.12	
12/01/32	12/31/32	Dec 2032	101.96	83.37	92.90	84.56	103.31	86.07	97.10	87.27	96.27	87.41	10.16	10.03	9.53	8.83	9.30	9.06	8.81	8.94	9.02	8.93	9.02	9.18	
01/01/33	01/31/33	Jan 2033	86.63	78.52	86.59	80.86	86.29	78.87	90.49	83.92	89.90	83.77	9.84	9.48	9.19	8.57	8.94	8.84	8.52	8.69	8.65	8.73	8.86	8.91	
02/01/33	02/28/33	Feb 2033	84.35	78.58	84.96	80.72	84.97	77.55	88.75	83.89	88.53	83.55	9.90	9.50	9.22	8.56	8.96	8.82	8.49	8.57	8.92	8.68	8.76	8.91	
03/01/33	03/31/33	Mar 2033	77.88	74.46	79.94	77.00	75.66	73.53	82.73	80.06	83.22	79.78	9.30	8.88	8.60	8.16	8.42	8.27	8.17	7.99	8.09	8.39	8.16	8.24	8.40
04/01/33	04/30/33	Apr 2033	80.86	74.34	83.66	77.46	79.01	71.41	85.13	79.76	86.80	80.14	9.26	8.74	8.43	7.80	8.13	7.97	7.69	7.82	8.14	7.91	7.99	8.07	
05/01/33	05/31/33	May 2033	77.54	74.10	84.03	78.31	74.79	71.13	82.01	78.93	86.44	80.23	9.34	8.81	8.41	7.80	8.09	7.94	7.73	7.87	8.13	7.91	7.98	8.09	
06/01/33	06/30/33	Jun 2033	80.14	74.45	95.01	80.89	79.24	72.29	84.34	79.84	90.85	81.00	9.61	9.11	8.47	7.84	8.14	8.01	7.80	7.95	8.18	7.95	8.03	8.16	
07/01/33	07/31/33	Jul 2033	98.22	80.60	111.14	89.24	98.11	78.76	103.63	86.06	105.53	87.03	9.92	9.24	8.68	7.90	8.22	8.06	7.85	7.99	8.23	8.01	8.08	8.21	
08/01/33	08/31/33	Aug 2033	99.54	79.60	110.47	86.96	99.48	77.86	104.64	84.96	106.03	85.85	9.97	9.22	8.72	7.93	8.24	8.08	7.85	8.01	8.26	8.04	8.11	8.22	
09/01/33	09/30/33	Sep 2033	96.35	80.33	98.74	83.90	95.21	79.05	100.67	85.83	101.14	86.35	10.11	9.58	9.16	8.53	8.92	8.73	8.40	8.53	8.87	8.64	8.72	8.77	
10/01/33	10/31/33	Oct 2033	93.69	82.17	95.32	83.90	92.54	80.07	97.82	87.50	98.48	87.03	10.22	9.89	9.54	8.91	9.38	9.15	8.76	8.89	9.24	9.02	9.10	9.13	
11/01/33	11/30/33	Nov 2033	95.38	83.53	92.08	83.69	96.31	85.55	96.54	87.73	95.52	86.97	10.25	9.91	9.57	8.94	9.42	9.42	8.89	8.94	9.29	9.05	9.13	9.29	
12/01/33	12/31/33	Dec 2033	102.67	85.75	94.18	86.22	103.30	88.14	98.62	89.58	97.78	89.26	10.36	10.22	9.71	8.99	9.48	9.47	8.						

02/01/36	02/29/36	Feb 2036	89.98	84.13	91.07	86.65	89.55	83.17	94.66	89.63	94.72	89.39	10.49	10.06	9.76	9.07	9.49	9.34	8.99	9.07	9.43	9.19	9.41		
03/01/36	03/31/36	Mar 2036	83.34	79.83	85.75	83.56	80.50	78.46	88.41	85.44	89.07	86.12	9.85	9.40	9.11	8.63	8.47	8.65	8.65	8.47	8.56	8.87	8.71	8.88	
04/01/36	04/30/36	Apr 2036	85.56	79.52	88.99	83.76	83.38	76.70	90.47	85.07	92.09	85.79	9.81	9.26	8.93	8.26	8.61	8.44	8.15	8.28	8.60	8.37	8.45	8.52	
05/01/36	05/31/36	May 2036	81.97	79.25	92.58	85.12	78.82	75.79	87.36	85.09	94.07	86.26	9.89	9.33	8.91	8.26	8.57	8.41	8.18	8.33	8.59	8.37	8.44	8.55	
06/01/36	06/30/36	Jun 2036	84.15	79.10	101.42	88.16	83.65	77.04	88.48	84.64	96.15	85.98	10.18	9.44	9.28	8.31	8.62	8.49	8.26	8.42	8.64	8.42	8.49	8.62	
07/01/36	07/31/36	Jul 2036	103.61	85.20	118.56	95.60	103.24	83.63	109.49	90.66	112.15	91.77	10.50	9.79	9.20	8.37	8.62	8.53	8.31	8.46	8.70	8.48	8.55	8.67	
08/01/36	08/31/36	Aug 2036	105.49	85.09	117.39	93.90	105.37	83.95	110.52	90.40	112.49	91.40	10.56	9.77	9.24	8.40	8.73	8.55	8.32	8.48	8.73	8.51	8.58	8.68	
09/01/36	09/30/36	Sep 2036	102.22	85.77	105.83	90.57	101.41	84.60	106.95	91.23	107.78	91.94	10.71	10.14	9.70	8.04	9.45	9.25	8.90	9.04	9.37	9.15	9.22	9.27	
10/01/36	10/31/36	Oct 2036	97.42	87.93	100.31	89.78	96.37	85.50	102.65	93.25	103.65	92.77	10.82	10.47	10.10	9.44	9.93	9.69	9.28	9.42	9.77	9.55	9.62	9.65	
11/01/36	11/30/36	Nov 2036	100.08	89.03	98.25	89.85	101.37	91.10	102.24	93.83	101.66	93.05	10.86	10.50	10.14	9.47	9.98	9.98	9.41	9.67	9.91	9.58	9.66	9.81	
12/01/36	12/31/36	Dec 2036	109.26	91.04	101.40	91.73	108.75	92.89	105.56	95.13	104.76	94.88	10.97	10.82	10.29	9.53	10.04	10.03	9.46	9.11	9.59	9.88	9.64	9.72	9.87
01/01/37	01/31/37	Jan 2037	95.90	86.27	94.42	88.68	97.66	86.71	98.20	91.78	97.82	91.42	10.62	10.23	9.82	9.21	9.61	9.46	9.11	9.19	9.57	9.33	9.41	9.53	
02/01/37	02/28/37	Feb 2037	92.56	86.63	93.27	88.87	93.95	85.13	96.72	92.11	96.73	91.57	10.69	10.25	9.95	9.24	9.67	9.52	9.16	9.25	9.60	9.36	9.44	9.58	
03/01/37	03/31/37	Mar 2037	85.67	82.73	88.32	86.01	83.29	81.35	91.21	88.34	91.66	88.64	10.04	9.58	9.28	8.68	8.93	8.82	8.63	8.73	9.03	8.80	8.87	9.04	
04/01/37	04/30/37	Apr 2037	87.84	80.97	91.32	86.27	85.45	79.35	91.45	86.56	94.07	87.44	10.00	9.44	9.09	8.42	8.77	8.60	8.30	8.43	8.74	8.53	8.61	8.68	
05/01/37	05/31/37	May 2037	84.79	80.82	95.35	87.97	82.47	77.80	89.38	86.37	95.54	87.74	10.08	9.51	9.08	8.42	8.73	8.57	8.34	8.49	8.75	8.52	8.60	8.70	
06/01/37	06/30/37	Jun 2037	86.57	80.87	103.61	90.23	86.34	80.10	90.46	86.33	98.53	87.69	10.37	9.62	9.15	8.47	8.78	8.65	8.42	8.58	8.80	8.57	8.65	8.78	
07/01/37	07/31/37	Jul 2037	105.16	86.78	121.26	98.45	105.93	85.74	110.40	92.03	114.92	93.63	10.70	9.98	9.37	8.52	8.87	8.70	8.47	8.62	8.86	8.63	8.71	8.83	
08/01/37	08/31/37	Aug 2037	107.16	87.03	120.53	96.45	107.08	85.94	112.18	92.09	115.22	93.41	10.77	9.95	9.41	8.56	8.89	8.72	8.47	8.64	8.89	8.67	8.74	8.84	
09/01/37	09/30/37	Sep 2037	105.03	87.55	109.09	92.53	104.00	86.52	109.52	93.03	110.59	93.78	10.91	10.34	9.89	9.21	9.63	9.43	9.07	9.21	9.54	9.32	9.40	9.44	
10/01/37	10/31/37	Oct 2037	100.84	89.82	104.07	92.28	99.68	87.88	105.25	95.22	107.54	95.11	11.03	10.67	10.29	9.62	10.12	9.88	9.46	9.60	9.95	9.73	9.80	9.83	
11/01/37	11/30/37	Nov 2037	101.98	90.60	100.35	91.81	103.10	92.87	104.19	95.71	103.81	95.04	11.06	10.70	10.33	9.65	10.17	10.17	9.59	9.65	9.99	9.76	9.84	9.99	
12/01/37	12/31/37	Dec 2037	111.04	93.41	103.93	94.12	111.07	96.01	107.79	97.14	107.05	97.09	11.18	11.03	10.48	9.71	10.23	10.22	9.64	9.69	10.06	9.83	9.90	10.05	
01/01/38	01/31/38	Jan 2038	98.85	88.78	97.32	91.05	100.70	90.50	101.22	93.94	100.69	93.68	10.83	10.43	10.10	9.38	9.80	9.64	9.28	9.37	9.74	9.51	9.58	9.70	
02/01/38	02/28/38	Feb 2038	96.05	88.54	95.19	90.57	97.36	89.24	99.09	93.78	98.63	93.27	10.89	10.45	10.14	9.42	9.85	9.70	9.34	9.42	9.77	9.54	9.62	9.75	
03/01/38	03/31/38	Mar 2038	86.82	83.46	90.33	88.54	85.56	83.91	92.27	89.07	93.59	90.02	10.23	9.76	9.46	8.84	9.10	8.99	8.79	8.89	9.20	8.96	9.04	9.20	
04/01/38	04/30/38	Apr 2038	89.03	82.81	94.54	88.69	87.14	81.48	94.18	88.40	96.95	89.40	10.19	9.62	9.27	8.58	8.94	8.76	8.46	8.59	8.92	8.69	8.77	8.83	
05/01/38	05/31/38	May 2038	84.74	82.24	97.46	90.84	81.84	78.25	90.98	88.19	98.10	89.90	10.27	9.69	9.25	8.58	8.90	8.73	8.50	8.65	8.91	8.68	8.76	8.86	
06/01/38	06/30/38	Jun 2038	88.86	82.86	106.45	93.00	88.52	82.19	92.10	88.29	100.84	89.05	10.57	9.80	9.32	8.63	8.95	8.81	8.58	8.74	8.96	8.74	8.81	8.94	
07/01/38	07/31/38	Jul 2038	107.36	89.46	124.45	101.18	107.92	88.36	112.71	94.58	117.42	95.93	10.91	10.17	9.55	8.69	9.04	8.86	8.63	8.79	9.02	8.80	8.87	8.99	
08/01/38	08/31/38	Aug 2038	110.28	88.73	123.77	98.91	110.66	88.61	115.11	93.99	118.08	95.15	10.97	10.14	9.59	8.72	9.06	8.88	8.63	8.80	9.05	8.83	8.90	9.00	
09/01/38	09/30/38	Sep 2038	108.01	89.96	112.51	95.28	107.02	89.06	112.59	95.41	113.32	96.08	11.12	10.53	10.07	9.39	9.81	9.61	9.24	9.38	9.72	9.50	9.57	9.61	
10/01/38	10/31/38	Oct 2038	104.77	91.42	108.00	94.21	103.24	90.99	109.34	96.84	111.26	96.91	11.24	10.87	10.49	9.80	10.31	10.06	9.64	9.78	10.13	9.91	9.99	10.01	
11/01/38	11/30/38	Nov 2038	104.83	93.51	102.08	93.79	107.46	95.67	106.16	97.86	105.43	97.03	11.27	10.90	10.53	9.83	10.37	10.36	9.78	9.83	10.18	9.94	10.02	10.18	
12/01/38	12/31/38	Dec 2038	113.44	95.46	106.05	96.66	113.12	98.21	110.20	99.62	109.47	99.29	11.39	11.24	10.68	9.89	10.42	10.42	9.82	9.88	10.25	10.01	10.09	10.23	
01/01/39	01/31/39	Jan 2039	99.08	90.14	98.48	93.16	99.85	91.70	102.13	95.23	101.81	95.51	11.03	10.62	10.30	9.56	9.98	9.82	9.46	9.55	9.92	9.68	9.76	9.88	
02/01/39	02/28/39	Feb 2039	97.36	90.56	96.84	93.07	97.93	90.30	100.75	95.72	100.24	95.54	11.10	10.64	10.33	9.60	10.04	9.88	9.52	9.60	9.95	9.72	9.80	9.93	
03/01/39	03/31/39	Mar 2039	88.87	85.61	92.70	90.22	87.40	86.22	94.39	91.20	95.81	92.09	10.42	9.95	9.64	9.01	9.27	9.16	8.96	9.06	9.36	9.13	9.21	9.37	
04/01/39	04/30/39	Apr 2039	92.30	85.56	96.65	91.53	90.09	83.66	96.35	90.94	99.41	91.89	10.38	9.80	9.44	8.74	9.11	8.93	8.62	8.76	9.08	8.85	8.93	8.99	
05/01/39	05/31/39	May 2039	87.81	84.67	99.85	92.85	86.72	82.54	93.01	90.20	100.06	91.87	10.47	9.87	9.43	8.85	9.07	8.89	8.66	8.82	9.07	8.85	8.92	9.02	
06/01/39	06/30/39	Jun 2039	90.79	84.49	108.98	95.39	90.62	84.88	93.61	89.91	102.76	90.46	10.77	9.99	9.50	8.79	9.12	8.98	8.74	8.91	9.12	8.90	8.97	9.10	
07/01/39	07/31/39	Jul 2039	109.38	90.67	127.04	103.96	109.81	90.39	114.58	95.95	119.77	97.57	11.11	10.36	9.73	8.85	9.21	9.03	8.79	8.96	9.19	8.96	9.04	9.16	
08/01/39	08/31/39	Aug 2039	111.80	89.61	126.38	100.86	112.65	90.36	116.48	94.83	119.59	96.07	11.18	10.33	9.77	8.88	9.23	9.05	8.80	8.97	9.22	8.99	9.07	9.17	
09/01/39	09/30/39	Sep 2039	107.84	91.53	114.46	97.86	106.69	90.91	112.79	96.65	113.80	96.76	11.33	10.73	10.27	9.67	9.42	9.56	9.00	9.42	9.69	9.67	9.75	9.79	
10/01/39	10/31/39	Oct 2039	103.42	92.79	110.24	96.60	102.70	92.55	108.50	98.18	113.29	98.50	11.45	11.08	10.69	9.98	10.51	10.26	9.82	9.96	10.32	10.10	10.17	10.19	
11/01/39	11/30/39	Nov 2039	106.79	95.54	104.21	96.00	109.02	97.89	108.00	99.77	107.58	99.00	11.49	11.11	10.73	10.02	10.56	10.56	9.96	10.02	10.36	10.13	10.21	10.36	
12/01/39	12/31/39	Dec 2039	114.22	98.38	107.82	98.95	113.92	100.88	111.80	101.72	111.01	101.61	11.61	11.45	10.88	10.08	10.62	10.61	10.01	10.07	10.43	10.20	10.28	10.42	
01/01/40	01/31/40	Jan 2040	103.43	91.95	100.76	96.07	105.26	94.35	104.28	96.96	103.93	97.52	11.24	10.83	10.49	9.74	10.17	10.01	9.64	9.73	10.				

51957	51986	51957	98.1342	91.0452	104.5398	99.1542	96.5124	90.0354	102.561	96.7062	105.519	97.7772	11.007432	10.388088	10.011606	9.26619	9.659298	9.466008	\$	9.138	\$	9.285	9.610746	9.381552	9.459684	9.52068
-------	-------	-------	---------	---------	----------	---------	---------	---------	---------	---------	---------	---------	-----------	-----------	-----------	---------	----------	----------	----	-------	----	-------	----------	----------	----------	---------

Quote Date	Data Type:	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC	FPC
12/30/2011	Commodity:	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	
1211 Official Base Case: Blend of... 1211D Midas forecast completed 12/15/2011 12/30/2011 forward market curve		COB N-S	COB N-S	PV	PV	MID-C	MID-C	NP15	NP15	SP15	SP15	HENRYHUB	SOCALBOR	SANJUAN	ROCKOPAL	MALINGAS	STANFLDS	SUMASS	AECO	GADSBY	CURRRCR	LAKESIDE	Z_CHEBRN		
		COB		Palo Verde		Mid-Columbia		NP 15		SP 15		Henry Hub Gas	SOCALBOR	SANJUAN	Opal Gas	Malin Gas	Stanfl Gas	SUMAS	AECO	GADSBY	Current Creek	Lakeside	Z_CHEBRN'		
		Start	End	Peak Type:	Forward Prices	Forward Prices	Forward Prices	Forward Prices	Forward Prices	Forward Prices	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price	Fwd Price
			HLH	LLH	HLH	LLH	HLH	LLH	HLH	LLH	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat		
01/01/12	01/31/12	Jan 2012	30.80	26.89	29.99	24.05	29.22	26.12	30.94	26.21	31.14	24.43	3.08	3.42	3.10	3.04	3.17	3.15	3.48	2.80	3.20	3.02	3.05	3.43	
02/01/12	02/29/12	Feb 2012	30.50	26.75	29.75	23.00	27.75	24.75	30.50	25.50	31.00	24.00	2.99	3.14	2.91	2.95	3.03	2.95	3.04	2.72	3.25	3.02	3.06	3.31	
03/01/12	03/31/12	Mar 2012	29.50	24.50	30.25	21.75	26.25	22.00	30.25	23.00	31.00	23.00	3.02	3.12	2.88	2.91	3.01	2.93	2.90	2.73	3.20	2.98	3.01	3.16	
04/01/12	04/30/12	Apr 2012	29.96	22.88	30.75	22.41	25.37	19.20	29.80	21.09	30.25	21.19	3.08	3.16	2.90	2.92	2.98	2.90	2.83	2.71	3.20	2.99	3.02	3.01	
05/01/12	05/31/12	May 2012	25.95	14.95	29.83	19.92	22.25	12.00	28.91	18.13	29.65	18.00	3.13	3.21	2.95	2.97	3.03	2.95	2.88	2.72	3.25	3.04	3.07	3.07	
06/01/12	06/30/12	Jun 2012	24.34	7.93	31.67	19.92	19.14	4.80	29.80	16.28	30.86	17.06	3.18	3.26	3.00	3.02	3.08	3.00	2.93	2.76	3.30	3.09	3.12	3.12	
07/01/12	07/31/12	Jul 2012	33.81	22.14	39.14	27.00	31.83	18.87	37.25	25.46	39.39	25.89	3.24	3.33	3.06	3.08	3.15	3.07	2.99	2.78	3.37	3.15	3.19	3.19	
08/01/12	08/31/12	Aug 2012	38.59	27.81	39.53	27.54	35.18	25.97	38.37	26.78	40.17	28.07	3.28	3.36	3.10	3.11	3.18	3.10	3.02	2.81	3.40	3.19	3.22	3.22	
09/01/12	09/30/12	Sep 2012	37.85	31.05	37.59	26.46	33.50	28.67	36.13	26.51	37.44	27.80	3.28	3.37	3.10	3.12	3.19	3.11	3.03	2.85	3.41	3.19	3.23	3.23	
10/01/12	10/31/12	Oct 2012	34.04	30.00	35.54	26.25	31.51	27.44	37.88	29.50	38.37	29.04	3.32	3.40	3.14	3.16	3.22	3.14	3.07	2.89	3.45	3.23	3.27	3.27	
11/01/12	11/30/12	Nov 2012	37.37	30.94	33.81	25.99	33.57	30.09	36.75	29.50	36.51	28.46	3.48	3.56	3.31	3.31	3.42	3.34	3.57	3.08	3.61	3.38	3.42	3.87	
12/01/12	12/31/12	Dec 2012	39.59	32.81	34.16	26.51	37.33	30.98	37.88	29.50	36.88	28.75	3.76	3.84	3.59	3.64	3.69	3.61	3.84	3.33	3.96	3.73	3.77	4.16	
01/01/13	01/31/13	Jan 2013	39.75	32.81	37.60	28.56	36.57	31.34	44.81	32.50	43.94	32.25	3.88	3.96	3.71	3.77	3.86	3.78	3.97	3.43	4.09	3.86	3.90	4.29	
02/01/13	02/28/13	Feb 2013	37.88	31.25	36.87	28.00	34.85	29.61	43.50	33.48	43.50	32.25	3.88	3.96	3.71	3.76	3.90	3.82	3.97	3.43	4.08	3.85	3.89	4.29	
03/01/13	03/31/13	Mar 2013	34.88	29.69	35.04	27.44	32.09	25.30	42.20	31.53	43.07	32.25	3.87	3.95	3.70	3.74	3.84	3.76	3.95	3.44	4.05	3.83	3.86	4.28	
04/01/13	04/30/13	Apr 2013	36.40	25.20	37.00	22.40	32.16	20.21	38.38	25.88	39.64	26.26	3.82	3.90	3.63	3.64	3.72	3.62	3.54	3.42	3.94	3.76	3.70	3.77	
05/01/13	05/31/13	May 2013	30.88	17.10	35.52	20.88	26.43	12.54	37.24	21.83	38.47	19.14	3.84	3.92	3.65	3.66	3.72	3.64	3.56	3.40	3.96	3.74	3.78	3.79	
06/01/13	06/30/13	Jun 2013	30.23	11.70	38.48	21.97	23.16	11.51	38.38	19.80	39.64	21.36	3.87	3.95	3.68	3.69	3.75	3.67	3.59	3.41	3.99	3.78	3.81	3.82	
07/01/13	07/31/13	Jul 2013	41.63	24.49	48.93	30.00	37.54	21.75	49.00	32.50	51.45	32.01	3.91	3.99	3.72	3.73	3.79	3.71	3.63	3.43	4.04	3.82	3.86	3.87	
08/01/13	08/31/13	Aug 2013	47.51	34.10	49.40	30.90	44.14	29.66	51.50	35.18	54.08	33.99	3.93	4.01	3.74	3.75	3.81	3.73	3.65	3.44	4.06	3.84	3.88	3.89	
09/01/13	09/30/13	Sep 2013	46.61	34.41	44.18	29.10	42.08	33.34	49.50	32.83	51.98	33.00	3.94	4.02	3.75	3.76	3.82	3.74	3.66	3.47	4.06	3.85	3.88	3.89	
10/01/13	10/31/13	Oct 2013	40.71	35.04	40.69	30.75	38.08	32.90	47.52	34.91	48.96	33.25	3.97	4.05	3.78	3.79	3.85	3.77	3.69	3.52	4.10	3.88	3.92	3.93	
11/01/13	11/30/13	Nov 2013	44.69	35.77	39.90	30.14	41.92	34.65	47.52	36.02	47.04	33.95	4.09	4.15	3.81	3.94	4.00	3.92	4.16	3.66	4.26	4.03	4.07	4.50	
12/01/13	12/31/13	Dec 2013	47.35	38.69	37.92	31.37	44.41	37.45	48.96	39.32	48.00	37.80	4.31	4.37	4.03	4.21	4.22	4.14	4.38	3.86	4.53	4.30	4.35	4.73	
01/01/14	01/31/14	Jan 2014	44.50	35.81	41.35	30.31	40.57	34.84	49.81	35.50	48.94	35.25	4.42	4.48	4.14	4.31	4.38	4.30	4.50	3.96	4.64	4.41	4.45	4.86	
02/01/14	02/28/14	Feb 2014	42.63	34.25	40.62	29.75	38.85	33.11	48.50	36.48	48.50	35.25	4.40	4.46	4.12	4.28	4.40	4.32	4.48	3.94	4.61	4.38	4.42	4.83	
03/01/14	03/31/14	Mar 2014	39.63	32.69	38.79	29.19	36.09	28.80	47.20	34.53	48.07	35.25	4.33	4.40	4.06	4.21	4.28	4.20	4.41	3.90	4.53	4.30	4.35	4.76	
04/01/14	04/30/14	Apr 2014	41.15	28.20	39.75	22.40	32.41	21.71	42.88	27.88	44.64	29.01	4.20	4.26	3.93	4.02	4.06	3.98	3.91	3.79	4.33	4.10	4.15	4.17	
05/01/14	05/31/14	May 2014	35.63	20.10	38.27	20.88	26.68	14.04	41.74	23.83	43.47	21.89	4.21	4.28	3.94	4.03	4.08	4.00	3.93	3.77	4.34	4.12	4.16	4.18	
06/01/14	06/30/14	Jun 2014	34.98	14.70	41.23	21.97	23.41	13.01	42.88	21.80	44.64	24.11	4.24	4.30	3.97	4.06	4.10	4.02	3.95	3.78	4.37	4.15	4.22	4.21	
07/01/14	07/31/14	Jul 2014	46.13	27.99	53.18	30.75	41.54	25.00	54.50	36.00	56.95	35.76	4.28	4.34	4.01	4.10	4.14	4.06	3.99	3.79	4.41	4.19	4.26	4.25	
08/01/14	08/31/14	Aug 2014	52.01	37.60	53.65	31.65	48.14	32.91	57.00	38.68	59.58	37.74	4.30	4.36	4.03	4.11	4.16	4.08	4.01	3.80	4.43	4.21	4.28	4.27	
09/01/14	09/30/14	Sep 2014	51.11	37.91	48.43	29.85	46.08	36.59	55.00	36.33	57.48	36.75	4.30	4.36	4.03	4.12	4.16	4.08	4.01	3.83	4.43	4.21	4.28	4.27	
10/01/14	10/31/14	Oct 2014	45.46	38.29	45.44	32.25	42.68	36.65	53.02	38.41	54.96	36.75	4.34	4.40	4.07	4.15	4.20	4.12	4.05	3.87	4.47	4.25	4.32	4.31	
11/01/14	11/30/14	Nov 2014	49.44	39.02	44.65	31.64	46.42	38.40	53.02	39.52	53.04	37.45	4.43	4.49	4.07	4.28	4.32	4.24	4.49	3.99	4.61	4.38	4.45	4.85	
12/01/14	12/31/14	Dec 2014	52.10	41.94	42.67	32.87	48.91	41.20	54.46	42.82	54.00	41.30	4.63	4.69	4.28	4.52	4.53	4.45	4.70	4.17	4.86	4.63	4.70	5.06	
01/01/15	01/31/15	Jan 2015	47.75	37.56	45.20	32.31	43.82	36.59	54.66	38.00	53.79	37.75	4.73	4.80	4.40	4.62	4.69	4.61	4.82	4.27	4.96	4.73	4.80	5.19	
02/01/15	02/28/15	Feb 2015	45.88	36.00	44.47	31.75	42.10	34.86	53.35	38.98	53.35	37.75	4.71	4.77	4.37	4.59	4.71	4.63	4.76	4.23	4.93	4.70	4.77	5.13	
03/01/15	03/31/15	Mar 2015	42.88	34.44	42.64	31.19	39.34	30.55	52.05	37.03	52.92	37.75	4.62	4.68	4.29	4.50	4.57	4.49	4.68	4.17	4.83	4.60	4.68	5.05	
04/01/15	04/30/15	Apr 2015	44.40	29.95	43.60	24.40	35.66	23.46	47.73	30.38	49.49	31.51	4.44	4.51	4.11	4.14	4.31	4.23	4.14	4.02	4.46	4.24	4.31	4.40	
05/01/15	05/31/15	May 2015	38.88	21.85	42.12	22.88	29.93	15.79	46.59	26.33	48.32	24.39	4.45	4.52	4.12	4.15	4.32	4.24	4.15	3.99	4.47	4.25	4.32	4.41	
06/01/15	06/30/15	Jun 2015	38.23	16.45	45.08	23.97	26.66	14.76	47.73	24.30	49.49	26.61	4.48	4.54	4.15	4.18	4.34	4.26	4.17	4.00	4.50	4.28	4.35	4.44	
07/01/15	07/31/15	Jul 2015	49.38	29.74	57.03	32.75	44.79	26.75	59.35	38.50	61.80	38.26	4.52	4.58	4.19	4.22	4.38	4.30	4.21	4.00	4.53	4.31	4.38	4.48	
08/01/15	08/31/15	Aug 2015	55.26	39.35	57.50	33.65	51.39	34.66	61.85	41.18	64.43	40.24	4.54	4.60	4.21	4.24	4.40	4.32	4.23	4.02	4.55	4.33	4.40	4.50	
09/01/1																									

04/01/17	04/30/17	Apr 2017	51.40	33.65	50.10	29.20	42.66	27.16	56.48	35.13	58.24	36.16	4.96	4.80	4.63	4.70	4.82	4.74	4.71	4.59	5.03	4.81	4.88	5.01
05/01/17	05/31/17	May 2017	45.88	25.55	48.62	27.68	36.93	19.49	55.34	31.08	57.07	29.04	4.97	4.69	4.64	4.71	4.83	4.75	4.72	4.57	5.04	4.82	4.89	5.02
06/01/17	06/30/17	Jun 2017	45.23	20.15	51.58	28.77	33.66	18.46	56.48	29.05	58.24	31.26	5.00	4.71	4.67	4.74	4.86	4.78	4.75	4.58	5.07	4.85	4.92	5.05
07/01/17	07/31/17	Jul 2017	56.38	33.44	63.53	37.55	51.79	30.45	68.10	43.25	70.55	42.91	5.03	4.94	4.70	4.77	4.90	4.82	4.79	4.58	5.11	4.88	4.96	5.09
08/01/17	08/31/17	Aug 2017	62.26	43.05	64.00	38.45	58.39	38.36	70.60	45.93	73.18	44.89	5.06	4.98	4.73	4.80	4.93	4.85	4.82	4.61	5.14	4.91	4.99	5.12
09/01/17	09/30/17	Sep 2017	61.36	43.36	58.78	36.65	56.33	42.04	68.60	43.58	71.08	43.90	5.07	4.97	4.74	4.81	4.93	4.85	4.82	4.64	5.14	4.92	5.00	5.13
10/01/17	10/31/17	Oct 2017	55.71	43.74	55.79	39.05	52.93	42.10	66.62	45.66	68.56	43.90	5.10	4.87	4.77	4.84	4.97	4.89	4.86	4.68	5.18	4.95	5.03	5.16
11/01/17	11/30/17	Nov 2017	59.69	44.47	55.00	38.44	56.67	43.85	66.62	46.77	66.64	44.60	5.22	5.04	4.81	4.98	5.12	5.04	5.33	4.83	5.33	5.10	5.17	5.73
12/01/17	12/31/17	Dec 2017	62.35	47.39	53.02	39.67	59.16	46.65	68.06	50.07	67.60	48.45	5.45	5.27	5.03	5.22	5.34	5.26	5.55	5.03	5.58	5.34	5.42	5.97
01/01/18	01/31/18	Jan 2018	58.00	43.01	54.95	38.91	54.07	42.04	67.41	45.00	66.54	44.65	5.57	5.39	5.23	5.33	5.53	5.45	5.73	5.19	5.69	5.46	5.54	6.16
02/01/18	02/28/18	Feb 2018	53.27	41.71	53.74	41.80	50.64	41.09	63.17	50.87	62.74	49.95	5.85	5.76	5.61	5.58	5.72	5.66	5.78	5.37	5.94	5.70	5.78	6.21
03/01/18	03/31/18	Mar 2018	48.61	40.25	50.58	40.68	45.98	37.93	60.71	49.85	60.80	49.78	5.72	5.60	5.46	5.44	5.56	5.50	5.56	5.29	5.80	5.56	5.64	5.98
04/01/18	04/30/18	Apr 2018	50.08	38.26	49.59	37.50	46.87	34.58	58.23	46.49	59.46	46.96	5.62	5.48	5.34	5.25	5.34	5.27	5.20	5.10	5.59	5.37	5.44	5.59
05/01/18	05/31/18	May 2018	47.56	33.80	50.64	36.57	43.58	30.99	59.11	44.22	60.23	43.60	5.65	5.44	5.34	5.25	5.33	5.27	5.22	5.10	5.59	5.36	5.44	5.60
06/01/18	06/30/18	Jun 2018	48.35	31.71	55.23	38.04	43.24	31.32	60.00	43.64	61.30	44.63	5.69	5.47	5.37	5.28	5.36	5.30	5.25	5.13	5.62	5.39	5.47	5.64
07/01/18	07/31/18	Jul 2018	60.73	41.00	70.06	44.59	59.57	38.98	72.32	53.46	74.30	53.13	5.79	5.67	5.46	5.32	5.41	5.34	5.29	5.15	5.66	5.44	5.52	5.68
08/01/18	08/31/18	Aug 2018	64.08	45.86	67.05	44.42	62.47	42.81	74.90	54.67	76.79	53.91	5.82	5.70	5.49	5.35	5.44	5.37	5.31	5.17	5.69	5.47	5.54	5.71
09/01/18	09/30/18	Sep 2018	62.12	43.88	60.19	41.53	60.34	43.11	69.39	51.36	70.72	51.50	5.61	5.54	5.33	5.25	5.33	5.26	5.19	5.04	5.59	5.37	5.44	5.58
10/01/18	10/31/18	Oct 2018	56.37	42.83	56.73	41.89	54.95	41.13	66.48	51.75	67.40	50.66	5.60	5.50	5.36	5.27	5.35	5.28	5.20	5.05	5.61	5.39	5.47	5.60
11/01/18	11/30/18	Nov 2018	57.85	45.75	54.51	41.41	55.95	44.81	65.54	52.80	65.07	51.29	5.67	5.59	5.41	5.34	5.44	5.38	5.47	5.17	5.70	5.47	5.55	5.90
12/01/18	12/31/18	Dec 2018	61.52	47.12	55.24	43.55	59.66	46.79	66.98	54.66	66.26	53.35	5.82	5.76	5.58	5.51	5.61	5.55	5.54	5.31	5.87	5.64	5.72	5.98
01/01/19	01/31/19	Jan 2019	57.01	42.81	55.17	42.53	56.00	41.36	66.10	51.85	65.53	51.24	5.97	5.83	5.67	5.60	5.72	5.67	5.69	5.46	5.97	5.73	5.81	6.14
02/01/19	02/28/19	Feb 2019	53.66	43.71	56.52	47.05	52.18	43.62	64.23	58.01	63.37	57.50	6.46	6.46	6.30	6.14	6.19	6.15	6.20	5.91	6.50	6.26	6.34	6.62
03/01/19	03/31/19	Mar 2019	47.35	42.36	52.01	45.36	45.63	41.61	60.63	57.93	59.93	57.15	6.29	6.22	6.09	5.95	6.00	5.97	5.84	5.81	6.31	6.07	6.15	6.26
04/01/19	04/30/19	Apr 2019	48.76	42.87	49.07	45.80	51.08	42.00	59.98	57.86	60.68	57.76	6.28	6.16	6.05	5.80	5.85	5.79	5.70	5.60	6.14	5.92	6.00	6.08
05/01/19	05/31/19	May 2019	49.24	42.05	52.65	45.45	50.23	42.50	62.87	57.36	63.39	58.17	6.33	6.20	6.04	5.79	5.83	5.78	5.71	5.64	6.13	5.90	5.98	6.10
06/01/19	06/30/19	Jun 2019	51.47	43.27	58.87	47.32	52.81	44.19	63.52	58.23	64.36	57.99	6.39	6.24	6.08	5.82	5.86	5.82	5.75	5.69	6.16	5.94	6.01	6.14
07/01/19	07/31/19	Jul 2019	65.07	48.56	76.59	51.62	67.35	47.50	76.54	63.68	78.05	63.35	6.54	6.39	6.21	5.87	5.92	5.87	5.79	5.72	6.21	5.99	6.06	6.18
08/01/19	08/31/19	Aug 2019	65.90	48.66	70.10	50.39	66.56	47.25	79.20	63.42	80.41	62.93	6.58	6.43	6.24	5.90	5.95	5.90	5.81	5.73	6.24	6.01	6.09	6.20
09/01/19	09/30/19	Sep 2019	62.89	44.40	61.61	46.40	64.35	44.19	70.18	59.13	70.36	59.10	6.16	6.11	5.92	5.69	5.73	5.66	5.55	5.44	6.03	5.81	5.88	5.94
10/01/19	10/31/19	Oct 2019	57.03	41.92	57.68	44.72	56.96	40.15	66.34	57.83	66.23	57.41	6.09	6.12	5.94	5.70	5.74	5.66	5.54	5.43	6.04	5.82	5.89	5.94
11/01/19	11/30/19	Nov 2019	56.00	47.03	54.02	44.38	55.23	45.77	64.46	58.84	63.49	57.98	6.12	6.14	6.02	5.71	5.76	5.72	5.62	5.51	6.07	5.83	5.91	6.04
12/01/19	12/31/19	Dec 2019	60.69	46.84	57.46	47.44	60.57	46.93	65.89	59.25	64.92	58.24	6.20	6.25	6.13	5.79	5.88	5.83	5.53	5.60	6.16	5.92	6.00	5.97
01/01/20	01/31/20	Jan 2020	56.02	42.60	55.40	46.15	57.92	40.68	64.80	58.70	64.53	57.82	6.36	6.27	6.12	5.86	5.92	5.89	5.65	5.74	6.23	5.99	6.08	6.10
02/01/20	02/29/20	Feb 2020	51.19	42.34	54.83	46.21	48.88	40.06	62.71	58.21	61.81	57.62	6.39	6.30	6.15	5.89	5.94	5.91	5.68	5.77	6.25	6.01	6.09	6.11
03/01/20	03/31/20	Mar 2020	47.18	40.45	49.75	43.37	44.35	38.69	60.13	57.11	59.30	56.17	6.14	6.05	5.91	5.67	5.73	5.70	5.50	5.59	6.03	5.80	5.87	5.92
04/01/20	04/30/20	Apr 2020	46.37	41.84	48.49	44.04	47.02	39.70	59.40	57.53	60.12	56.91	6.16	6.01	5.89	5.50	5.55	5.51	5.45	5.39	5.84	5.62	5.70	5.83
05/01/20	05/31/20	May 2020	46.36	41.55	51.25	43.45	44.77	43.60	61.14	55.71	62.88	56.01	6.21	6.03	5.87	5.52	5.59	5.55	5.49	5.42	5.86	5.63	5.71	5.87
06/01/20	06/30/20	Jun 2020	49.38	40.52	58.39	46.01	50.18	39.75	61.65	56.57	62.81	56.24	6.27	6.07	5.89	5.55	5.62	5.59	5.53	5.48	5.89	5.67	5.74	5.92
07/01/20	07/31/20	Jul 2020	63.53	47.57	75.59	50.08	65.75	46.49	75.12	62.58	76.87	62.20	6.42	6.20	5.97	5.58	5.68	5.64	5.57	5.51	5.92	5.70	5.78	5.96
08/01/20	08/31/20	Aug 2020	64.29	47.61	69.51	49.22	64.64	46.32	77.70	62.51	79.08	62.07	6.46	6.23	6.00	5.61	5.69	5.65	5.58	5.52	5.95	5.73	5.80	5.98
09/01/20	09/30/20	Sep 2020	62.90	43.60	60.95	46.38	64.27	42.61	70.10	59.00	70.43	58.93	6.24	6.15	5.95	5.57	5.72	5.66	5.56	5.46	5.91	5.69	5.77	5.95
10/01/20	10/31/20	Oct 2020	56.36	41.83	56.09	45.43	56.28	39.52	66.27	58.00	66.12	57.34	6.24	6.17	6.01	5.63	5.75	5.68	5.57	5.46	5.97	5.74	5.82	5.96
11/01/20	11/30/20	Nov 2020	57.25	47.24	52.91	46.01	55.34	46.77	65.81	59.37	64.70	58.63	6.26	6.24	6.12	5.77	5.86	5.82	5.72	5.62	6.13	5.89	5.97	6.15
12/01/20	12/31/20	Dec 2020	60.61	46.80	56.66	47.64	60.31	47.98	67.19	59.98	66.22	59.40	6.37	6.33	6.21	5.86	5.96	5.92	5.76	5.72	6.23	5.99	6.07	6.20
01/01/21	01/31/21	Jan 2021	62.54	54.29	61.88	54.57	62.23	53.14	66.40	57.92	65.61	57.16	6.53	6.45	6.29	5.99	6.04	6.01	5.77	5.86	6.36	6.12	6.20	6.22
02/01/21	02/28/21	Feb 2021	61.09	53.70	61.76	54.22	60.38	51.92	64.97	57.63	64.83	56.87	6.56	6.49	6.33	6.02	6.08	6.05	5.81	5.90	6.38	6.15	6.23	6.24
03/01/21	03/31/21	Mar 2021	57.49	53.29	57.64	54.10	55.51	52.25	60.40	57.61	60.57	56.84	6.44	6.34	6.21	5.94	6.00	5.98	5.79	5.88	6.30	6.06	6.14	6.21
04/01/21	04/30/21	Apr 2021	56.42	52.66	59.38	55.04	55.23	50.92	60.71	57.50	61.55	58.12	6.44	6.33	6.19	5.81	5.90	5.85	5.77	5.68	6.15	5.92	6.00	6.15

05/01/23	05/31/23	May 2023	65.86	59.49	68.18	62.08	65.80	58.34	70.29	64.52	70.98	64.78	7.49	7.32	7.14	6.73	6.80	6.75	6.68	6.60	7.07	6.85	6.92	7.06	
06/01/23	06/30/23	Jun 2023	67.56	59.78	76.81	63.35	68.30	59.39	72.45	65.05	74.07	65.56	7.58	7.37	7.18	6.77	6.84	6.80	6.74	6.67	7.11	6.89	6.96	7.12	
07/01/23	07/31/23	Jul 2023	82.77	65.61	93.78	70.28	83.41	65.37	88.57	71.34	90.08	71.98	7.78	7.55	7.34	6.81	6.88	6.84	6.77	6.71	7.15	6.92	7.00	7.16	
08/01/23	08/31/23	Aug 2023	86.07	65.13	90.22	68.15	85.33	63.90	90.65	70.62	91.76	71.22	7.83	7.59	7.38	6.84	6.91	6.87	6.80	6.72	7.18	6.96	7.03	7.19	
09/01/23	09/30/23	Sep 2023	78.83	61.24	78.59	62.92	78.34	60.16	81.66	66.05	81.53	65.90	7.25	7.15	6.99	6.57	6.74	6.66	6.52	6.39	6.92	6.69	6.77	6.92	
10/01/23	10/31/23	Oct 2023	73.30	59.88	72.69	60.79	73.21	57.52	76.66	64.38	76.10	63.89	7.27	7.19	7.02	6.61	6.78	6.68	6.54	6.39	6.95	6.72	6.80	6.93	
11/01/23	11/30/23	Nov 2023	74.64	61.78	69.38	61.57	74.02	63.72	73.61	65.50	72.67	64.52	7.33	7.29	7.15	6.75	6.89	6.84	6.70	6.57	7.11	6.87	6.95	7.13	
12/01/23	12/31/23	Dec 2023	77.66	63.95	71.26	62.86	77.60	65.48	75.39	66.64	74.40	65.86	7.43	7.40	7.26	6.84	6.95	6.89	6.89	6.89	6.61	7.20	6.97	7.05	7.32
01/01/24	01/31/24	Jan 2024	72.03	62.02	70.34	62.83	72.78	60.49	74.77	66.47	73.94	65.73	7.61	7.49	7.34	6.95	7.02	6.98	6.80	6.78	7.32	7.09	7.17	7.15	
02/01/24	02/29/24	Feb 2024	69.57	61.39	69.95	62.79	69.25	59.26	73.75	66.03	73.42	65.38	7.65	7.52	7.37	6.99	7.06	7.02	6.74	6.82	7.35	7.12	7.19	7.16	
03/01/24	03/31/24	Mar 2024	61.84	59.17	64.19	60.84	60.51	56.97	66.40	63.82	66.62	63.51	7.23	7.12	6.98	6.63	6.69	6.67	6.44	6.52	6.99	6.75	6.83	6.86	
04/01/24	04/30/24	Apr 2024	61.61	58.33	65.25	60.94	60.31	56.17	66.18	63.58	67.05	63.68	7.20	7.06	6.91	6.49	6.55	6.49	6.40	6.31	6.83	6.61	6.69	6.78	
05/01/24	05/31/24	May 2024	63.59	57.76	66.40	61.14	61.91	56.16	68.28	63.34	69.56	63.78	7.26	7.11	6.92	6.45	6.60	6.54	6.45	6.35	6.79	6.57	6.64	6.83	
06/01/24	06/30/24	Jun 2024	64.08	58.95	74.41	62.58	63.33	55.94	68.41	64.38	70.93	64.49	7.35	7.17	6.98	6.49	6.64	6.59	6.50	6.41	6.84	6.61	6.69	6.89	
07/01/24	07/31/24	Jul 2024	80.48	63.41	91.49	68.03	80.97	61.87	85.60	69.05	87.23	69.79	7.56	7.37	7.13	6.54	6.68	6.62	6.50	6.41	6.84	6.61	6.69	6.89	
08/01/24	08/31/24	Aug 2024	82.61	63.31	87.48	66.33	82.31	62.04	87.75	68.60	88.82	69.18	7.61	7.38	7.16	6.57	6.72	6.66	6.56	6.47	6.91	6.69	6.77	6.96	
09/01/24	09/30/24	Sep 2024	77.63	61.50	77.57	63.26	76.30	60.01	80.33	66.46	80.48	66.15	7.40	7.27	7.07	6.60	6.76	6.68	6.56	6.44	6.94	6.62	6.79	6.95	
10/01/24	10/31/24	Oct 2024	73.39	59.74	72.57	61.64	72.79	58.68	76.43	64.87	75.90	64.34	7.37	7.29	7.12	6.64	6.79	6.71	6.58	6.45	6.99	6.76	6.84	6.97	
11/01/24	11/30/24	Nov 2024	74.65	62.47	68.61	62.25	73.70	64.12	73.32	66.10	72.44	65.14	7.41	7.34	7.20	6.79	6.92	6.87	6.74	6.60	7.15	6.91	6.99	7.16	
12/01/24	12/31/24	Dec 2024	77.94	63.55	71.37	63.34	77.55	65.54	75.64	67.31	74.64	66.46	7.60	7.50	7.34	6.90	7.01	6.96	6.90	6.71	7.27	7.03	7.11	7.34	
01/01/25	01/31/25	Jan 2025	71.10	62.93	71.14	63.83	70.95	61.43	75.21	67.49	74.58	66.62	7.80	7.62	7.45	7.01	7.14	7.09	6.79	6.88	7.38	7.14	7.23	7.24	
02/01/25	02/28/25	Feb 2025	70.04	62.47	70.78	64.01	69.20	60.39	74.38	67.22	74.16	66.50	7.85	7.65	7.49	7.05	7.18	7.14	6.84	6.92	7.41	7.18	7.26	7.26	
03/01/25	03/31/25	Mar 2025	63.01	61.11	65.61	62.88	61.87	59.53	67.56	65.76	68.05	65.38	7.57	7.38	7.24	6.87	6.89	6.87	6.66	6.57	7.19	6.95	7.03	7.09	
04/01/25	04/30/25	Apr 2025	64.28	60.22	67.44	63.14	62.58	58.25	68.65	65.45	69.37	65.88	7.53	7.34	7.20	6.64	6.78	6.72	6.63	6.54	6.98	6.75	6.83	7.01	
05/01/25	05/31/25	May 2025	65.95	61.22	69.22	63.64	65.42	57.88	70.53	66.34	71.39	66.31	7.59	7.39	7.20	6.66	6.84	6.77	6.68	6.58	7.00	6.77	6.85	7.07	
06/01/25	06/30/25	Jun 2025	68.43	61.66	78.19	65.09	68.16	58.26	73.13	66.94	74.35	66.97	7.69	7.43	7.24	6.69	6.88	6.82	6.73	6.64	7.04	6.81	6.89	7.12	
07/01/25	07/31/25	Jul 2025	83.60	66.44	95.70	70.96	84.23	64.94	89.65	71.76	91.26	72.57	7.94	7.61	7.41	6.73	6.91	6.86	6.77	6.68	7.08	6.85	6.93	7.16	
08/01/25	08/31/25	Aug 2025	85.95	66.68	91.79	69.80	85.41	65.27	91.10	71.92	92.60	72.48	7.98	7.66	7.44	6.77	6.95	6.89	6.80	6.88	7.10	6.88	6.96	7.19	
09/01/25	09/30/25	Sep 2025	81.61	63.98	81.93	66.09	80.60	62.67	84.75	68.97	84.89	68.91	7.74	7.56	7.35	6.78	7.00	6.92	6.80	6.68	7.13	6.90	6.98	7.20	
10/01/25	10/31/25	Oct 2025	76.51	62.46	76.32	64.05	76.11	60.60	79.95	67.45	79.70	66.89	7.67	7.54	7.37	6.83	7.03	6.94	6.80	6.66	7.17	6.95	7.02	7.20	
11/01/25	11/30/25	Nov 2025	78.07	64.80	71.12	64.61	76.43	66.51	76.11	68.39	75.19	67.54	7.69	7.57	7.38	7.08	7.15	7.09	6.95	6.80	7.44	7.21	7.29	7.37	
12/01/25	12/31/25	Dec 2025	82.25	66.35	74.17	65.77	81.08	68.48	78.45	69.77	77.44	68.87	7.93	7.77	7.57	7.21	7.27	7.22	7.14	6.96	7.54	7.34	7.42	7.58	
01/01/26	01/31/26	Jan 2026	75.91	66.23	74.18	66.57	76.62	64.48	78.39	70.24	77.64	69.37	8.12	7.90	7.66	7.37	7.44	7.39	7.05	7.13	7.74	7.50	7.59	7.50	
02/01/26	02/28/26	Feb 2026	73.72	65.08	73.84	66.58	72.53	63.69	77.30	69.86	77.60	69.21	8.14	7.94	7.71	7.41	7.48	7.43	7.10	7.18	7.77	7.54	7.62	7.52	
03/01/26	03/31/26	Mar 2026	67.15	64.38	69.09	65.16	65.95	62.47	70.99	68.87	71.30	68.01	7.90	7.66	7.48	7.22	7.28	7.24	6.97	7.05	7.57	7.34	7.42	7.39	
04/01/26	04/30/26	Apr 2026	67.70	63.35	70.26	65.93	66.77	61.39	71.38	68.43	72.20	68.73	7.86	7.64	7.41	7.05	7.11	7.03	6.92	6.81	7.39	7.17	7.24	7.31	
05/01/26	05/31/26	May 2026	68.59	62.83	71.55	66.10	68.32	61.14	72.91	68.08	73.84	68.60	7.92	7.66	7.43	7.08	7.16	7.09	6.98	6.87	7.42	7.19	7.27	7.37	
06/01/26	06/30/26	Jun 2026	70.61	63.78	80.76	67.61	70.25	61.04	75.20	69.32	76.73	69.33	8.06	7.73	7.47	7.12	7.20	7.14	7.04	6.95	7.46	7.24	7.31	7.43	
07/01/26	07/31/26	Jul 2026	87.32	69.27	99.54	74.59	88.23	68.36	92.35	74.69	94.89	75.58	8.31	7.95	7.62	7.18	7.26	7.20	7.09	6.99	7.52	7.30	7.37	7.48	
08/01/26	08/31/26	Aug 2026	89.19	69.69	96.20	73.11	89.24	68.69	93.94	74.95	96.42	75.75	8.36	8.00	7.66	7.21	7.30	7.23	7.12	7.01	7.55	7.33	7.41	7.51	
09/01/26	09/30/26	Sep 2026	84.26	66.16	84.96	68.34	83.96	65.61	88.26	71.28	88.26	71.27	8.05	7.84	7.59	7.22	7.34	7.25	7.11	6.97	7.57	7.34	7.42	7.50	
10/01/26	10/31/26	Oct 2026	79.64	64.90	78.90	66.68	78.42	63.78	82.64	69.99	82.23	69.47	8.02	7.86	7.62	7.26	7.37	7.27	7.12	6.97	7.60	7.38	7.46	7.52	
11/01/26	11/30/26	Nov 2026	81.45	67.42	74.73	67.17	80.52	69.72	79.12	71.01	78.14	70.11	8.05	7.92	7.71	7.40	7.50	7.43	7.26	7.09	7.75	7.52	7.60	7.69	
12/01/26	12/31/26	Dec 2026	85.55	68.98	76.90	68.88	83.86	71.42	81.73	72.06	80.80	71.47	8.28	8.10	7.87	7.50	7.60	7.55	7.53	7.26	7.87	7.63	7.71	7.97	
01/01/27	01/31/27	Jan 2027	76.83	67.56	77.06	69.02	74.89	67.38	81.15	72.53	80.54	71.89	8.49	8.23	7.98	7.67	7.74	7.69	7.36	7.44	8.04	7.80	7.88	7.81	
02/01/27	02/28/27	Feb 2027	76.47	67.13	77.13	68.96	75.61	65.66	80.26	72.28	80.02	71.70	8.53	8.27	8.03	7.71	7.79	7.74	7.41	7.49	8.07	7.84	7.92	7.84	
03/01/27	03/31/27	Mar 2027	69.42	66.29	71.90	68.43	67.85	64.03	74.03	71.70	74.47	71.30	8.25	8.02	7.82	7.51	7.57	7.54	7.26	7.34	8.06	7.86	7.91	7.68	
04/01/27	04/30/27	Apr 2027	70.74	65.85	74.29	68.83	69.40	63.42	76.64	71.01	76.37	71.65	8.24	7.96	7.73	7.33	7.39	7.32	7.21	7.10	7.67	7.45	7.53	7.59	
05/01/27	05/31/27	May 2027	71.75	66.25	74.98	69.27	70.80	63.52	76.43	71.61	77.31	71.90	8.31	8.00	7.73	7.33	7.45	7.38	7.28	7.17	7.67	7.45	7.52		

06/01/29	06/30/29	Jun 2029	77.20	70.20	88.88	75.15	76.93	68.49	81.80	75.75	84.69	76.14	8.99	8.51	8.14	7.65	7.88	7.82	7.71	7.99	7.77	7.84	8.10		
07/01/29	07/31/29	Jul 2029	95.33	76.40	109.57	83.59	95.70	75.53	100.50	81.90	104.20	82.82	9.27	8.72	8.31	7.73	7.99	7.91	7.79	7.67	8.07	7.84	7.92	8.18	
08/01/29	08/31/29	Aug 2029	97.11	76.04	105.78	80.71	96.85	74.81	102.02	81.42	104.54	82.35	9.32	8.78	8.35	7.76	8.05	7.96	7.83	7.69	8.11	7.88	7.96	8.22	
09/01/29	09/30/29	Sep 2029	90.81	73.70	92.44	76.20	90.01	72.69	95.14	78.86	95.40	78.95	9.03	8.59	8.25	7.72	8.02	7.93	7.78	7.64	8.06	7.83	7.91	8.17	
10/01/29	10/31/29	Oct 2029	86.09	70.94	86.14	73.01	85.56	70.31	89.84	76.21	89.58	75.88	8.83	8.58	8.28	7.74	8.06	7.95	7.78	7.60	8.09	7.86	7.94	8.17	
11/01/29	11/30/29	Nov 2029	86.53	73.59	81.49	73.52	85.49	75.68	85.94	77.19	85.04	76.36	8.86	8.62	8.36	7.84	8.17	8.10	7.92	7.74	8.19	7.96	8.04	8.34	
12/01/29	12/31/29	Dec 2029	91.48	75.60	84.20	75.82	90.20	77.27	89.01	78.61	88.19	78.45	9.06	8.82	8.56	7.99	8.26	8.20	8.21	7.89	8.35	8.11	8.20	8.65	
01/01/30	01/31/30	Jan 2030	84.97	74.21	84.13	76.17	83.88	73.67	88.41	79.27	87.78	79.03	9.29	8.97	8.71	8.17	8.43	8.37	8.02	8.10	8.54	8.30	8.38	8.47	
02/01/30	02/28/30	Feb 2030	84.49	73.53	84.36	76.25	84.17	73.15	87.89	78.94	87.60	79.08	9.33	9.00	8.73	8.21	8.48	8.42	8.07	8.14	8.57	8.33	8.41	8.49	
03/01/30	03/31/30	Mar 2030	73.72	70.94	76.23	73.14	72.16	68.68	78.53	76.36	79.03	76.00	8.85	8.52	8.25	7.73	7.93	7.91	7.68	7.77	8.09	7.86	7.93	8.10	
04/01/30	04/30/30	Apr 2030	75.22	70.12	77.85	73.33	73.31	68.19	79.72	75.56	80.36	76.09	8.82	8.39	8.10	7.57	7.84	7.76	7.63	7.51	7.97	7.69	7.76	8.02	
05/01/30	05/31/30	May 2030	74.85	69.98	79.75	73.91	73.50	67.19	79.32	75.49	81.98	76.21	8.89	8.45	8.15	7.60	7.90	7.82	7.69	7.56	7.94	7.72	7.80	8.08	
06/01/30	06/30/30	Jun 2030	75.49	70.74	89.31	76.50	75.06	68.59	80.00	76.12	84.80	76.95	9.14	8.61	8.23	7.65	7.95	7.88	7.76	7.65	7.99	7.76	7.84	8.15	
07/01/30	07/31/30	Jul 2030	95.28	76.42	109.74	84.07	95.20	74.99	100.44	81.95	103.91	82.90	9.49	8.85	8.36	7.76	8.06	7.97	7.84	7.71	8.11	7.88	7.96	8.23	
08/01/30	08/31/30	Aug 2030	97.15	76.25	106.59	81.59	96.46	74.87	101.67	81.61	104.85	82.49	9.54	8.90	8.40	7.80	8.12	8.03	7.88	7.74	8.14	7.91	7.99	8.28	
09/01/30	09/30/30	Sep 2030	89.52	73.62	91.16	76.54	88.72	72.42	93.86	78.92	94.28	79.12	9.16	8.70	8.33	7.73	8.09	8.00	7.85	7.70	8.07	7.85	7.93	8.24	
10/01/30	10/31/30	Oct 2030	86.90	71.82	87.33	73.74	86.42	71.00	90.75	77.09	90.56	76.85	9.01	8.69	8.36	7.76	8.13	8.02	7.85	7.69	8.11	7.88	7.96	8.25	
11/01/30	11/30/30	Nov 2030	86.54	74.63	81.63	74.76	87.69	77.39	86.77	78.52	85.93	77.55	9.05	8.76	8.48	7.86	8.31	8.23	8.05	7.86	8.22	7.99	8.07	8.47	
12/01/30	12/31/30	Dec 2030	92.06	75.87	84.50	76.71	90.51	78.29	92.72	79.81	88.88	79.76	9.24	8.95	8.67	8.05	8.38	8.32	8.35	7.99	8.59	8.41	8.18	8.26	8.78
01/01/31	01/31/31	Jan 2031	84.63	75.35	84.64	77.59	83.95	74.45	89.04	80.61	88.46	80.44	9.48	9.13	8.85	8.22	8.58	8.44	8.13	8.20	8.59	8.35	8.43	8.58	
02/01/31	02/28/31	Feb 2031	84.42	75.37	85.05	77.48	84.05	73.42	88.33	80.70	88.01	80.39	9.54	9.15	8.88	8.25	8.63	8.49	8.18	8.25	8.61	8.37	8.45	8.60	
03/01/31	03/31/31	Mar 2031	75.04	71.54	77.28	74.13	73.29	69.65	79.27	77.11	79.87	76.99	8.96	8.55	8.28	7.74	7.97	7.87	7.70	7.79	8.10	7.86	7.94	8.12	
04/01/31	04/30/31	Apr 2031	75.27	71.05	78.39	73.92	74.01	68.31	80.01	76.54	80.75	76.48	8.92	8.42	8.12	7.53	7.67	7.41	7.53	7.65	7.83	7.70	7.79	8.12	
05/01/31	05/31/31	May 2031	76.69	70.04	81.30	74.70	75.76	68.65	81.20	75.24	83.62	76.33	8.99	8.48	8.10	7.51	7.79	7.64	7.44	7.58	7.85	7.63	7.70	7.83	
06/01/31	06/30/31	Jun 2031	77.43	71.15	91.07	77.47	76.92	68.88	81.95	76.58	86.13	77.34	9.25	8.58	8.16	7.55	7.84	7.72	7.51	7.66	7.90	7.67	7.75	7.90	
07/01/31	07/31/31	Jul 2031	96.67	76.97	111.90	85.62	97.11	75.58	101.83	82.46	105.87	83.41	9.55	8.90	8.36	7.61	7.91	7.76	7.56	7.70	7.95	7.72	7.80	7.95	
08/01/31	08/31/31	Aug 2031	98.20	77.16	108.82	83.17	97.99	75.71	102.95	82.51	106.51	83.36	9.61	8.88	8.40	7.63	7.94	7.78	7.56	7.71	7.98	7.75	7.83	7.95	
09/01/31	09/30/31	Sep 2031	95.36	77.88	97.60	81.14	94.75	75.93	99.69	83.28	100.45	83.64	9.74	9.22	8.82	8.23	8.59	8.41	8.09	8.22	8.56	8.34	8.42	8.49	
10/01/31	10/31/31	Oct 2031	93.05	78.44	93.87	80.57	92.63	76.40	97.05	83.78	96.99	83.54	9.84	9.52	9.18	8.58	9.01	8.81	8.44	8.56	8.92	8.70	8.78	8.84	
11/01/31	11/30/31	Nov 2031	93.68	80.74	89.39	81.27	93.15	82.16	93.53	84.79	92.71	84.10	9.87	9.55	9.22	8.61	9.08	8.88	8.56	8.67	8.97	8.73	8.81	8.98	
12/01/31	12/31/31	Dec 2031	99.53	81.70	92.17	83.27	97.96	83.28	96.91	86.03	96.09	86.00	9.97	9.84	9.35	8.66	9.13	9.12	8.60	8.65	9.03	8.79	8.87	9.04	
01/01/32	01/31/32	Jan 2032	87.41	77.73	86.93	79.62	86.51	76.71	91.31	82.84	90.76	82.55	9.66	9.30	9.02	8.37	8.74	8.60	8.28	8.36	8.74	8.50	8.59	8.73	
02/01/32	02/29/32	Feb 2032	87.33	77.44	87.38	79.56	86.97	74.98	90.91	82.69	90.49	82.40	9.72	9.32	9.05	8.40	8.79	8.65	8.33	8.41	8.76	8.53	8.61	8.76	
03/01/32	03/31/32	Mar 2032	76.66	73.10	78.87	75.15	75.30	71.68	81.06	78.53	81.70	77.93	9.13	8.71	8.44	7.89	8.12	8.02	7.84	7.94	8.25	8.01	8.09	8.26	
04/01/32	04/30/32	Apr 2032	76.23	72.18	79.19	75.25	74.14	69.76	81.15	77.74	81.97	77.91	9.09	8.58	8.27	7.65	7.98	7.82	7.55	7.67	7.99	7.77	7.85	7.93	
05/01/32	05/31/32	May 2032	76.57	72.03	81.51	76.48	74.75	68.53	80.55	77.37	83.54	77.33	9.17	8.64	8.26	7.65	7.94	7.79	7.58	7.72	7.99	7.77	7.84	7.97	
06/01/32	06/30/32	Jun 2032	77.89	72.04	91.41	78.48	77.22	69.82	82.35	77.48	86.86	77.67	9.43	8.75	8.32	7.70	7.99	7.86	7.65	7.80	8.04	7.81	7.89	8.04	
07/01/32	07/31/32	Jul 2032	96.87	77.58	111.65	86.40	96.95	76.54	102.12	83.05	105.92	84.01	9.73	9.07	8.52	7.75	8.06	7.91	7.70	7.84	8.09	7.87	7.95	8.09	
08/01/32	08/31/32	Aug 2032	98.45	77.24	108.89	83.54	97.98	75.94	103.47	82.66	106.92	83.61	9.79	9.05	8.56	7.78	8.09	7.93	7.71	7.86	8.12	7.90	7.98	8.10	
09/01/32	09/30/32	Sep 2032	95.06	78.90	97.17	81.80	94.58	77.29	99.48	84.25	100.36	84.45	9.92	9.40	8.99	8.38	8.75	8.57	8.25	8.37	8.72	8.49	8.57	8.64	
10/01/32	10/31/32	Oct 2032	94.66	80.18	95.44	81.77	93.81	78.39	98.59	85.50	96.73	84.88	10.03	9.70	9.36	8.74	9.20	8.98	8.60	8.73	9.09	8.86	8.94	9.00	
11/01/32	11/30/32	Nov 2032	93.75	81.23	89.97	81.99	94.80	83.71	93.96	85.89	93.11	85.09	10.06	9.73	9.40	8.77	9.25	9.25	8.72	8.77	9.13	8.89	8.97	9.15	
12/01/32	12/31/32	Dec 2032	99.39	83.55	92.06	84.57	97.88	85.25	97.33	87.58	96.52	87.41	10.16	10.03	9.53	8.83	9.30	9.30	8.76	8.81	9.19	8.95	9.04	9.20	
01/01/33	01/31/33	Jan 2033	87.79	79.01	87.43	80.89	87.85	78.70	92.10	84.17	91.54	83.77	9.84	9.48	9.19	8.53	8.91	8.77	8.44	8.52	8.90	8.66	8.75	8.89	
02/01/33	02/28/33	Feb 2033	88.55	78.71	87.74	80.85	89.91	77.39	91.58	84.07	91.12	83.71	9.90	9.50	9.22	8.56	8.96	8.82	8.49	8.57	8.92	8.69	8.77	8.92	
03/01/33	03/31/33	Mar 2033	78.28	74.20	80.30	76.94	76.37	73.21	82.77	79.78	83.34	79.61	9.30	8.88	8.60	8.04	8.27	8.17	7.99	8.09	8.40	8.16	8.24	8.41	
04/01/33	04/30/33	Apr 2033	77.84	74.22	81.00	77.03	75.87	71.21	83.17	79.78	83.87	79.73	9.26	8.74	8.43	7.80	8.13	7.97	7.69	7.82	8.14	7.91	7.99	8.08	
05/01/33	05/31/33	May 2033	78.52	74.06	84.07	78.27	76.24	71.05	82.65	78.93	86.58	80.16	9.34	8.81	8.41	7.80	8.09	7.94	7.73	7.87	8.14	7.91	7.99	8.11	
06/01/33	06/30/33	Jun 2033	80.87	74.00	94.64	80.69	79.74	72.25	85.29	79.37	89.95	79.59	9.61	8.91	8.47	7.84	8.14	8.01	7.80	7.95	8.19				

07/01/35	07/31/35	Jul 2035	103.25	83.26	119.89	93.20	103.14	82.30	108.29	88.37	113.36	89.24	10.31	9.61	9.03	8.21	8.54	8.38	8.15	8.31	8.55	8.33	8.40	8.54
08/01/35	08/31/35	Aug 2035	104.22	82.25	115.91	89.86	103.66	81.08	108.77	87.21	112.62	88.16	10.37	9.58	9.06	8.24	8.57	8.40	8.16	8.32	8.58	8.36	8.44	8.55
09/01/35	09/30/35	Sep 2035	100.82	84.74	104.44	88.61	100.24	83.48	105.70	90.19	107.00	90.47	10.51	9.95	9.52	8.87	9.27	9.08	8.74	8.87	9.21	8.99	9.07	9.13
10/01/35	10/31/35	Oct 2035	97.93	85.86	100.66	87.53	96.66	83.85	102.73	90.95	103.66	90.29	10.62	10.28	9.91	9.26	9.75	9.51	9.11	9.24	9.60	9.38	9.46	9.50
11/01/35	11/30/35	Nov 2035	98.66	86.97	95.90	87.67	100.69	88.97	99.42	91.66	98.86	90.76	10.66	10.30	9.95	9.29	9.80	9.79	9.24	9.29	9.65	9.41	9.49	9.66
12/01/35	12/31/35	Dec 2035	104.53	89.53	99.39	90.11	103.19	89.80	103.46	93.29	102.66	93.01	10.76	10.62	10.09	9.35	9.85	9.84	9.28	9.34	9.71	9.48	9.56	9.72
01/01/36	01/31/36	Jan 2036	94.25	84.72	93.10	86.82	95.37	85.09	97.21	90.04	96.79	89.49	10.43	10.04	9.73	9.04	9.43	9.29	8.94	9.02	9.41	9.17	9.25	9.39
02/01/36	02/29/36	Feb 2036	93.48	84.40	93.30	86.73	95.15	83.48	97.31	89.69	96.80	89.43	10.49	10.06	9.76	9.07	9.49	9.34	8.99	9.07	9.43	9.19	9.27	9.42
03/01/36	03/31/36	Mar 2036	93.92	79.91	85.93	83.44	81.40	78.74	88.43	85.53	89.04	86.09	9.85	9.40	9.11	8.52	8.76	8.65	8.47	8.56	8.87	8.64	8.72	8.89
04/01/36	04/30/36	Apr 2036	83.05	79.29	86.24	83.33	80.06	76.54	88.74	84.88	89.39	85.62	9.81	9.26	8.93	8.26	8.61	8.44	8.15	8.28	8.60	8.38	8.45	8.53
05/01/36	05/31/36	May 2036	82.43	78.81	90.01	84.52	79.30	75.51	87.48	84.34	91.89	85.56	9.89	9.33	8.91	8.26	8.57	8.41	8.18	8.33	8.60	8.37	8.45	8.57
06/01/36	06/30/36	Jun 2036	84.35	78.84	99.88	87.17	83.64	76.88	88.92	84.33	94.75	84.73	10.18	9.44	8.98	8.31	8.62	8.49	8.26	8.42	8.65	8.42	8.50	8.65
07/01/36	07/31/36	Jul 2036	104.94	84.71	121.57	93.80	104.90	83.14	109.98	89.96	115.23	90.86	10.50	9.79	9.20	8.37	8.70	8.53	8.31	8.46	8.71	8.48	8.56	8.70
08/01/36	08/31/36	Aug 2036	105.92	84.29	117.29	91.38	105.47	82.84	110.53	89.68	114.67	90.57	10.56	9.77	9.24	8.40	8.73	8.55	8.32	8.48	8.74	8.51	8.59	8.71
09/01/36	09/30/36	Sep 2036	101.08	85.97	104.77	89.78	100.33	84.59	106.42	91.47	107.57	91.55	10.71	10.14	9.70	9.04	9.45	9.25	8.90	9.04	9.38	9.16	9.23	9.29
10/01/36	10/31/36	Oct 2036	99.33	87.95	101.62	89.52	98.12	85.58	104.06	93.02	104.64	92.43	10.82	10.47	10.10	9.44	9.93	9.69	9.28	9.42	9.78	9.56	9.63	9.68
11/01/36	11/30/36	Nov 2036	100.19	89.13	97.59	89.83	100.29	91.10	102.13	93.91	101.26	92.98	10.86	10.50	10.14	9.47	9.98	9.98	9.41	9.47	9.82	9.59	9.67	9.84
12/01/36	12/31/36	Dec 2036	105.60	90.85	99.72	91.74	104.72	91.58	104.92	95.04	104.10	94.71	10.97	10.82	10.29	9.53	10.04	10.03	9.46	9.51	9.89	9.65	9.74	9.90
01/01/37	01/31/37	Jan 2037	96.93	86.85	95.20	88.67	106.06	87.41	99.63	92.04	98.94	91.41	10.62	10.23	9.92	9.21	9.61	9.46	9.11	9.19	9.58	9.34	9.42	9.56
02/01/37	02/28/37	Feb 2037	96.44	86.98	95.55	88.96	98.30	85.79	99.36	92.44	98.95	91.74	10.69	10.25	9.95	9.24	9.67	9.52	9.16	9.25	9.60	9.36	9.44	9.59
03/01/37	03/31/37	Mar 2037	86.34	81.83	88.22	85.52	83.84	80.94	90.88	87.46	91.45	88.09	10.04	9.58	9.28	8.68	8.93	8.82	8.63	8.73	9.04	8.80	8.88	9.05
04/01/37	04/30/37	Apr 2037	85.73	80.78	88.47	85.73	83.29	79.10	90.42	86.38	91.32	87.26	10.00	9.44	9.09	8.42	8.77	8.60	8.30	8.43	8.76	8.53	8.61	8.69
05/01/37	05/31/37	May 2037	86.97	80.95	93.96	87.37	84.91	78.23	91.47	86.39	95.17	87.55	10.08	9.51	9.08	8.42	8.73	8.57	8.34	8.49	8.76	8.53	8.61	8.73
06/01/37	06/30/37	Jun 2037	87.51	80.78	102.49	89.43	86.87	79.55	91.34	86.30	97.07	86.35	10.37	9.62	9.15	8.47	8.78	8.65	8.42	8.58	8.81	8.58	8.66	8.80
07/01/37	07/31/37	Jul 2037	107.61	86.77	124.44	96.61	107.49	85.74	112.48	91.87	118.19	92.65	10.70	9.98	9.37	8.52	8.87	8.70	8.47	8.62	8.87	8.64	8.72	8.86
08/01/37	08/31/37	Aug 2037	108.10	86.39	120.88	94.44	107.63	85.10	112.61	91.63	117.59	92.69	10.77	9.95	9.41	8.56	8.89	8.72	8.47	8.64	8.90	8.67	8.75	8.87
09/01/37	09/30/37	Sep 2037	103.79	87.58	107.90	91.84	102.98	86.23	109.10	93.05	110.64	93.15	10.91	10.34	9.89	9.21	9.63	9.43	9.07	9.21	9.55	9.33	9.41	9.46
10/01/37	10/31/37	Oct 2037	102.10	90.03	105.63	91.82	101.96	87.61	106.87	95.17	108.88	94.57	11.03	10.67	10.29	9.62	10.12	9.88	9.46	9.60	9.96	9.73	9.81	9.85
11/01/37	11/30/37	Nov 2037	102.50	91.32	99.67	91.75	103.18	93.38	103.89	95.82	103.30	94.89	11.06	10.70	10.33	9.65	10.17	10.17	9.59	9.65	10.00	9.77	9.85	10.02
12/01/37	12/31/37	Dec 2037	108.27	93.09	102.45	93.93	106.68	94.00	107.38	97.12	106.62	96.87	11.18	11.03	10.48	9.71	10.23	10.22	9.64	9.69	10.07	9.83	9.92	10.08
01/01/38	01/31/38	Jan 2038	103.59	89.15	98.56	91.12	103.06	91.11	102.37	94.19	101.77	93.59	10.83	10.43	10.10	9.38	9.80	9.64	9.28	9.37	9.75	9.51	9.60	9.73
02/01/38	02/28/38	Feb 2038	101.41	89.09	98.39	91.02	101.44	89.18	102.28	94.41	102.11	93.75	10.89	10.45	10.14	9.42	9.85	9.70	9.34	9.42	9.78	9.54	9.62	9.76
03/01/38	03/31/38	Mar 2038	88.50	83.56	90.54	87.55	86.86	84.06	92.93	89.16	93.77	89.76	10.23	9.76	9.46	8.84	9.10	8.99	8.79	8.89	9.20	8.96	9.04	9.21
04/01/38	04/30/38	Apr 2038	88.12	82.82	92.05	88.37	86.05	81.86	92.94	88.39	94.54	89.34	10.19	9.62	9.27	8.58	8.94	8.76	8.46	8.59	8.92	8.69	8.77	8.84
05/01/38	05/31/38	May 2038	88.94	82.87	96.61	90.39	86.61	80.75	93.37	88.32	97.25	89.76	10.27	9.69	9.25	8.58	8.90	8.73	8.50	8.65	8.92	8.69	8.77	8.89
06/01/38	06/30/38	Jun 2038	90.05	82.75	105.92	92.37	89.99	82.06	93.24	88.28	100.68	88.60	10.57	9.80	9.32	8.63	8.95	8.81	8.58	8.74	8.97	8.74	8.82	8.86
07/01/38	07/31/38	Jul 2038	109.73	89.21	129.02	99.84	109.71	88.74	114.58	94.30	122.18	95.26	10.91	10.17	9.55	8.69	9.04	8.86	8.63	8.79	9.03	8.80	8.88	9.02
08/01/38	08/31/38	Aug 2038	110.57	88.36	126.28	97.27	110.78	87.97	115.08	93.65	122.47	94.59	10.97	10.14	9.59	8.72	9.06	8.88	8.63	8.80	9.06	8.84	8.91	9.03
09/01/38	09/30/38	Sep 2038	107.62	90.04	111.48	94.37	106.93	88.84	112.21	95.46	113.91	95.72	11.12	10.53	10.07	9.39	9.81	9.61	9.24	9.38	9.73	9.50	9.58	9.64
10/01/38	10/31/38	Oct 2038	105.93	91.99	110.37	94.00	104.85	90.94	110.16	96.88	113.82	96.42	11.24	10.87	10.49	9.80	10.31	10.06	9.64	9.78	10.14	9.82	10.00	10.03
11/01/38	11/30/38	Nov 2038	105.82	93.90	102.40	94.04	104.97	95.73	107.14	97.58	106.31	96.72	11.27	10.90	10.53	9.83	10.37	10.36	9.78	9.83	10.19	9.95	10.03	10.20
12/01/38	12/31/38	Dec 2038	111.31	95.94	105.47	96.52	109.97	96.99	110.45	99.58	109.63	99.31	11.39	11.24	10.68	9.89	10.42	10.42	9.82	9.88	10.26	10.02	10.10	10.26
01/01/39	01/31/39	Jan 2039	100.72	90.79	100.20	93.51	101.73	92.62	104.00	96.03	103.57	95.73	11.03	10.62	10.30	9.56	9.98	9.82	9.46	9.55	9.93	9.69	9.78	9.91
02/01/39	02/28/39	Feb 2039	101.04	91.22	100.49	93.61	101.91	91.04	104.46	96.63	104.33	96.35	11.10	10.64	10.33	9.60	10.04	9.88	9.52	9.60	9.96	9.72	9.80	9.94
03/01/39	03/31/39	Mar 2039	89.54	85.56	92.96	89.79	87.00	85.76	94.65	91.10	95.96	91.85	10.42	9.95	9.64	9.01	9.27	9.16	8.96	9.06	9.37	9.13	9.21	9.38
04/01/39	04/30/39	Apr 2039	89.04	84.73	93.89	90.56	86.94	83.04	94.29	90.33	95.77	91.25	10.38	9.80	9.44	8.74	9.11	8.93	8.62	8.76	9.08	8.86	8.93	9.01
05/01/39	05/31/39	May 2039	88.98	84.53	97.70	92.09	86.80	82.45	94.18	90.14	98.98	91.55	10.47	9.87	9.43	8.74	9.07	8.89	8.66	8.82	9.08	8.85	8.93	9.05
06/01/39	06/30/39	Jun 2039	90.84	84.66	108.11	94.74	90.49	84.07	94.17	90.02	101.86	90.03	10.77	9.99	9.50	8.79	9.12	8.98	8.74	8.91	9.13	8.91	8.98	9.13

08/01/41	08/31/41	Aug 2041	116.69	93.83	134.40	104.36	116.71	93.23	121.43	98.93	128.89	99.74	11.62	10.74	10.16	9.23	9.60	9.41	9.15	9.33	9.58	9.35	9.43	9.54
09/01/41	09/30/41	Sep 2041	113.33	96.66	119.76	102.51	112.64	95.24	118.81	101.86	121.36	102.50	11.78	11.16	10.67	9.94	10.39	10.17	9.79	9.94	10.28	10.06	10.14	10.18
10/01/41	10/31/41	Oct 2041	109.82	97.16	117.59	100.74	108.55	96.22	114.43	102.68	120.69	102.54	11.90	11.52	11.11	10.38	10.92	10.66	10.21	10.36	10.72	10.50	10.57	10.60
11/01/41	11/30/41	Nov 2041	111.91	99.92	109.29	100.71	113.86	101.94	113.75	103.96	112.90	103.35	11.94	11.55	11.15	10.41	10.98	10.98	10.35	10.41	10.77	10.53	10.61	10.78
12/01/41	12/31/41	Dec 2041	117.49	102.08	112.95	102.92	116.64	103.80	117.21	106.28	116.41	105.74	12.06	11.90	11.31	10.48	11.04	11.03	10.40	10.46	10.84	10.60	10.69	10.84
51867	51897	51867	109.0755	96.8404	105.309	99.9616	109.19	97.1734	109.336	102.042	108.94	101.605	11.695218	11.263758	10.915734	10.138188	10.583622	10.41573	\$ 10.029	\$ 10.121	10.514568	10.271094	10.35555	10.486416