

**TECHNOLOGICAL
SOLUTIONS IN
MEASUREMENT,
MANAGEMENT,
AUTOMATION,
PROTECTION AND
CONTROL.**

Nader



enertronic
PROYECTOS Y
SUMINISTROS S.A.

High-end low-voltage electrical system solutions expert

Overseas Sales Department Tim Lian

01 | Company Introduction



Molded case circuit breakers



Switch-disconnectors



Intelligent electrical distribution panels



Air circuit breakers



Automatic transfer switches



Miniature circuit breakers



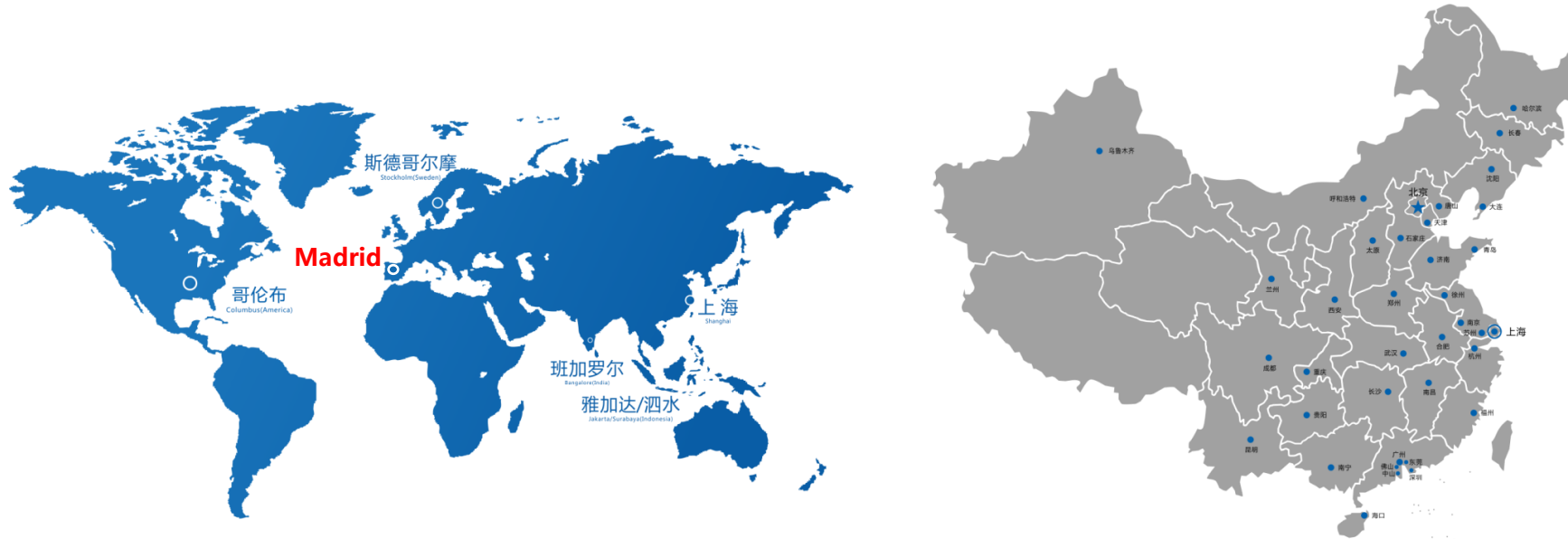
Smart home



Contactors



ENJOY ONE-STOP CONSULTANT SERVICE OF LOW VOLTAGE ELECTRICITY



Customer demands

Technical communication

Demand analysis

Meet differentiated demands

Offer onsite solutions to the demands

24-hour service

Information input and archiving



The first company in the industry to offer 3-year quality guarantee

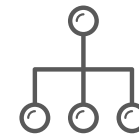
Technical hotline-400-99-02706



Solving problems for customers always as top priority

4 hours from office to site

24 hours for engineers to get to site



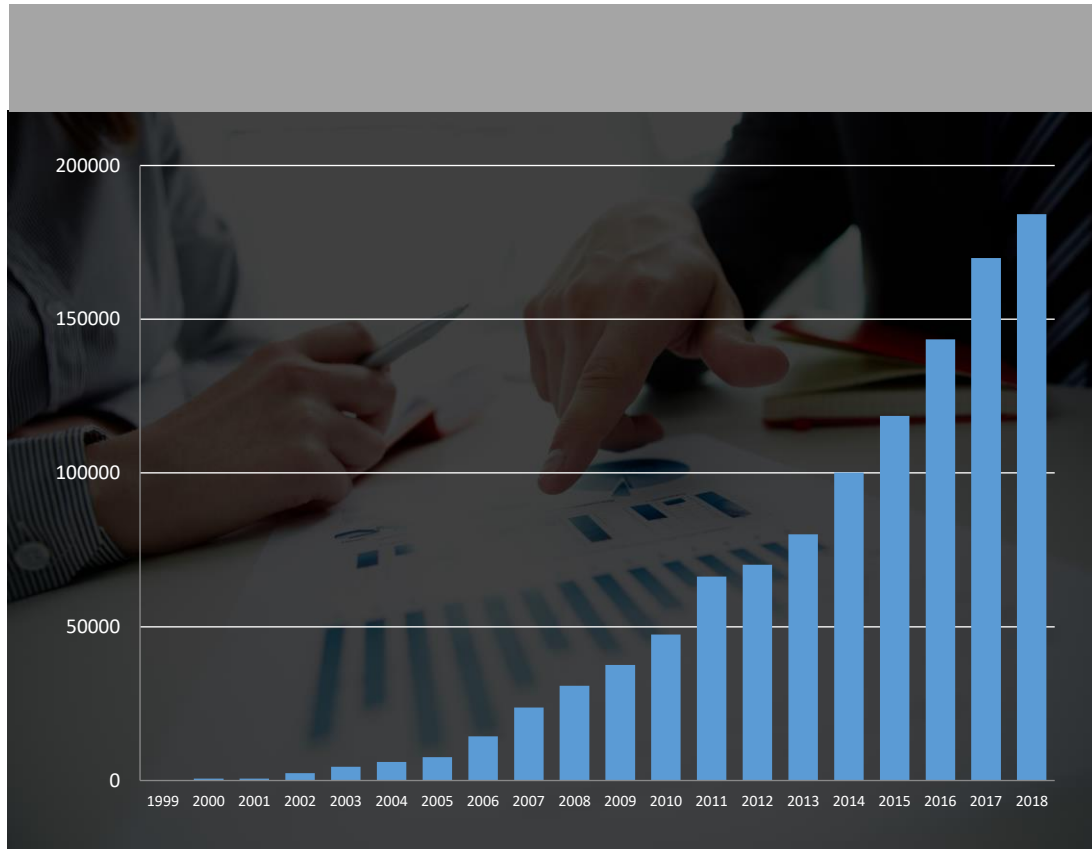
55 domestic offices, covering more than 140 cities

7 overseas offices

500 employees providing end-to-end services

THE HIGHEST COMPOUND GROWTH RATE OF THE INDUSTRY

Compound Growth Rate of Industry No.1



468 Million USD sales revenue in **2020**

Highest compound growth rate of the industry in the last decade

782 Million USD sales target in **2021**

PRODUCT RELIABILITY 70% COMES FROM R&D

IPD

shortens development
cycle by **40%**

The integrated product development (IPD) is a set of models, concepts and methods for product development, which was successfully applied first in **IBM** and **Huawei**. Thanks for IPD, the R&D team in Huawei can expand from **4,000** to **80,000** people

- Product development is a type of investment behavior
- Platform-based asynchronous development model and reuse strategy
- Market-based innovation
- Technology development is separated from product development

8.80% R&D investment

- An input of $\geq 6\%$ of annual sales as R&D investment strategy, with **8.8%** for investment in 2018
- A R&D team of **400** people, the biggest in the industry
- Deploying the industry leading software and hardware, including pre-research and simulation platform, and R&D pilot workshop



Pre-research and simulation platform

New product reliability improves from **60%** to **99.74%**

Pilot workshop platform



813 applied patents



- **Shanghai Patent Work Demonstration Enterprise**
- Growth of annual patent applications exceeds **10%**
- Collaborate with **15** industry standards organizations around the world: CES, CQC, CEEIA, TILVA, and CNCA



国家技术创新示范企业

工业和信息化部

Listed in 2018 National Technological Innovation Demonstration Enterprises Catalogue

The only listed enterprise in Shanghai

National Enterprise Technology Center
Shanghai Technology Small Giant
Shanghai Manufacturing Top 100



Enterprise Postdoctoral Scientific Research Station

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THE WORLD'S TOP CERTIFICATION LABORATORY



CNAS
National
Laboratory



UL
US Certification



TüV
Rheinland
Collaborative
Laboratory



TÜV SÜD
Collaborative
Laboratory

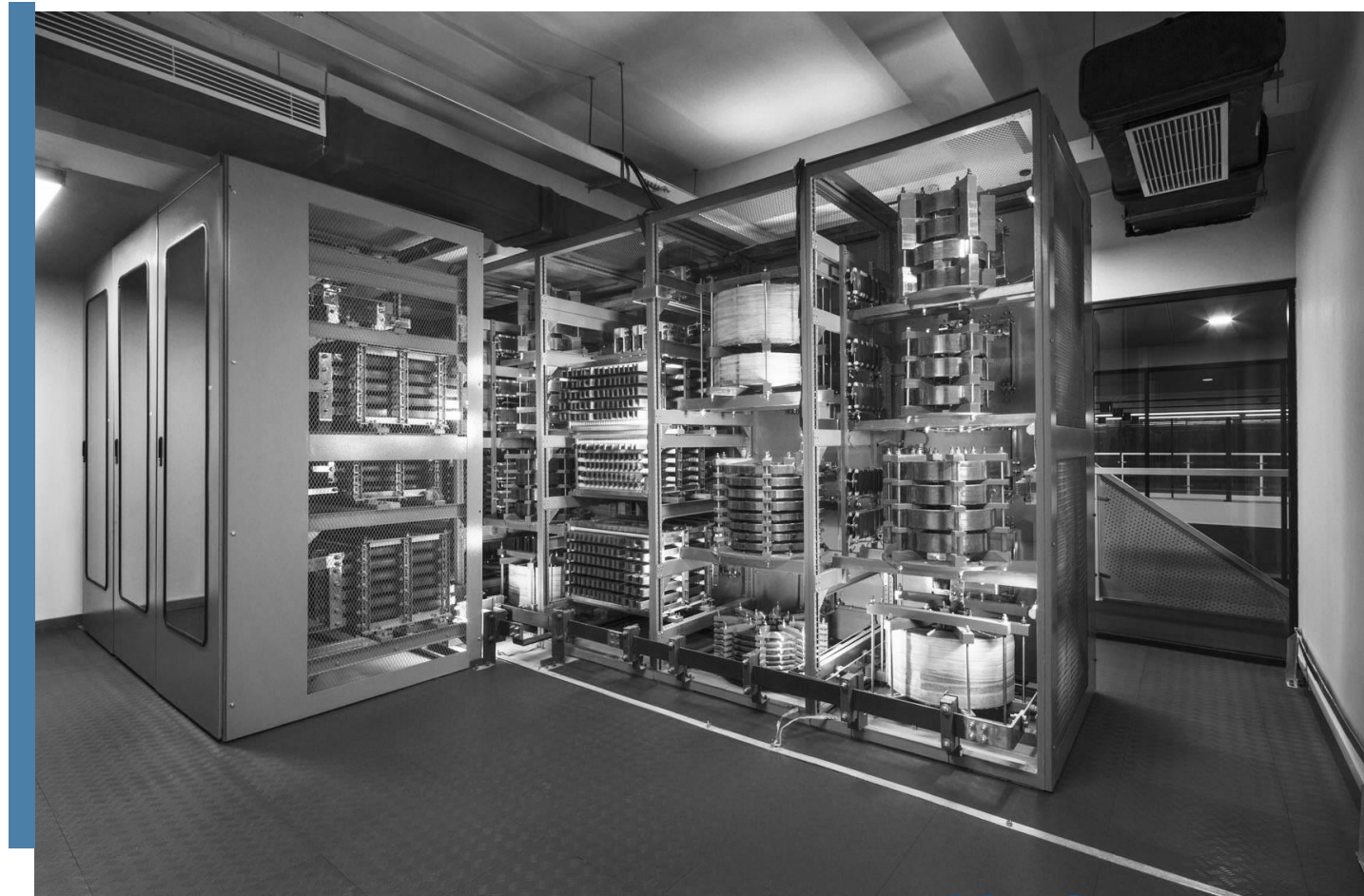


Sept 17, 2018
Nader signed a R&D collaboration
agreement with Vanke and established
"Vanke-Nader Joint Lab"



Covering all test items for low
voltage electrical apparatus

- 25 labs, 35 major items and more than 450 sub-items
- 200KA breaking testing capacity
- The first dielectric recovery strength testing system in the world



Digital manufacturing platform

World-class system guarantee



Hangzhou Bay-Haiyan Supply Chain and Parts Base (1.5-hour driving distance)

- Implement extended working, to expand towards the upstream of the industrial chain
- Improve product profitability
- Enhance brand competitiveness in the market

Product: complete product series of electrical distribution (ACBs and MCCBs)

Process: molding, punching, and spot welding, and etc.

Production capacity

- **70 million** unit/year

Manufacturing

- **Fully automatic** European-imported customized production line and Asian leading process equipment, taking only **1.5 second** to produce one unit
- 3 major workshops for power distribution, terminals, and industry control, and **26** automatic detection lines

Materials

- 100,000-level dustproof electronic workshop
- Spot welding key process workshop
- Oil damping key parts workshop



German SAP software system development



British BSI system



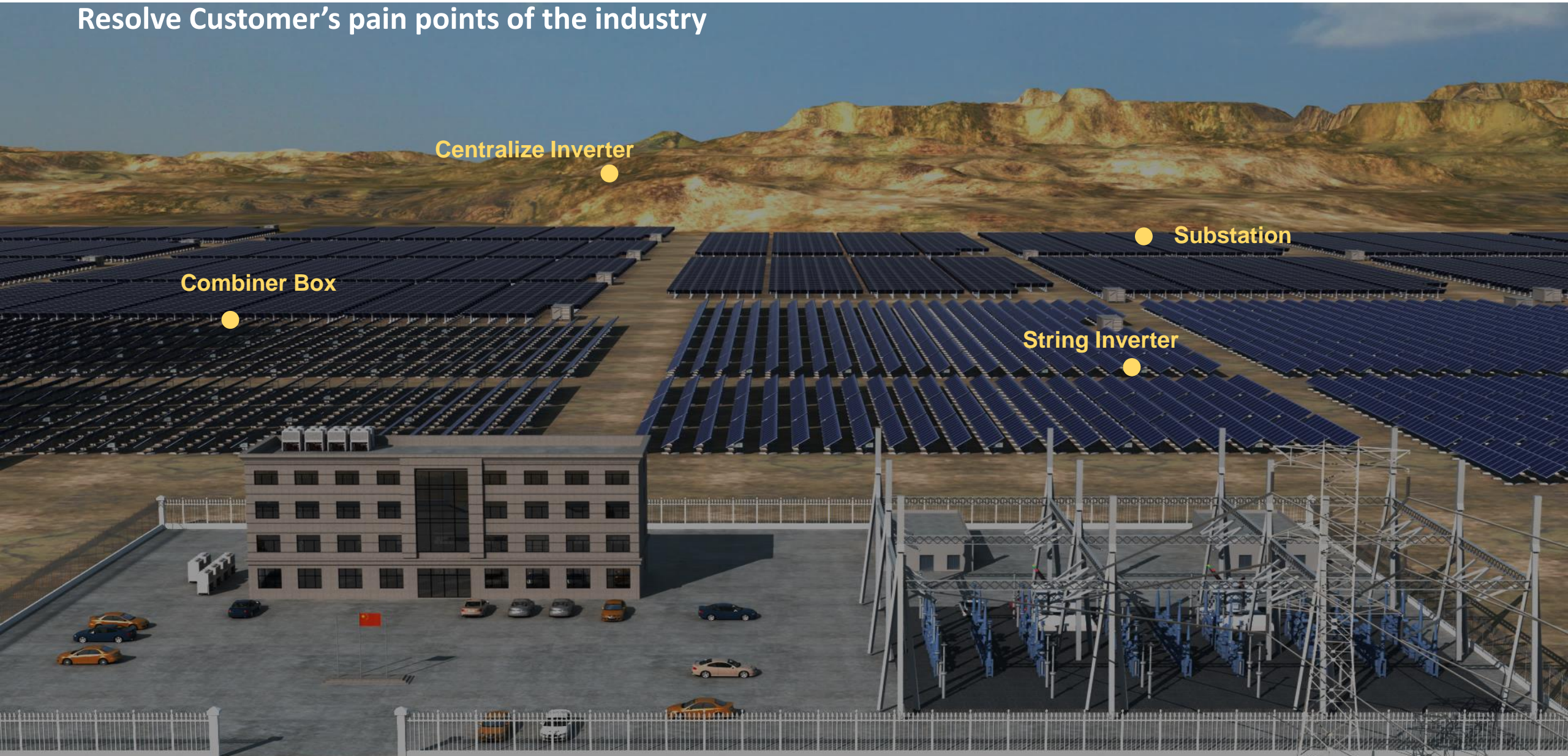
Swiss SGS system

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02 | Photovoltaic Solutions



Resolve Customer's pain points of the industry



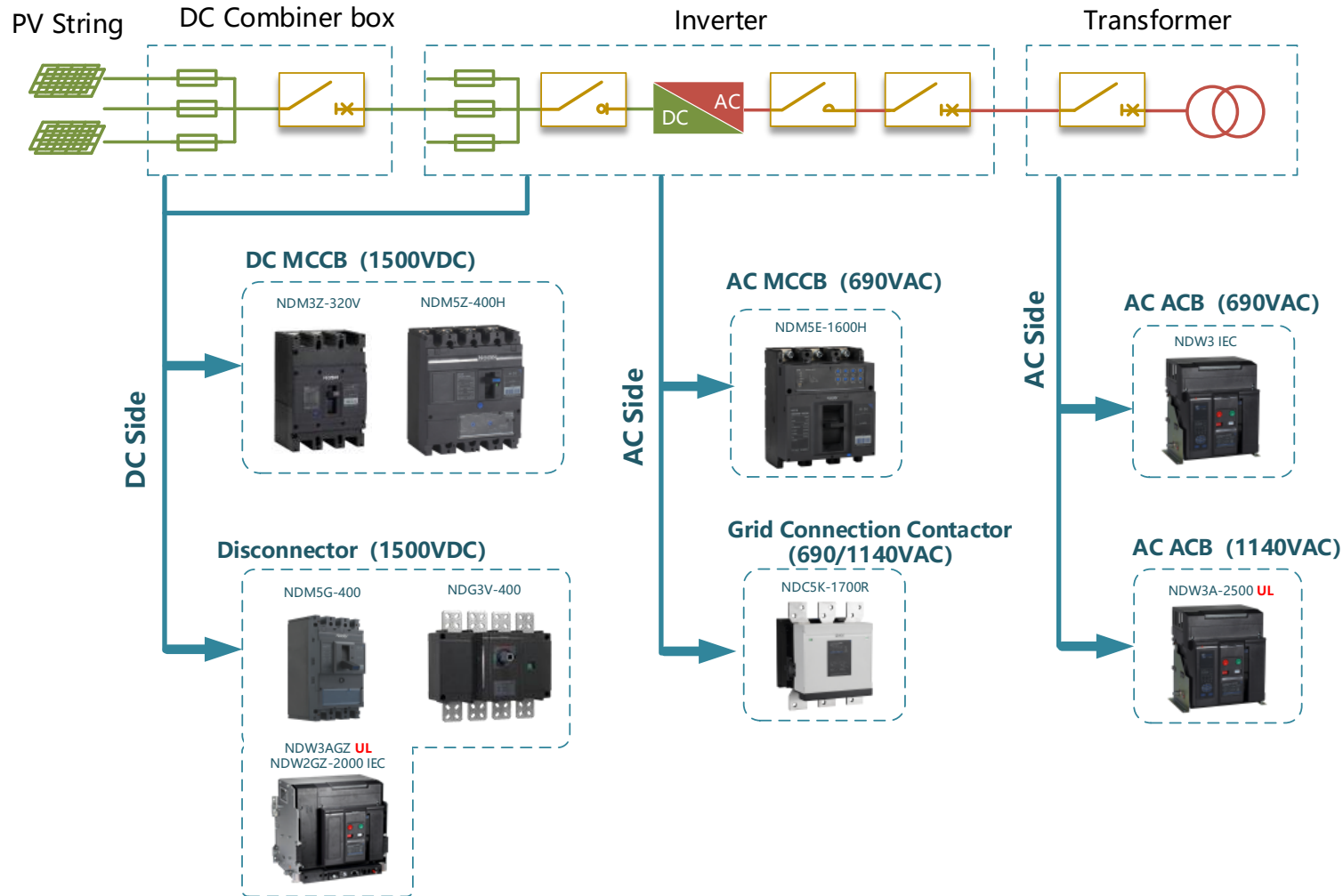
Combiner Box

Centralize Inverter

String Inverter

Substation

Resolve customer pain points



One-stop solution

• A Centralized PV system

- Two mainstream system solutions: **CB + SD**
- PV **Critical DC load current**: IEC 60947-2: 2016
- **24 converge 1 PV Combiner box**, NDM3Z-320V
- Disconnector NDM5G-400 + Remote control trip function
- NDM5-1600H Icu=**50kA(690V)**, MCCB→ ACB
- **UL Certificate of DC Disconnector and AC ACB**

Resolve customer pain points

DC ACB

NDW3AGZ-2500 UL



Basic performance

■ Rated voltage

- Insulation voltage: 1,500V
- Impulse withstand voltage: 12kV
- Rated operating voltage: DC1500V (4P)

■ Rated current: 1600A, 2000A, 2500A

■ Utilization category: A

■ Operating ambient temperature: -40°C~+70°C

■ Breaking capacity: $I_{cm}=125kA$ (1500VDC)

■ Product life

- Mechanical life: 1000085%Us-110%Us(DC and AC) (40°C) times
- Electrical life: 1000 times

Resolve customer pain points

AC ACB

NDW3A-2500 UL



Basic performance

- **Rated voltage:** AC635, AC730, AC900V
- **Rated current:** 2000A
- **Certificate:** UL1066
- **Operating ambient temperature:** -40°C~+70°C
- **Breaking capacity:** AC635V 75kA; AC730V 65 kA
- **Product life**
 - Mechanical life: 10000 times
 - Electrical life: AC635V 8000 (2000A)
AC730V 6000 (2000A)

Resolve customer pain points

DC ACB

NDW2GZ CE/IEC



Basic performance

■ Rated voltage

- Insulation voltage: 1,500V
- Impulse withstand voltage: 12kV
- Rated operating voltage: DC750(3P),DC 1000V/DC1200V/DC1500V(4P)

■ Rated current: 800A~4000A

■ Utilization category: DC22A,DC23A

■ Operating ambient temperature: -35°C~+70°C

■ Breaking capacity: I_{cm} :35KA~80KA

■ Product life

- Mechanical life: 25000 times
- Electrical life: 1000 times

Resolve customer pain points

AC ACB

NDW3-4000 CE/IEC



Basic performance *Up to 6300A*

■ Rated voltage

- Insulation voltage: 1,000V
- Impulse withstand voltage: 12kV
- Rated operating voltage: 220/240V, 380/415V, 660/690V, 1000V/1140V

■ Rated current: 1600A, 2000A, 2500A, 3200A, 4000A, 6300A

■ Utilization category: B

■ Operating ambient temperature: -40°C~+70°C

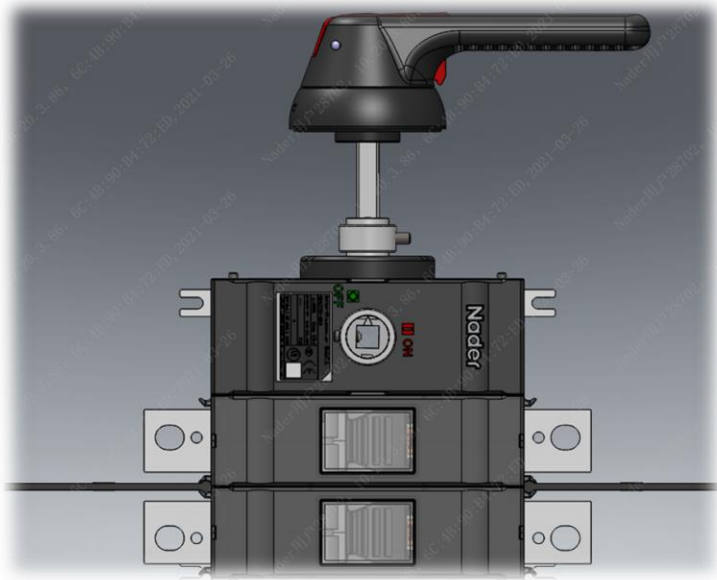
■ Breaking capacity: $I_{cu}=85kA$ (4kA ACB AC690V)

■ Product life

- Mechanical life: 15,000 times (Have maintenances)
- Electrical life: 6,000 times (AC690V/2500A)

DC Disconnect

NDG3VH-400 (UL)



Basic performance

■ Rated voltage

- Insulation voltage: 1500V
- Impulse withstand voltage: 12kV
- Rated operating voltage: DC 1500V (2P)

■ Rated current: 400A~800A

■ Utilization category: DC-21B/PV1/2Ie UL98B

■ Operating ambient temperature: -35°C~+70°C

■ Breaking capacity: $i_{cu}=10ka$

■ Product life

- Mechanical life: 10000 times
- Electrical life: 400 times

Resolve customer pain points

Vacuum contactor

NDC5K series



Basic performance

■ Rated voltage

- Insulation voltage: 1,000V
- Impulse withstand voltage: 8kV
- Rated operating voltage: AC380/400V, AC660/690V, and AC1,000V

■ Rated current: 630A(AC-3), 800A(AC-3), 1,450A, and 1,700A

■ Rated control voltage: for both AC and DC use

- Voltage level: 48V-110V, 110V-250V, 250V-500V

■ Operating ambient temperature: -40°C~+70°C

■ Short-time withstand current (1s) :

Max. I_{cw}=10kA (1,700A frame size)

■ Product life

- Mechanical life: 3,000,000 times
- Electrical life: 800,000 times for 800A frame size (400V)

Nominal contactor

NDC1-115~2650A



Basic performance

■ Rated voltage

- Insulation voltage: 1,000V
- Impulse withstand voltage: 12kV
- Rated operating voltage: AC380/400V, AC660/690V

■ Rated current: 115~2650A

■ Pull in voltage: 65%Us-120%Us(AC) (20°C) 85%Us-110%Us(AC/DC) (40°C)

■ Operating ambient temperature: -40°C~+70°C

■ Product life

- Mechanical life: 100,000 times
- Electrical life: 100,000 times

Resolve customer pain points

MCCB

NDM3EU-225/400 *UL*

NDM3-160~1600 IEC/CE



Basic performance

■ Rated voltage

- Insulation voltage: 800V
- Impulse withstand voltage: 8kV
- Rated operating voltage: AC 240/480/600V

■ Rated current: 100/110/125/150/175/200/225/250/300/350/400

■ Utilization category: A

■ Operating ambient temperature: -40°C~+70°C

■ Breaking capacity: **UL** Icu=65kA (240V), Icu=35KA(480V) Icu=22KA(600V)

Icu=50,70,100KA(AC380/400/415V), Icu=20KA(660/690V)

■ Product life

- Mechanical life: 5000 times(400A),4000 times(225A)
- Electrical life: 1000 times(400A),4000 times(225A)

MCCB

*NDB2T-63 IEC/CE Or **UL***



Basic performance

■ Rated voltage

- Insulation voltage: 1000V
- Impulse withstand voltage: 4kV
- Rated operating voltage: AC230/240/400/415V,DC60/80/125V
- UL Rated operating voltage:
AC230/240/277/415V,AC480Y/277V,DC60/125V

■ Rated current: 1~63A

■ Utilization category: A

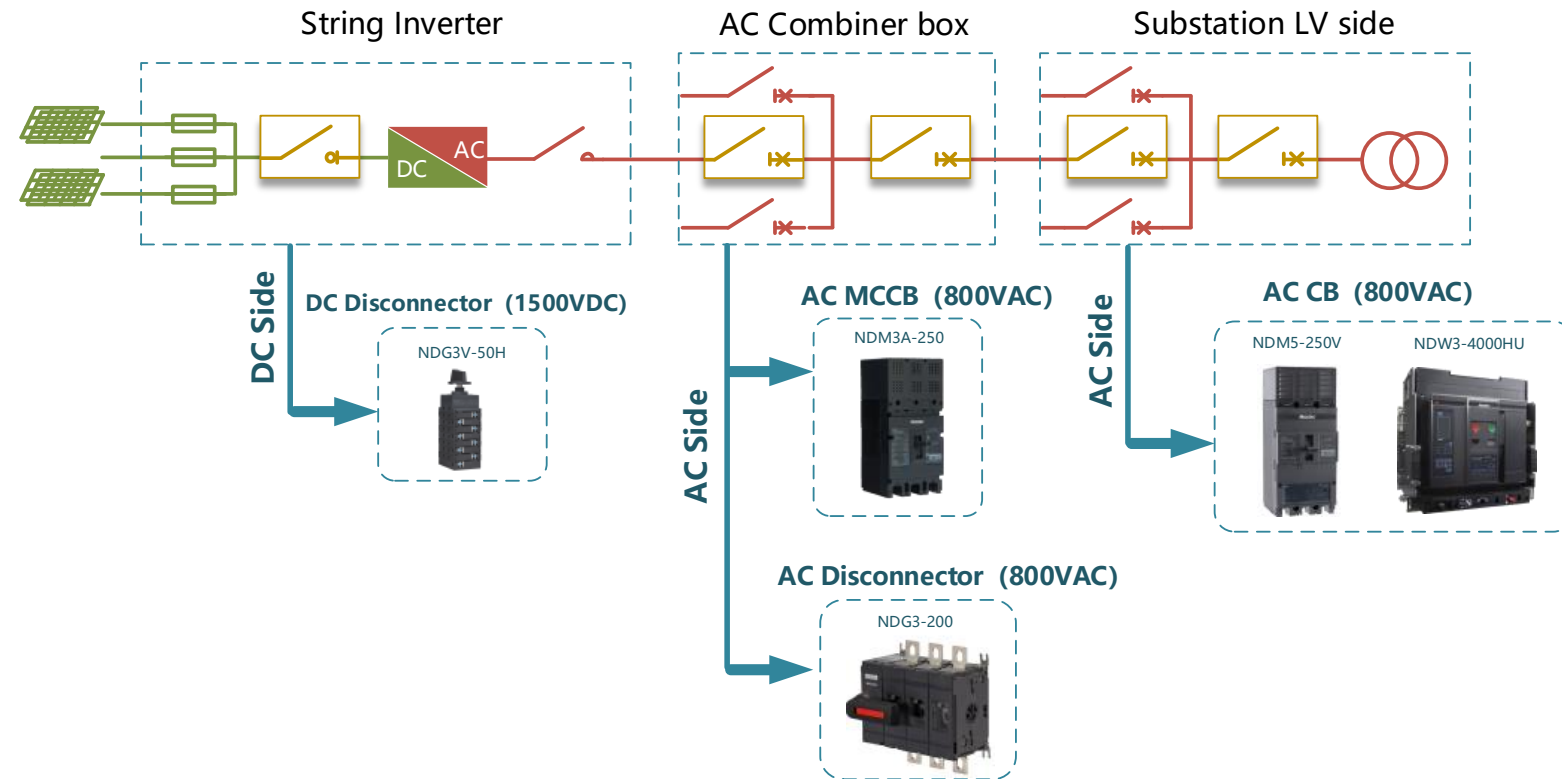
■ Operating ambient temperature: -40°C~+70°C

■ Breaking capacity: 10KA

■ Product life

- Mechanical life: 20000 times
- Electrical life: 10000 times

Resolve customer pain points



One-stop solution

B. string PV solution

- **3~6MW** Step-up transformer **6.5%** Step-up transformer, Low voltage switch box **800V** Busbar short-circuit fault current can reach **50kA**
 - NDW3-HU (**75kA@800V**)
 - NDM5-V (**50kA@800V**)
- For high-power double-sided double-glass modules, potential safety hazards caused by insufficient current-carrying → Inverter DC NDG3V-50H working current **50A**

DC switch-disconnector

NDG3V-32



Basic performance

■ Rated voltage

- Insulation voltage: 1,500V
- Impulse withstand voltage: 8kV
- Rated operating voltage: DC1500/1100/1000/800/600V

■ Rated current: 32/25/20/16A

■ Utilization category: A

■ Operating ambient temperature: -40°C~+80°C

■ Short-time withstand current : I_{cw}=1kA (1s)

■ Product life

- Mechanical life: 5,000 times
- Electrical life: 1,500 times

Resolve customer pain points

AC MCCB *NDM3A-250* *NDM5-250VM*

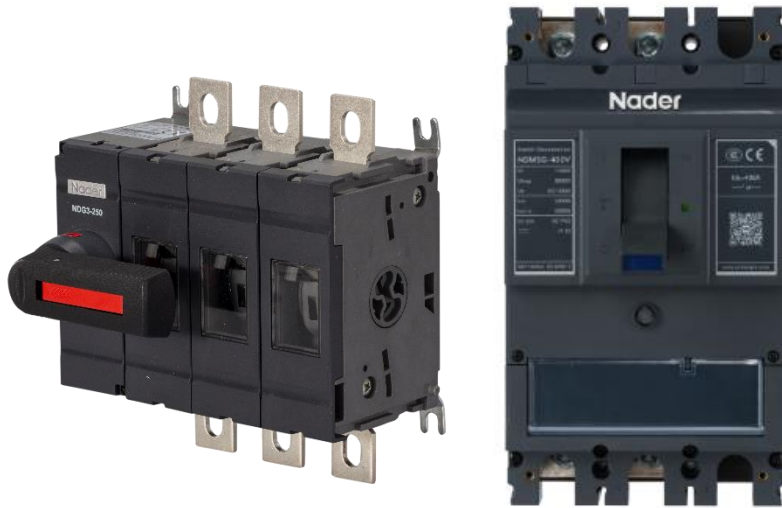
High Performance



Basic performance *Up to 630A*

- **Rated voltage**
 - Insulation voltage: 1,140V
 - Impulse withstand voltage: 8kV
 - Rated operating voltage: 550/600/690/800/1000V
- **Rated current:** 63/80/100/125/140/160/180/200/225/250A
- **Utilization category:** A
- **Operating ambient temperature:** -40°C~+75°C
- **Breaking capacity:** **M3A** Icu=30kA (800V), Ics=23kA (800V)
 - M3A H type:** Icu=36kA (800V) Ics=30kA (800V)
 - M5:** Icu=50kA (800V), Ics=35kA (800V)
- **Product life**
 - Mechanical life: 20,000 times
 - Electrical life: 1,500 times (800V)

AC Disconnect **NDM5G-250 AC1500V** **NDG3-250 AC 1000V**



Basic performance

- **Rated voltage**
 - Insulation voltage: 1000V
 - Impulse withstand voltage: 12kV
 - Rated operating voltage: 380/400/415/500/660/690/800/**1000V**
- **Rated current:** 250A
- **Utilization category:** AC-22A,AC-23A,DC-21B
- **Operating ambient temperature:** -40°C~+70°C
- **Breaking capacity:** ICW=8/1S,ICM=30KA
- **Product life**
 - Mechanical life: 20,000 times
 - Electrical life: 1,500 times (800V)

Resolve customer pain points

ACB *NDW3 series*



Basic performance

■ Rated voltage

- Insulation voltage: 1,000V
- Impulse withstand voltage: 12kV
- Rated operating voltage: 220/240V, 380/415V, 660/690V, **800/1000V/1140V**

■ Rated current: 1600A, 2000A, 2500A, 3200A, 4000A, 6300A

■ Utilization category: B

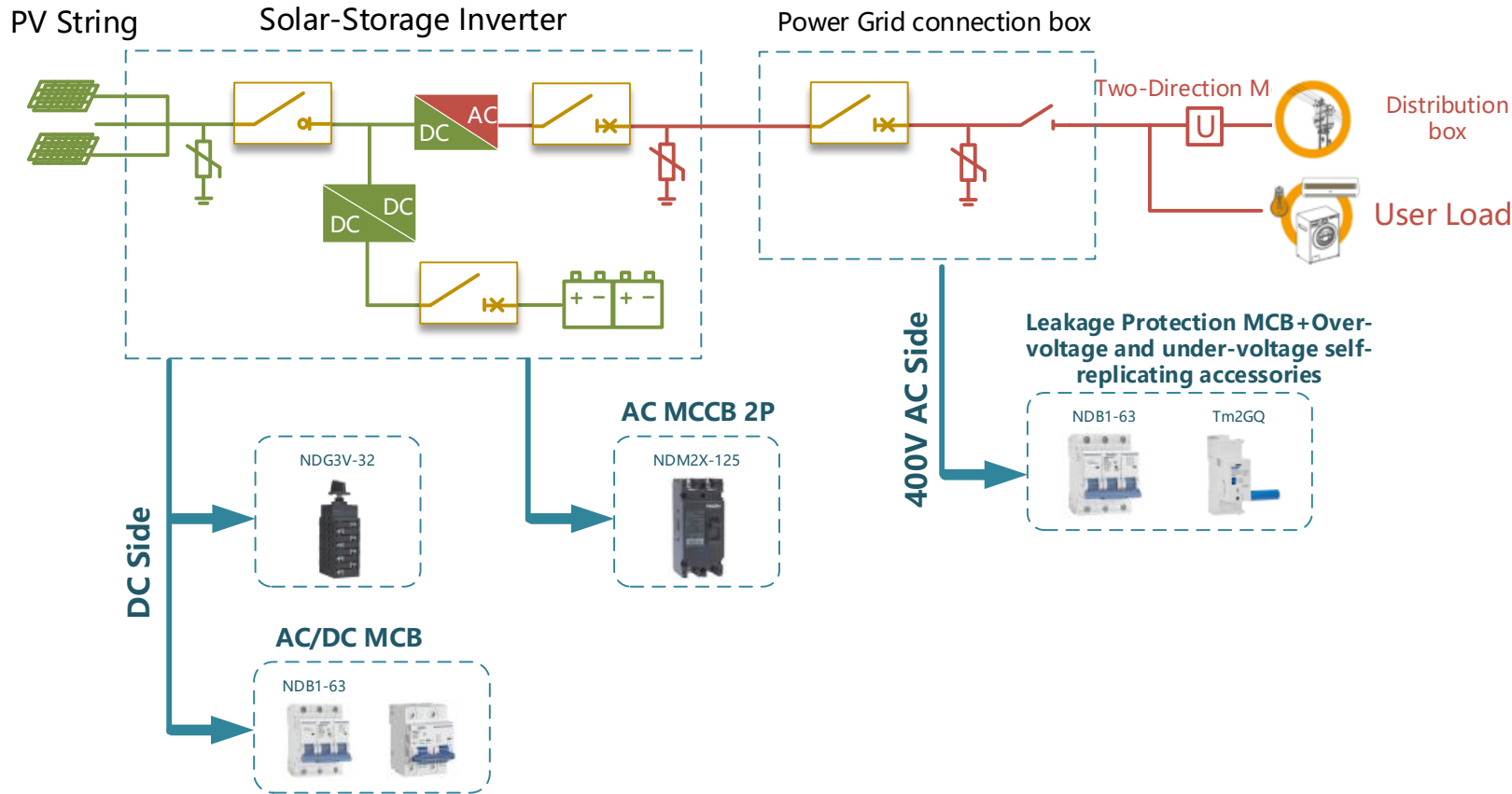
■ Operating ambient temperature: -40°C~+70°C

■ Breaking capacity: $I_{cu}=85kA$ (4kA ACB AC690V)

■ Product life

- Mechanical life: 15,000 times (Have maintenances)
- Electrical life: 6,000 times (AC690V/2500A)

Resolve customer pain points



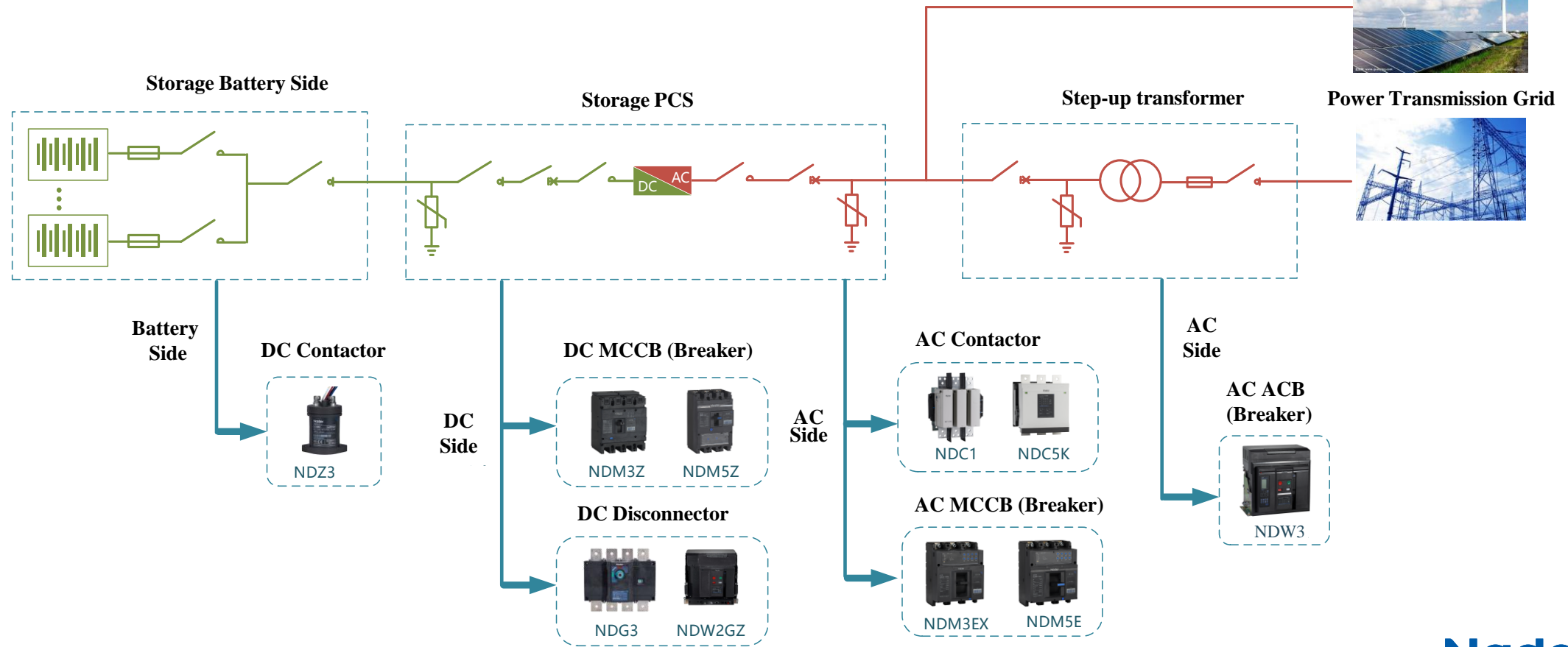
One-stop solution

C. Household PV energy storage system

- PV dedicated disconnecter NDG3V-32 can meet IEC 60947-2: 2016 standard critical current breaking requirements and effectively protect the components
- MCCB NDB1 series one pole operating voltage **80VDC**, meet **5kWh** energy storage lithium battery protection requirements
- Grid-connected cabinet and check voltage and reset function, State Grid Distributed PV Grid Standard Q/GDW1973-2013

Resolve customer pain points

Storage System solution



03

Create Value For Customer

Resolve customer pain points



◆ Attend over **50GW**
Supplied All over
the world



◆ Mainly supplier for
Inverter
manufacture all
over the world



THANK YOU FOR YOUR ATTENTION

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