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U.S. and Iranian Strategic Competition

Sanctions, Energy, Arms Control, and Regime Change

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Request for comments:

This report is a draft that will be turned into an electronic book. Comments and suggested changes would be greatly appreciated. Please send any comments to Anthony H. Cordsman, Arleigh A. Burke Chair in Strategy, at acordesman@gmail.com.

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Executive Summary

This report analyzes four key aspects of US and Iranian strategic competition - sanctions, energy, arms control, and regime change. Its primary focus is on the ways in which the sanctions applied to Iran have changed US and Iranian competition since the fall of 2011. This escalation has been spurred by the creation of a series of far stronger US unilateral sanctions and the EU's imposition of equally strong sanctions – both of which affect Iran's ability to export, its financial system, and its overall economy.

It has been spurred by by Iran's ongoing missile deployments and nuclear program, as reported in sources like the November 2011 IAEA report that highlights the probable military dimensions of Iran's nuclear program. Additional contributing factors include Iranian rhetoric, Iranian threats to "close" the Gulf to oil traffic; increased support of the Quds Force, pro-Shiite governments, and non-state actors; and incidents like the Iranian-sponsored assassination plot against the Saudi Ambassador to the US, an Iranian government instigated mob attack on the British Embassy in Tehran on November 30, 2011, and the Iranian-linked attacks against Israeli diplomats.

Sanctions Become Real at the End of 2011

The most important issue now shaping US and Iranian competition is whether the new and growing mix of US and EU sanctions can lead to some negotiated end to those aspects of Iran's nuclear programs that will give the capability to deploy nuclear weapons. More broadly, it is whether these negotiations can go further, and create a more stable relationship between Iran and the US, Europe, and the other Gulf states.

There is nothing new about sanctions per se. Sanctions have been applied to Iran since the fall of the Shah in 1979 and were first applied to Iranian property, assets, and arms transfers. As the following analysis shows, the US steadily applied broader unilateral sanctions and pushed for international action – but until the end of 2011, the end result of unilateral and UN sanctions was far too weak to have a critical impact on Iran.

Earlier efforts did have some impact. They restricted many aspects of Iran's military build-up, but they have also not prevented Iran from making major progress in their asymmetric warfare capabilities, missile programs, and acquisition of nuclear technology. They still, however, had limited practical impact on the Iranian nuclear program. Iran had the time and options to reduce their impact, and many experts felt that Iran's own internal economic policies put more pressure on their economy than US and UN sanctions.

It was only at the end of 2011 and beginning of 2012 that Iran's steady progress towards a nuclear weapons capability led the US and its European allies to pass strong and comprehensive sanctions on Iran's energy exports, ability to trade, and financial system. These sanctions did not go into full effect until the summer of 2012, and still have significant exemptions. It was only then that the US applied a full mix of sanctions on Iranian banks, Iranian companies involved in its nuclear industry, Iranian companies involved in the petrochemical and oil industries, and non-Iranian companies that have invested or have been involved with Iran's petrochemical industries, arms industries, transport, and precious metal trafficking.

It was only then that the EU sharply increased its role in sanctioning Iran by imposing an embargo on Iranian petrochemical imports and a ban on European investment in Iran's petrochemical industry.

The US has instituted four major acts sanctioning Iran, impacting hundreds of companies, people, and assets. These include: The Comprehensive Iran Sanctions, Accountability, and Divestment Act of 2010 (signed July 1, 2010), FY 2012 NDAA (signed December 31, 2011), Iran Threat Reduction and Syria Human Rights Act of 2012 (signed August 10, 2012), and FY 2013 NDAA (signed January 2, 2013). They have cut off Iran from the international banking system; declared the entire Iranian banking sector as money laundering entities; increased the number of sanctions the president is to impose; targeted Iran's petrochemical industry, the CBI, the financial sector, and transportation infrastructure; and forced countries to curtail their purchases of Iranian oil in the face of sanctions.

The EU has joined the US in pressuring Iran by passing six major Council Decisions in the past three years - Council Decisions 2010/413/CFSP (issued July 27, 2010), 2011/235/CFSP (issued April 14, 2011), 2012/35/CFSP (issued January 23, 2012), 2012/152/CFSP (issued March 15, 2012), 2012/168/CFSP (issued March 23, 2012), and 2012/365/CFSP (issued October 15, 2012).

These EU sanctions have targeted various dual-use items, Iranian transportation and shipbuilding services, oil and gas technology, investments in the Iranian petrochemical industry, and maritime insurance. They also cut Iran off from the international banking system. The EU embargoed Iranian oil and natural gas, which accounted for roughly 23% of Iran's total exports. The EU embargo prohibits the purchase, transportation, and importation of Iranian crude oil, the exportation of petrochemical equipment and technology, as well as related financial investments including insurance.

Additionally, the EU froze the Central Bank of Iran's (CBI) European assets, and banned the trade of gold and other precious materials between Europe and the CBI.[1] US and EU sanctions took time to become fully effective, but they have had a major impact as time has gone on. Comprehensive Iran Sanctions, Accountability, and Divestment Act (CISADA) sanctions haveprogressively increased the pressure on Iran by mandating that all countries that import Iranian oil reduce their purchases to win a 180-day renewable sanctions waiver. This has continually reduced other countries' purchases of Iranian oil. Other sanctions that have gone into effect in 2012: the FY2012 NDAA and the Iran Threat Reduction and Syria Human Rights Act, have in effect cut Iran off from the international financial, insurance, and reassurance industries.

These sanctions, in addition to the EU's embargo of Iranian petroleum products that entered into force on July 1, 2012, have further impacted Iran's economy and oil industry. Total Iranian oil exports in March, 2013 were slightly above 1 mbpd, down from roughly 2.5 mbpd in 2011, which has led to a decrease in revenue from $95 billion in 2011 to $67 billion in 2012.[2] Production was down as well from 4.2 mbpd in 2011 to 3.5 mbpd in 2012. However, again illustrating the difficulty of getting accurate information on the Iranian energy sector, the International Energy Agency (EIA) reported that Iran's February 2013 production level was 2.72 mbpd, down from 2.35 mbpd in February 2013.[3]

There are still significant exemptions and waivers to these sanctions for some countries that have grown particularly dependent on Iran's exports – namely China, India, South Korea, and Japan – but have slowly reduced their importation levels. China, Iran's largest export target, has reduced their imports by roughly 22% in 2012 but has increased its purchases by 74% from a year earlier,

with the large number due to various pricing disputes that stopped Iranian exports to China. India, Iran's second largest customer, has reduced their imports by roughly 15%, and by some accounts will completely stop importing Iranian crude this year. South Korea has reduced their imports by roughly 39% and will reduce Iranian imports by 20% this year; so far Seoul has reduced its imports by 30% compared to a year earlier. Japan's imports fell 18% and the government has pledged to reduce Iranian imports by about 15%.

The Timing and Impact of Key New Sanctions to Date

The end result is that US and EU actions have put far more pressure on Iran since the end of 2011:

- In July 2013, the Iranian Central Bank cut the value of the Iranian Rial in half, to 24,500 rials/dollar, up from 12,260/dollar. While this will allow the government to pay outstanding loans to various banks, the true value of the rial is closer to 30,000/dollar, and the move comes at the expense of higher prices for household goods and rising inflation.[4]
- In March 2013, the value of the Iranian Rial, Iran's currency, gained roughly 10% of its value due to increased government intervention in the form of providing more dollars to the Iranian market and a positive tone at the P5+1-Iran talks in Kazakhstan.[5]
- On March 22, 2013, a report by the Wall Street Journal detailed that Iran's maximum sustainable oil production capacity had been reduced by 20% (700,000 bpd) since December 2011.[6]
- In February 2013, South Korea's importation of Iranian oil fell by 30% compared to a year earlier and 25% compared to January 2013. South Korea imported roughly 141,900 bpd in February and Iran currently supplies Seoul with 6.1% of its oil needs, compared to 8.1% a year earlier. However, China imported an increased amount of Iranian oil, up by 2.7% in the first two months of the year and a 74% increase from a year earlier. However, the latter number is skewed due to a pricing dispute with Iran that brought Chinese imports of Iranian oil to a virtual halt.[7]
- In February the Iranian Rial hit an all-time low against the dollar, trading between 39,000 and 40,000 Rials per dollar according to a report by AFP.
- On January 23, 2013 it was reported that Iran's automotive output dropped sharply in the previous Persian calendar year to 677,000 automobiles from 1.2 million automobiles a year before. According to the report, Mohammad Bayatian, a member of the parliament's industries committee, said that losses at two Iranian manufactures, Khodro and Saipa, were at $407 million due to increases in raw material prices. The government has also pledged some $814 million to the car makers.[8]
- On February 27, 2013, H.R. 850, the "Nuclear Iran Prevention Act of 2013" was introduced with bipartisan support to Congress. The legislation would increase the list of blacklisted Iranian companies, potentially block Iranian assets held in Euros, designate the IRGC as a terrorist entity, continue to restrict business dealing with Iran. The bill has been referred to committee.[9]
- On January 9, 2013, the Central Bank of Iran (CBI) disclosed that the annual inflation rate hit 27.4%.[10]
- On January 8, 2013, the US Energy Information Administration (EIA) released their short-term energy outlook report. The report estimates that Iranian crude production has been falling since the last quarter of 2011 due to the lack of funds available for upkeep and natural decline in production. The report also estimates that Iranian supply averaged 3.4 million barrels per day (mbpd) during the first quarter of 2012 and declined to an average of 2.6 mbpd during the fourth quarter of 2012.[11]
- On January 2, 2013, President Obama signed into law the FY 2013 National Defense Authorization Act that blocks property and imposes at least five sanctions on entities that provide goods or services to energy, shipbuilding, shipping, or port operations, or provides insurance for those operations, and blacklists foreign banks which do provide such services from using the US banking system. These sanctions do not apply for

countries with exemptions or to purchases of natural gas from Iran. The law imposes at least five sanctions on any entity that provides precious metals to Iran (such as gold), or semi-finished metals or software for integrating industrial processes. It also imposes human rights abuser sanctions on Islamic Republic of Iran Broadcasting. On February 6, any funds used to purchase Iranian oil must be credited to an account located in the purchasing country and can only be used for the purchase of non-sanctioned goods. This will reduce the hard currency earnings Iran receives from oil sales.

- On December 12, 2012, the International Energy Agency (IEA) released its monthly oil market report. The report estimated that Iranian crude production was lower in November at 2.7 mbpd and may reach 1.0 mbpd into 2013. It also estimates that Iran's exports in 2012 have fallen 50% compared to 2011, however, imports of Iranian oil edged upwards to 1.3 mbpd in November 2012 compared to 1.07 mbpd in September 2012. US sanctions continued to exert pressure on the remaining major importers of Iranian oil: China, South Korea, Japan, and India; the share of Iranian oil to these importers has dropped since the summer.[12]

- On December 10, 2012, the Institute for International Finance released a report that estimates that the impact of sanctions has greatly affected the Iranian economy. The report says that Iran's GDP is expected to contract by 3.5% in 2012, opposed to 1.2% growth in 2011. Inflation is also expected to have increased from 26.5% in 2011 to nearly 50% in 2012. Government revenues from oil exportation, if the current price of $110 a barrel holds, could be 40% less than in 2011.[13]

- In October 2012, the Iranian Rial dropped to record lows against the US Dollar, at an unofficial rate of 37,000 to one USD, down from 28,000 Rials in September and 13,000 in September 2011.[14] The Rial has lost roughly 80% of its value since 2011. This devaluation has increased everything from Iranian energy prices, food prices, trade, and imports. It has also vastly increased the rate of inflation, which may be as high as 70%. There have been sporadic reports of 40-50% inflation on consumer goods, striking workers due to unpaid wages, bankrupt Iranian companies, and the government's inability to pay worker's wages. Iran has also begun "means testing" to reduce social spending and has forced Tehran to ban the importation of luxury goods. Analysts at one outside group have predicted Iran's economy will shrink by 3.5% in 2012, a reversal from the 1.2% positive growth in 2011.

- On October 15, 2012, the EU issued Council Decision 2012/365/CFSP, instituting additional sanctions against Iran's banking system, oil and petrochemical industry, and shipping industry. The EU decision prohibits any transactions between European and Iranian banks except for those authorized in advance. It also bans the export of graphite, aluminum, steel, and industrial facility control software. The decision prohibits the provision of flagging and classification services to Iranian tankers and cargo vessels in the EU or by EU nationals. Finally, the decision also forbids EU companies from providing shipbuilding technology and naval equipment to Iran, and broadens the export ban on equipment for Iran's oil, gas, and petrochemical industries.

- On July 1, 2012, the EU's embargo of Iranian petroleum products entered into force. This has had a major impact on Iran's oil exports, as oil sales to the EU accounted for roughly 23% of Iran's exports. Total Iranian oil exports in July were estimated at 940,000 bpd, down from 1.7 million bpd in June and 2.8 million bpd in July 2011. Oil export revenue fell from $9.8 billion in July 2011 to $2.9 billion in July 2012.

- On August 10, 2012, President Obama signed into law the "Iran Threat Reduction and Syria Human Rights Act of 2012," which strengthened sanctions on Iran's energy sector by increasing the number of sanctions the Administration is required to impose from three to five. The law also imposes sanctions against foreign companies who conduct business in Iran's energy sector and any company that insures, sells, or leases tankers to Iran. This action has resulted in higher insurance costs for Iranian tankers, and major insurance companies have been refusing to insure Iranian ships.

- On March 14, 2012, the Society for Worldwide Interbank Financial Telecommunication, or SWIFT, complied with EU instructions to "discontinue its communications services to Iranian financial institutions that are subject to European sanctions."[15] SWIFT is essential to international banking because it provides a secure worldwide financial communication and transaction network to more than 10,000 financial institutions and corporations in 210 countries. In 2010, SWIFT reported that 19 Iranian banks and 25 Iranian financial institutions used the network over 2 million times during the course of the year.[16] All

banking transactions with Iran, international insurance coverage in Iran or for Iranian oil transportation, and all transitions with Iran's state-owned oil company and its main tanker fleet, are affected by this decision.[17]

- On February 27, 2012, the Treasury Department strengthened the preexisting Iranian Financial Sanctions Regulations (IFSR) with the implementation of subsection 1245(d). The amendment extends sanctions to "foreign financial institutions that knowingly conduct or facilitate certain significant financial transactions with the Central Bank of Iran or a U.S.-designated Iranian financial institution." In accordance with these actions, the Secretary of the Treasury will impose sanctions on privately-owned foreign institutions, as well as government-owned or controlled financial institutions that conduct business with the Central Bank of Iran.[18]
- On February 5, 2012, President Obama issued Executive Order 13599, which implemented section 1245 of the FY 2012 NDAA, which froze the assets of the Iranian government and prevented all Iranian financial assets in the US from being "transferred, paid, exported, withdrawn, or otherwise dealt with."[19] The order also implemented new sanctions that required US banks to seize the funds of those on the Specially Designated Nationals (SDN) list, even if the funds are not destined to a US entity or firm. Previously, US banks were required to block the transaction and return the funds to the sender. This order effectively blocks Iranians from using the US banking system.
- On January 23, 2012, the EU – which accounts for roughly one-fifth of Iran's oil exports – introduced new sanctions to be phased in over the course of 2012. The EU enacted an embargo on the purchase, transportation, and importation of Iranian crude oil; the exportation of petrochemical equipment and technology; as well as related financial investments including insurance. Existing European contracts were allowed to continue until July 1, 2012. Additionally, the EU froze the Central Bank of Iran's European assets, and banned the trade of gold and other materials between Europe and the CBI.[20]
- On December 31, 2011, President Obama signed the FY2012 National Defense Authorization Act (NDAA) (S.1867) that contained an amendment that required the President to bar foreign banks from opening accounts in the US if that bank processed payments for oil through the CBI. Section 1245 of the FY2012 NDAA imposed unilateral sanctions on the CBI in ways that leverage major penalties against entities – including corporations and foreign central banks – which engage in transactions with the CBI. The sanctions on transactions unrelated to petroleum were to come into force 60 days after the bill was signed. Sanctions on transactions related to petroleum were to take effect a minimum of 180 days after the bill's signing. The amendment provided for a renewable waiver of 120 days if the President determined that doing so is in the interest of the US.
- In November 2011, the US Treasury Department introduced new unilateral sanctions under the auspices of the Comprehensive Iran Sanctions, Accountability, and Divestment Act of 2010 (CISADA). These new sanctions targeted Iran's petrochemical industry, the CBI and financial sector, transportation infrastructure, and added dozens of names to the list of sanctioned individuals. These restrictions bar institutions from conducting any business with any Iranian banks – including the CBI and its affiliates – as well as expanding sanctions on Iranian individuals and placing new restrictions on the importation of Iranian goods.
- On November 21, 2011, the US Treasury Department designated Iran's entire financial sector, including the CBI, as "money laundering entities" under Section 311 of the USA Patriot Act.
- On July 27, 2010, the EU issued Council Decision 2010/413/CFSP that establishes an embargo on nearly all dual-use goods, military arms, and nuclear-related items; bans EU exports of key equipment and technology for oil and natural gas production, exploitation, and refining; bans technical assistance, training, and financing in Iran's energy sector; bans access to EU airports for Iranian cargo flights; and bans the provision of bunkering or ship services to Iranian or Iranian contracted vessels and aircraft if they have been involved in sanctions violations.
- On July 1, 2010, President Obama signed the Comprehensive Iran Sanctions, Accountability, and Disinvestment Act (CISADA). The act imposes sanctions on any person that makes an investment of $20 million or more in Iran's petroleum industry, any person that provides Iran with goods, services, technology, or information with a fair market value of $1 million or more for the maintenance or expansion

> of Iran's production of refined petroleum products, and/or any person that exports more than $1 million worth of gasoline to Iran or provides $1 million worth of goods or services that could contribute to Iran's ability to import gasoline.[21]

Much now depends on how the US and EU sanctions effort is handled in the future. The Obama Administration and Congress are steadily tightening sanctions, but are doing so carefully and in ways that focus on multilateral, rather than unilateral US action. Additional sanctions will be pursued gradually and in ways that maximize multilateral buy-in. The Iranian financial, oil, transportation, and petrochemical sectors will continue to be isolated to the extent possible. And, the Administration will attempt to inform and empower population centers within Iran through channels such as the State Department's "Virtual Embassy" program, in hopes that an opposition movement will again challenge the regime as external financial constraints, economic mismanagement, and domestic pressure increase.

The Obama administration is also continuing military pressure by showing that "all options are on the table." Statements by top US officials seek to communicate in clear terms the costs Tehran faces for continued obstinate and uncooperative behavior. On September 25, President Obama said in a speech to the UN General Assembly, "[a] nuclear-armed Iran is not a challenge that can be contained...the United States will do what we must to prevent Iran from obtaining a nuclear weapon."[22]

Other Administration officials have echoed this sentiment. On March 7, 2012, Defense Secretary Leon Panetta told the *National Journal* that the Pentagon is preparing an "array of military options for striking Iran if hard-hitting diplomatic and economic sanctions fail to persuade Tehran to drop its nuclear ambitions."[23] However, the US has refrained from such statements as of late as the Administration continues to attempt a diplomatic resolution to the conflict.

The Iranian Reaction

Iran's reactions have been mixed as the impact of the new US and EU sanctions have continued to reduce Iranian energy exports and revenues, crippled foreign direct investment in Iran, and created serious banking and trade problems. The Iranian government has had to deal with the fact that the Iranian Rial has become destabilized, and has steadily fallen to record lows as currency markets have reacted to the prospect of limited foreign trade, declining Iranian reserves, declining Iranian oil income, growing problems in working with Iran's financial system, and growing detection efforts and penalties for violating sanctions.

Most Iranian official statements minimized or discounted the impact of sanctions through the end of 2012. They blamed other problems, such as economic mismanagement, corruption, or "rouge elements," as the true reasons for Iran's economic difficulties. Iranian officials have also continued to state that sanctions have been helpful to Iran by increasing its self-reliance, and attacked the US and the EU for instituting sanctions that are "illegal."

- "…in the shadow of the Leader's enlightenment and the President's courage, the country progressed. We in the government considered the economic and psychological war to be reactions to the country's progress, and we believed that the foundations for a modern economy are advanced sciences such as aeronautics, nano- and biotechnology, and peaceful nuclear science. Resistance, tolerance, and hard work are the paths that must be taken to counter sanctions and reach justice and progress." - Shamseddine Hosseini, Minister of the Economy, July 15, 2013, http://www.irantracker.org/iran-news-round-july-15-2013
- "The US is voluntarily boycotting Iran and its industry. Iran today, however, has strong capabilities in the petrochemical sector, and production has exceeded 60 million tons a year. Boycotting Iran in the petrochemical market will result in higher prices and will encourage the black market. The sanctions do not

paralyze us, but only lead us to identify and correct weaknesses." - Abdolhossein Bayat, Managing Director of the National Iranian Petrochemical Company, June 3, 2013. http://www.farsnews.com/newstext.php?nn=13920312000249

- "Although sanctions have been imposed on the country's economy, we have faced economic growth over the past years…Sanctions also provide us with an opportunity to expedite utilizing our capacities." - Gholam Hossein Elham, Iranian Government Spokesman, March 5, 2013. http://english.farsnews.com/newstext.php?nn=9107150314
- "The US knows that if its sanctions (on Iran) yield result in the short run, those pressures will spark unrests in the country and they will gain victory, but prolongation of the status quo will be in the interest of Iran because non-oil exports will increase and will result in the growth of national production." - Ahmadi Moqaddam, Chief of the Islamic Republic of Iran Police, March 3, 2013. http://english.farsnews.com/newstext.php?nn=9107149544
- "Despite the fact that enemies of the Iranian nation are doing their best to stop Tehran's technological advancement, Islamic Republic is committed to continue its approach towards the highest scientific levels…the inclination of the people of this great land to the principles of Islam and the Revolution and the national honor of Iranians are on the increase every day and this is exactly the counterpoint of what the enemies want." – former President Mahmoud Ahmadinejad, February 1, 2013. http://english.farsnews.com/newstext.php?nn=9107140788
- "Sanctions have caused an economic advantage for the production sector, and we should use this opportunity in the best way." - Iranian Minister of Industry, Mines, and Trade, Mehdi Ghazanfari, December 23, 2012. http://www.presstir/detail/2012/12/23/279789/sanctions-advantageous-to-iran/
- "By relying on their capabilities and knowledge, Iranian experts and manufacturers have been able to nullify the impact of sanctions so that at present many parts and equipment needed in petrochemical industry are being manufactured at home." - Head of Iran' National Petrochemical Company, Abdolhossein Bayat, December 23, 2012. http://english.farsnews.com/newstext.php?nn=9107129647
- "Our enemies helped us today and we managed to cut Iran's dependence on oil revenues in a short time which is a great development in the country's economy…One of the problems that we were facing for a century was reliance on oil revenues…The sanctions imposed on us have created an opportunity to prepare the ground for cutting the connection between the (country's) budget and oil (revenues)…" - Vice-Speaker of the Majlis, Mohammad Hassan Aboutorabi-Fard, December 12, 2012. http://english.farsnews.com/newstext.php?nn=9107124602
- "[T]hey (the westerners) think that the Iranian nation is dependent on a number of goods (which they have sanctioned) and foreign currency and they don't understand that the Iranian nation can pass through obstacles whenever it wants…Such hues and cries will not affect the Iranian nation and 10 years later such words (uttered by the western officials about sanctioning Iran) will be jokes that people will laugh at." – former President Mahmoud Ahmadinejad, December 11, 2012. http://english.farsnews.com/newstext.php?nn=9107126163
- "The sanctions (against Iran over its nuclear program) are illegitimate and illegal and they are imposed due to the Islamic Revolution's nature and the Iranian nation's independence." - Iranian Foreign Ministry Spokesman, Ramin Mehman-Parast, December 4, 2012. http://english.farsnews.com/newstext.php?nn=9107124294
- "These sanctions present an opportunity, and the harsher they are, the speedier oil industry development becomes. Thanks to the embargo, Iran has become an important exporter of petroleum products and equipment related to the oil industry. Iran is an important country in the region and in the world, and has many friends. We therefore have no concerns or difficulties selling our oil." - Oil Minister, Rostam Qassemi, July 2, 2012. http://www.irandailybrief.com/2012/07/02/oil-minister-sanctions-on-iran-are-opportunity-to-accelerate-development/

- "The reality is that the smallest part of our economic problems are caused by sanctions, and our economic problems are due to domestic mechanisms… Our economic problems have roots, and if we treat these roots, foreign exchange prices will drop on their own."- Chairman of the Majlis, Ali Larijani, October 3, 2012. http://www.irandailybrief.com/2012/10/03/majlis-speaker-poor-economic-management-not-sanctions-led-to-recent-fluctuations-in-forex-rates-robin-hood-methods-are-never-effective-in-the-economy/

However, there have been increasingly frank admissions that sanctions were having a major impact.

- "The country faces very difficult conditions, and some of these complexities are the result of domestic performance and some are the result of unjust foreign pressures…This is the first time that the country faces very high inflation - the highest in the region and perhaps in the world - coupled with negative economic growth." President Rowhani, July 15, 2013. http://www.ynetnews.com/articles/0,7340,L-4405197,00.html

- "Unfortunately, the rate of economic growth is zero or below zero and negative. We could not make use of the opportunities in economy." - Gholamreza Mesbahi-Moqaddam, Chairman of the Majlis Planning, Budget and Assessment Committee, April 9, 2013. http://www.irandailybrief.com/2013/04/09/economic-growth-rate-zero-or-negative/

- "Unfortunately, the increase in liquidity has had a bad effect on the increase in prices. The pressure of sanctions increased little by little. The effect of the sanctions on Iran's economic affairs was 20%-30%, and the rest was due to decision-making problems." - Mohammad Reza Bahonar, First Deputy Speaker of Iran's Majlis, April 1, 2013. http://www.irandailybrief.com/2013/04/01/sanctions-against-iran-have-affected-the-irans-economy-about-20-30-government-failed-to-manage-irans-economic-crisis/

- "Specific policies by some banks and the National Iranian Oil Company (NIOC) have resulted in the stoppage of oil exports by the private sector…Self-imposed sanctions have brought oil exports by the private sector to a halt…The private sector has had absolutely no oil exports since two months ago and is facing managerial barriers from NIOC." - Hasan Khosrojerdi, head of the Iranian Oil, Gas and Petrochemical Products Exporters' Association, March 6, 2013. http://www.irandailybrief.com/2013/03/06/private-sector-oil-exports-stopped-completely/

- "We are engaged in economic war and need to think of arrangements that can overcome these hurdles…Like any other war, economic wars also have casualties." - Mahmoud Bahmani, Governor of the Central Bank of Iran, February 28, 2013. http://www.irandailybrief.com/2013/04/01/sanctions-against-iran-have-affected-the-irans-economy-about-20-30-government-failed-to-manage-irans-economic-crisis/

- "On the basis of the report, oil sales are down 40 percent and income has dropped 45 percent in the last nine months." - Head of the parliament's budget committee, Gholam Reza Kateb, January 7, 2013. http://www.washingtonpost.com/business/report-iran-oil-revenues-drop-45-percent-in-9-months-because-of-sanctions-on-nuclear-program/2013/01/07/e525461e-58ea-11e2-b8b2-0d18a64c8dfa_story.html

- "Liquidity disproportional to national production, (western) sanctions, the trend of fluctuations combined with the incompetency of the government's monetary and economic affairs officials have been the key factors behind the rising currency exchange rate." - Member of the Iranian Majlis, Ahmad Tavakkoli, January 7, 2013. http://www.irandailybrief.com/2012/12/21/governments-mismanagement-sanctions-behind-rise-in-currency-exchange-rate/

- "All people who believed that the sanctions were nothing, but a worthless piece of paper and did not make the necessary arrangements to handle them will be required to account for their actions since the country is now suffering from the problem." - Chief of the General Inspection Office, Mostafa Pourmohammadi, December 31, 2012. http://www.irandailybrief.com/2012/12/31/anyone-who-has-failed-to-prepare-to-cope-with-the-sanctions-will-be-required-to-account-for-their-actions/

- "We can't say that sanctions have not hurt us. They have, but we devised plans to control the damage and have been able to avoid serious damage to our economy…It's a temporary high rate of inflation in Iran, and we are trying our best to control it and bring it down to where it should be in the near future." – Central Bank of Iran Governor, Mahmoud Bahmani, November 22, 2012. http://www.irandailybrief.com/2012/11/22/cbi-governor-iran-has-avoided-a-serious-dent-to-its-economy-from-western-sanctions-thanks-to-large-gold-reserves-high-oil-prices-and-reduced-foreign-imports/

- "There is no precedence in the world for a central bank to be sanctioned. But they have done this and they may even expand the sanctions further to include logistics issues. Today we are in a serious and dangerous confrontation. We must realize that confronting the enemy requires serious thought and intelligence." - Minister of Industries and Business, Mehdi Ghazanfari, July 17, 2012. http://iranprimer.usip.org/blog/all/Helia%20Ighani

- "One factor is from outside, and one factor is from inside. The enemy has stated that it will impose (more) sanctions, and part of the oil purchases from Iran has decreased, and a considerable segment of our foreign currency revenues was generated through oil sales…What is worse than the oil sanction is the sanctions on banking transactions. If oil is sold, the payment cannot be transferred, and a massive and great secret war (against Iran) is actually underway in the world. This war has led to a decrease in oil sales, but we are making endeavors to make up for this decrease." – former President Mahmoud Ahmadinejad, October 2, 2012.
http://www.mehrnews.com/en/NewsDetail.aspx?NewsID=1710947

- "…the heaviest economic onslaught on a nation in history ... every day, all our banking and trade activities and our agreements are being monitored and blocked." – former President Mahmoud Ahmadinejad, January 23, 2012. http://www.cnn.com/2012/01/23/world/meast/iran-sanctions-effects/index.html

Evaluating the Impact of Sanctions on Iran's Oil and Gas Exports

Evaluating the effect of sanctions on a macroeconomic level is difficult because of preexisting structural deficiencies of Iran's underlying economy, one that is based almost totally on oil exports and that was weakened by subsidy reform and mismanagement. The basic economic data on Iran are notoriously uncertain, and far too much analysis focuses on macroeconomic estimates for the total economy that do not provide any reliable way to estimate the impact of sanctions in any detail. Yet uncertain as most spot macro-economic data are, it is possible to stitch together long term trends based on year-to-year and quarter-to-quarter data. The trends over the past few years indicate that sanctions have had a serious effect on the Iranian economy.

All signs point to an economy under siege: production is down, industry is at a standstill, and there is a massive brain drain, estimated at 200,000 Iranians that try to leave the country annually.[24] There have also been sporadic reports of workers striking due to unpaid wages; inflation on consumer goods is 40-50%, and the Iranian government being unable to pay wages of government employees.[25]

As early as July 2012, the US Energy Information Agency (EIA) estimated that the growing impact of sanctions was impacting Iran's ability to produce oil. The EIA announced that it "expects Iran's crude oil production to fall by about 1 million bpd by the end of 2012 relative to an estimated output level of 3.6 million bpd at the end of 2011, and by an additional 200,000 bpd in 2013. Iran has no chance for the foreseeable future of meeting its stated goal of some 5.3 m/bpd of production capacity."[26] Those estimates appear to be correct as Iranian oil production hit 2.68 mbpd in March 2013 according to the International Energy Agency (IEA).[27]

Recent data from sources such as the EIA, the IEA, and various news organizations point to a substantial reduction in both Iranian crude production and crude exports. Iran is now exporting

roughly 1.1 mbpd down from an average of 1.53 mbpd in 2012 and 2.5 mbpd in 2011 and 2010.[28] Iranian oil production has also continued to drop due to the lack of investment and now totals between 3.2 mbpd and 2.6 mbpd according to outside sources, and roughly 3.7 mbpd according to Iranian sources. This is costing Iran approximately $100 million a day and about $5 billion a month.[29]

Although Iran remains a relatively minor natural gas exporter, it has the second largest proven natural gas reserves and some maintain that Iran's gas sector can more than compensate for declining oil exports.[30] However, given the level of sanctions now imposed on all aspects of Iran's energy sector, it is highly unlikely that it will be able to attract the $145 billion in new investment by 2018 that Tehran's deputy Oil Minister has said Iran needs in order to develop its gas sector.[31] With reduced investment, an estimated annual domestic natural gas consumption increase of 7%, and the reinjection of 1 TcF of gas into its oil fields for Enhanced Oil Recovery, Iran would most likely remain a minor player in natural gas.[32]

Evaluating the Impact of Sanctions on Iran's Financial, Banking, and Trade Sectors

US financial sanctions and EU insurance provisions have also impeded other countries' ability to finance and pay for transactions in Iranian oil, leading to reports that Iran's ability to produce oil has outstripped its ability to sell it.[33] Due to the difficulty in lowering production by capping wells, Iran is preparing to store more oil and add 8 million barrels of storage capacity in the coming year in preparation for continuing lower sales.[34]

According to the IEA, Iran has a total onshore storage capacity of 25 million barrels and is estimated to be filled to capacity; Iran had stored between 20-25 million barrels of crude in floating storage in April 2012 but it has been reduced to 13 million barrels in October 2012, though whether this reduction is due to more Iranian tankers being used to transport oil or other reasons is unknown.[35] IEA's December Monthly Oil Report details 13 million barrels in floating storage in either the Arabian Gulf or off Malaysia. Current estimates show that most of Iran's 25 million barrels of storage capacity is filled, and Iran has purchased additional tankers for use as floating storage.

Iran's currency, long held artificially high by a regime that could afford to subsidize it, has nose-dived since the implementation of more stringent sanctions. It has lost more than 80% of its value relative to the dollar since 2011, and was trading at a record low of 37,000 Rials to one dollar in October 2012, down from 28,000 Rials in September 2012 and 13,000 Rials in September 2011.[36] According to some reports, this raised the real rate of annual inflation from the 29% the government claimed to almost 70%. The Rial has gained some of its value since then, trading at around 32,500-33,500 per dollar as of early March 2013.[37] In July 2013, the Iranian Central Bank cut the official value of the Rial, to trade at 24,500 rials per dollar, prompting some concerns about inflation.[38]

By October 2012 food prices were rising so quickly that major changes were taking place by the day, and key foods like chicken had become unaffordable for many Iranians. The first public riots about the economy and rising prices took place, and some outside experts estimated Iran had lost half of the $80 billion in currency reserves it had in 2011.[39]

The Economist Intelligence Unit estimated in September that they would cut the Iranian GDP by at least 1.2% in 2012-2013 – a forecast that seemed highly optimistic as the impact of sanctions

accelerated later in the fall of 2012.[40] The Institute for International Finance has estimated that Iran's economy will shrink by 3.5% this year compared with 1.2% growth in 2011. Inflation is also expected to have increased from 26.5% in 2011 to nearly 50% in 2012. In July 2013, President Rowhani told the Iranian Parliament that the inflation rate was likely closer to 42%, rather than the officially reported 32%. Government revenues from oil exportation, if the current price of $110 a barrel holds, could be 40% less than in 2011.[41]

These problems with the Rial and oil income sharply affected access to food in a country that received some 70% of its finances from oil exports, and that the World Trade Organization estimates imported $8.2 billion worth of food and $9.4 billion worth of agricultural products in 2010.[42] It has reduced meat consumption, led to the buying and hoarding of gold and dollars, sharply reduced foreign and domestic investment, strained government revenues, and forced Iran into massive new efforts to use third parties and other nations to disguise its economic activities.

The US has warned that it will not let the negotiations continue on endlessly and that it could refer the matter to the UN Security Council if the deadlock is not broken by March 2013. "If by March Iran has not begun substantive cooperation with the IAEA, the United States will work with other board members to pursue appropriate board action, and would urge the board to consider reporting this lack of progress to the U.N. Security Council," said Robert Wood, acting US Permanent Representative to the International Organizations.[43]

Despite taking a far harsher tone with the IAEA and accusing the international agency's inspectors of sabotaging Iran's electrical grids supplying Iran's Fordow and Natanz enrichment plants during August's IAEA inspection, the IAEA and Iran have continued to meet during this time.

Another meeting took place on December 15th, 2012. It was reported that it was as a "good meeting" and there were media reports that Iran and the IAEA might come together on an agreement that resolved some of the issues between the international nuclear energy organization and the Islamic Republic of Iran.[44] Nevertheless, the IAEA and Iran failed to reach an agreement and no progress of any kind had taken place through June 2013 – a time when all of the candidate for the Iranian presidency endorsed pursuing Iran's nuclear programs and supported Iran's Supreme Leader in doing so.

Implications for US Policy

The US, the EU, and other nations seeking to end Iran's nuclear programs are now engaged in an uncertain and unpredictable race with Iran to see if a combination of outside sanctions and negotiations can make fundamental changes in Iran's behavior and apparent progress in developing nuclear weapons. The good news is that sanctions are having a major impact. The bad news is that so far this impact has largely been on the Iranian people, the regime has not changed its behavior, and Iran is getting closer and closer to a nuclear break out capability and the ability to deploy nuclear weapons if it chooses to do so.

As has been analyzed previously in, The Gulf Military Balance: The Missile and Nuclear Dimensions, , it may be several years before Iran crosses critical "red lines" like producing weapons grade material, conducting a nuclear test, or building and deploying nuclear weapons.[45] It is not clear, however, that sanctions will work to prevent such developments in the Iranian nuclear program. The US and its regional allies are already involved in efforts at military

containment, but the grim reality is that preventive strikes are still a very real option and the odds they will take place continue to increase.

Sanctions and Negotiations

The previous analysis has shown that new sanctions have already had a major impact. This impact grew steadily during 2012 and 2013, and the new sanctions will continue to have a growing cumulative impact on Iran's savings, foreign exchange reserves, oil and gas export income, and the ability to fund imports. The full effects of these sanctions will not become apparent until late 2013 at the earliest, but they are already cutting Iranian energy exports and revenues, and creating serious banking and trade problems. Iran has made its frankest admissions to date that sanctions are having a major impact. The Iranian Rial has become destabilized, and it fell to record lows in October 2012 as currency markets reacted to the prospect of more limited foreign trade. The Iranian government, the Iranian economy, and the Iranian people are already feeling the pressure.

Sanctions have had some impact on popular attitudes towards the regime, although they have also caused anger at the US. While they are not targeted at the Iranian people, sanctions have impacted and will continue impact every Iranian except the very poor and the very rich, and will do so in an economy where savings and investment have been hurt by inflation, a devalued currency, and economic mismanagement. Any new series of sanctions is certain to have a growing impact on every Iranian whose income is shaped by the market economy - the vast majority in a country that the World Bank and CIA estimate is 67% to 71% urbanized.

However, Iran's economy has scarcely collapsed despite inflation, unemployment, and an uncertain exchange rate. Iran's leadership has so far been able to keep the economy going and it appears to be more resilient than most people believed. However, sanctions relief will only come with successful negotiations. Iran's leadership may be able to persevere in spite of such pressures due to their ability to deflect sanctions, but there is a limit to this ability. Past polls and election results are one thing, popular discontent after new and continuing sanctions combined with an economy in crisis is another.

It is also important to note that the "hardliners" in the regime continue to reject any talks with the US over its nuclear program. And, Iranians cannot avoid seeing the deep differences within the clergy, the growing role of unelected leaders of the IRGC, and the bitter exchanges that used to occur between the Supreme Leader Ali Khamenei and former President Mahmoud Ahmadinejad. Iran's history of corrupt presidential and legislative elections and crackdowns on human rights do not help. The more that sanctions interact with repressive restrictions on normal life, the more these problems are likely to impact all classes of Iranian society.

Iran does not seem to have changed its tactics of using negotiations as a cover while it moves forwards towards nuclear weapons. There were reports in early October 2012 that that Iran had offered a new plan to end the nuclear confrontation.[46] The plan proved to be a rehash of past negotiating proposals that called for early dismantling of the sanctions, and a slow dismantling of key enrichment sites like Fordow in ways that could allow Iran to move its enriched stocks to other concealed centrifuge facilities or store them for a future breakout attempt.

Some reports indicated that this plan was rejected by the United States because it would have allowed Iran to continue to enrich Uranium until sanctions were completely removed, and allow Iran's stockpile of 20% enriched Uranium to remain in the country - making it easier for Iran to

retain a "breakout" capacity. This indicated that this may have been a variant on Iran's past "negotiate and proceed" tactics, and that Iran might have calculated that the end result would be the dismantling of the sanctions effort in ways that the US and EU could not rebuild.

Other reports indicated that Iran's actions were at least a sign that sanctions might drive Khamenei to accept a serious agreement.[47] Two days later, however, Iranian officials dismissed the report. They claimed the report was "baseless," and that "Iran has never delivered any new proposal other than what had been put forward in talks with the P5+1."[48]

At the same time, Iran became steadily more critical of the IAEA after the spring of 2012 - increasingly implying that the IAEA's activities and reports were an extension of US and Western sanctions efforts and intelligence activities. IAEA officials also became the target of anti-IAEA protests in Tehran mid-August.

Iran took an even harsher tone with the IAEA in the days that followed reports of a new Iranian negotiating proposal and Iran's denial. Iran accused the international agency's inspectors of sabotaging Iran's electrical grids that supply Iran's Fordow and Natanz enrichment plants during August's IAEA inspection. Iranian officials also accused the agency of tampering with equipment and Fereydoun Abbasi, Iran's chief nuclear official said that, "Terrorists and saboteurs might have intruded the agency and might be making decisions covertly."[49]

Some experts felt that these developments reflected an Iranian effort to prepare for either downgrading its relationship with the IAEA or for removing the inspectors altogether. They also speculated that an increasingly hostile relationship between Iran and the IAEA might seriously imperil future negotiations, while the outright removal of inspectors would instantly increase tensions to the point that Israel would seriously consider a preemptive strike.

P5+1-Iran talks have similarly stalled. In mid-December 2012, Iran indicated that it was willing to enter into new talks with the western group of nations. The P5+1 agreed to a new package, similar to the one offered during negotiations in the summer of 2012, and it appeared that both sides might be working towards determining a timetable for talks to begin sometime in January 2013.[50]

When talks finally did get underway in Almaty, Kazakhstan in early April 2013, it was apparent that the two sides were still far apart from each other. At the meeting, the P5+1 put a new proposal on the table that required Iran to suspend enrichment at Fordow, limit the amount of 20% enriched uranium to less than required to build a nuclear weapon, and allow greater access for IAEA inspectors.[51] In return the P5+1 offered limited sanctions relief, mostly pertaining to Iran's gold transactions and petrochemical trade. Iran did little more than offer a rehash of its previous proposals and a demand for almost total relief from sanctions, including banking sanctions, along with recognition of its right to enrich.[52]

Two days of negotiations ended in nothing more than both sides praising their Kazak hosts and vague promises to meet again. The chief negotiator Catherine Ashton said, "Over two days of talks we had long and intensive discussions on the issues" An unnamed US official said, "It is fair to say that both sides came away with a better understanding of the other's thinking."[53] In reality, nothing had happened except Iran had won more time in which to move forward in its nuclear efforts.

The IAEA reported to the UN Security Council in May 2013 that Iran had taken no steps to comply with its requests for added inspections and data on areas of suspected weapons activity

and that Iran had taken new steps towards the possible acquisition of nuclear weapons while actively concealing its past activities at Parchim. No further progress of any kind had taken place through June 2013 – a time when all of the candidates for the Iranian presidency had endorsed pursuing Iran's nuclear programs and supported Iran's Supreme Leader in doing so.

Some experts still believe that the time will be right for a deal between the two sides, as sanctions continuing to impact Iran's economy and increase its political infighting. Hassan Rowhani, a former senior Iranian nuclear negotiator, stated that, "For the West to become confident about our peaceful nuclear activities and for us to get our rights and get past the effects of sanctions and the difficult path the enemy has prepared for us, there is only one way, and it is negotiations."[54] It is hard, however, to be optimistic.

The Key Near-Term Choices for US Policy

As both Gulf Military Balances, the Missile and Nuclear Dimensions and the Conventional and Asymmetric Dimensions, have discussed the US must be ready for contingencies that could trigger a significant clash or conflict in the Gulf, for Israeli preventive strikes against Iran, or for serious US military action if a crisis escalates to the point where the US might have to strike at Iran's overall base of asymmetric forces, conventional forces, nuclear technology, or missile forces.[55] It also must prepare to deal with the reality that Iran crosses critical red lines.

While the US should pursue sanctions and diplomatic options, it must also begin to make hard choices regarding the possibility that sanctions and diplomacy may fail within the next one to three years. This means choosing between containment and preventive strikes, and doing so on the basis of the kind of classified analysis of future options that requires full access to both intelligence and military planning data. The choice between bad options should always be as objective as possible, and based on the best information and modeling, and many of the key variables are now so highly classified that outside analysis is severely limited.

In the near-term, the US does need to do everything it can to ensure that sanctions lead to successful negotiations. This means the US should pursue the following options:

- *The US should do everything possible to create UN, multilateral, and unilateral sanctions that are as effective as possible*. The time for gradual approaches is over. If there is to be a peaceful outcome to this conflict, it must come before Iran tests a nuclear device or deploys a nuclear weapon. It must come before Israel takes preventive action, the region becomes locked into a nuclear arms race, or Iran creates a technology base so advanced that current IAEA inspection methods cannot detect a covert nuclear weapons program.
- *Make it clear that the US and its allies offer Iran incentives to halt and reverse sanctions continuously.* The US should show other countries that the US and the P5+1 offer Iran real incentives to halt illicit weapons related activities, and explain and justify sanctions in terms that nations in other regions can understand. Sanctions relief is not enough. Iran needs to see that the US and the rest of the P5+1 will offer incentives in terms of fuel supplies, trade, investment, and energy development. If sanctions are the "stick", the US must act to ensure that there are real and immediate "carrots".
- *Work closely with European, Gulf, and Israeli allies*. The US cannot assume its allies will follow if it does not communicate, consult, and treat them as partners. This is an area where the US must be transparent enough to convince the world it is not repeating the mistakes it made in going to war in Iraq, that it will not act rashly, and it will listen as much as it attempts to lead.
- *Make a convincing case to the Iranian people, its allies, and the world that Iran is seeking to obtain nuclear weapons*. It is not enough to cite IAEA reports and continue diplomatic pressure. The US must continue to work with the IAEA and key allies to show the dangers in Iran's actions and make the threat it poses convincing. The US should explain how a crisis in the Gulf could threaten all countries - including

the developing countries outside the region. The US must make the case through effective strategic communications and as objectively as possible.

- *Use arms transfer efforts to supplement sanctions.* The US must continue to ensure that China, Russia, and other nations will not transfer advanced arms and military technology to Iran, nor any technology and equipment that could be used to develop nuclear weapons. In the past few years, Russian and Chinese arms transfers to Iran have dropped significantly - this needs to continue. At the same time, as is outlined in US-Iranian Strategic Competition: The Gulf and Arabian Peninsula, the US must work with its Arab Gulf allies and Turkey to give them a strong a mix of defenses and deterrents, help Israel obtain the security needed to reduce the incentive for preventive strikes, and - as is discussed in Iraq After US Withdrawal - do what it can to make Iraq secure and a real security partner.[56],
- *Work with the UN, IAEA, and its allies to update the agreements necessary to ensure full compliance with a meaningful and verifiable agreement*. It will not be enough for Iran to allay the immediate concerns raised by the IAEA. It must be clear that any negotiation ends in a viable agreement.
- *Avoid aggressive interference in the form of regime change, but support strategic communications from Iranian exiles and encourage internal movement towards moderation and democracy*. The US should focus on regime modification when dealing with the nuclear issue and the threat in the Gulf, and leave regime change to Iranians.
- *Attempt to prevent pre-emptive strikes from the Israelis that would stir up nationalism and a "rally around the flag" sentiment in Iran, improving the regime's chances at long term survival.* An Israeli attack would not cause the Iranian people to blame their government or the nuclear program, it would instead cause an outpouring of nationalism and support for the government. As the new sanctions are beginning to take hold and people are angry at the government for its irresponsible economic policies, a pre-emptive strike would reverse the progress of the past few years.
- *Support arms control in enforcing the NPT and giving the IAEA the necessary tools and freedom of action as critical policy option. However, a weapons of mass destruction free zone has virtually no chance of being negotiated in a meaningful form.*

The Uncertain Result: Giving Diplomacy Near Term Priority But Building New Levels of Containment, Deterrence, and Security

Sanctions and diplomacy are the best of a bad (or at least highly uncertain) set of options, but it is far from clear that they will stop Iran's progress toward a nuclear weapons capability. Despite the lack of diplomatic progress, and the appearance that the Iranians are stalling for time, negotiations may still be successful. Successful negotiations might also bring about long-term changes in the US-Iranian relationship.

But, the most likely case is that failed sanctions, failed negotiations, and an unchanging Iranian regime will either lead to preventive strikes at levels that are actually a preventive war, or become the beginning of years of intensive confrontation with Iran at every level. The risks become steadily higher as time goes on if negotiations do not succeed before Iran can develop an advanced base of centrifuges and other technology against which preventive strikes may not be fully effective. They become critical if Iran acquires weapons grade material, conducts any kind of nuclear test, or is found to be deploying weapons based on some form of "cold" test or sub-critical "hot" test.

Some form of serious military clash or limited conflict may come earlier. So far, Iran has backed away from military confrontation, but it is also far less clear what will happen as sanctions result in a major Iranian economic crisis. Iran has at least as much to lose, if not more, as any other Gulf state if it halts oil traffic through the Strait. Iran also cannot hope to win any serious

conventional conflict with the US and its Gulf allies, and will therefore attempt to use asymmetric means to confront the US.

Rising pressure on Iran can lead it to take risks, and exercise the kind of military options described in the Gulf Military Balances, the Missile and Nuclear Dimensions and the Conventional and Asymmetric Dimensions. Limited or demonstrative military actions can become serious clashes, and accidents can escalate into war. At the same time, Iran's progress towards a nuclear weapons capability may lead Israel to carry out preventive strikes, which will force the US to choose between launching its own strikes to "finish the job" or doing nothing and wasting an opportunity to set back the nuclear program for a longer period of time.

If a period of confrontation and sanctions does last for several more years, without Iran actually moving to acquire nuclear weapons, there may be a lasting increase in oil prices and pressure on the world economy. This period of time will also allow Iran time to steadily improve its asymmetric capabilities and political warfare. If Iran does complete a nuclear weapon during this time without a decisive US military response, it might lead many nations to abandon sanctions or aggressive posturing in fear of Iranian retaliation.

At the same time, Iran will have to take risks of its own. It has no inherent advantages in a regional nuclear arms race and playing the "long game". Hostile Iranian actions and Iran's movement towards a nuclear weapons capability might also strengthen the US's, EU's, and Southern Gulf states' resolve and support for sanctions.

If sanctions continue without preventive strikes, Iran will continue to pay a steadily higher cumulative cost as a result and popular support for the regime will most likely continue to erode. In addition, Iran cannot be certain that the use of low-level asymmetric tactics can be used without provoking the US and other states to escalate the conflict economically or militarily. Nor can Iran achieve escalation dominance at any level, and the steadily growing level of conflicts that might occur if nuclear weapons are ever used will risks a war leads to a process of spiraling escalation - leading to the destruction of Iran's military forces and other assets.

Preparing for Preventive Strikes and/or Extended Deterrence

These risks should, in theory, give all sides reason to negotiate. In practice, they have so far failed to do so. Moreover, even if sanctions do lead to successful negotiations, they may well have serious limitations. Negotiations that focus on Iran's nuclear program will have limited effects even if they are successful. Iran can continue many aspects of nuclear weapons development with little risk of detection. As its recent exercises in the Gulf show, Iran is also building up its capabilities for asymmetric warfare in ways that can threaten conventional navies and employ a wide range of tactics. It continues to use its Quds Force, intelligence services, and diplomats to pose a growing threat to the Arab states and Israel, in addition to controlling an axis of influence that includes Iraq, Syria, and Lebanon.

This means that a continued focus on sanctions and arms control efforts must be supported by the continued development of military capabilities to deter and contain Iran and carry out preventive strikes and restrikes if necessary. The US should preserve and enhance its ability to use force against Iran. The US and its allies should make it clear to Iran that if it conducts nuclear tests, is found to be assembling nuclear weapons, or deploys a nuclear weapon it will justify the use of military force. The US and its allies should also find ways to warn Iran that any major Iranian

effort to “close the Gulf,” or a large-scale clash between Iran and the US or its allies could lead to escalating military action.

At the same time, the real world political and strategic results of replacing sanctions and diplomacy with the use of force are so unpredictable, and the risks are so high, that force must be a last resort. The use of force may end any chance of diplomacy for the life of the Islamic Republic, lead Iran to lash out militarily or by using proxies, and create a major energy and economic crisis in the process.

Temporary success from limited preventive strikes may end up convincing the Iranian regime that nuclear weapons are required at any level of sacrifice in order to survive and prevent future attacks. They may lead Iran to withdraw from the NPT and start a far more intensive and dispersed nuclear weapons program. They may usher in a period of containment analogous to the Cold War.

Any military strike should only be taken if it becomes clear that Iran’s regime has reached the point where it cannot be deterred and there is strong evidence Iran will produce and quickly deploy nuclear weapons. It should only come after clearly assessing the relative risks of continuing with sanctions and containment and only after a careful assessment of the relative risks of this option versus preventive strikes. It is far easier to begin a conflict and trigger the law of unintended consequences than live with the result.

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bpd- Barrels per Day (oil)

CBI- The Central Bank of Iran

CISADA- Comprehensive Iran Sanctions, Accountability, and Divestment Act of 2010

EIA- United States Energy Information Agency

IAEA- International Atomic Energy Agency

IEA- International Energy Agency

mbpd- Million Barrels per Day (oil)

NDAA- National Defense Authorization Act

NPT- Non-Proliferation Treaty

OPEC- Organization of Petroleum Exporting Countries

SWIFT- Society for Worldwide Interbank Financial Telecommunication

TcF- Trillion Cubic Feet (natural gas)

Introduction

This report analyzes four key aspects of US and Iranian strategic competition – sanctions, energy, arms control, and regime change. It reflects the fact that major increases have taken place in the scope and intensity of US and EU sanctions since the fall of 2011. At the same time, the November 2011 IAEA report highlighted a series of continuing military dimensions in Iran's nuclear program, and the IAEA has since regularly reported on further such developments. There are no indications to date that either past or new sanctions are changing Iran's behavior and nuclear efforts.

The negotiating climate has been affected by other new tensions with Iran. Tensions have been increased by an Iranian assassination plot against the Saudi Ambassador to the US, by Iranian intervention in dealing with the Shi'ite population in the Arab Gulf states, by an Iranian-government-sponsored mob attack on the British Embassy in Tehran in November 2011, by Iranian intervention in the Syrian civil war, and by various Iranian threats to "close" the Gulf to oil traffic.

Previous parts of the this analysis have focused on the impact of Iran's increasing asymmetric, conventional and missile warfare capabilities, and the details of developments in the Iranian nuclear program. So far, the new sanctions have not changed the nature of Iran's nuclear efforts, although they have affected its energy exports. They have led Iran to return to the negotiating table, but there has been no progress in the actual negotiations or in resolving any of the IAEA's questions about the military implications of Iran's actions. The US and its allies now find themselves in a seemingly intractable conflict with Iran over nuclear programs that bring it to the edge of a nuclear weapons breakout capability.

There may still be several years in which to resolve this situation through negotiations, but this is uncertain. As this analysis shows, Iran is under growing economic pressure both because of sanctions and its own chronic mismanagement of its economy. Other cases where such sanctions have been applied have shown it can take several years for sanctions to have their full effect and that much depends on whether the sanctioned country can find ways to mitigate or avoid such sanctions. As a result, Iran may still change its behavior. Iran also has elections coming that will do much to reveal the attitudes of the Iranian people towards sanctions and Iran's nuclear efforts, as well as the level of control the Supreme Leader can exert over Iran's politics.

It is far from clear, however, that sanctions and negotiations will push Iran into making fundamental changes in its nuclear program, or that elections can affect the character and behavior of the regime. At present, events seem to be moving towards the point where the US will have to make hard decisions about preventive strikes, where Israel will come under increasing pressure to act, and the US's European allies, Turkey, and the Arab states around Iran will have hard choices to make about preventive strikes and/or major increases in the level of the forces than can contain and deter Iran if it does deploy nuclear weapons.

A New Round of US and EU Sanctions

Major shifts have taken place in the sanctions against Iran in 2011 and 2012. Washington has sought to further isolate Iran economically through new sanctions on the Central Bank of Iran (CBI) and Iranian companies involved in the nuclear, hydrocarbon, and petrochemical industries. The EU has taken steps of its own to isolate and pressure Iran by enacting an oil embargo,

prohibiting investment in Iran's oil industry, prohibiting EU companies from issuing insurance of all types, and prevent Iran from using the SWIFT inter-bank communications network, among other restrictions and bans.

The US has instituted a number of major legislative packages of unilateral Iran sanctions, coupled with a number of acts that amend and strengthen previous legislation, impacting hundreds of companies, people, and assets. However, it was not until 2010 with the Comprehensive Iran Sanctions, Accountability, and Divestment Act (CISADA) that sanctions started to have a noticeable effect on Iran's banking sector, exports, imports, and general economic health.

The Comprehensive Iran Sanctions, Accountability, and Divestment Act of 2010 (signed July 1, 2010), FY 2012 NDAA (signed December 31, 2011), Iran Threat Reduction and Syria Human Rights Act of 2012 (singed August 10, 2012), and FY 2013 NDAA (signed January 2, 2013), have cut off Iran from the international banking system; declared the entire Iranian banking sector as money laundering entities; increased the number of sanctions the president is to impose; targeted Iran's petrochemical industry, the CBI, the financial sector, and transportation infrastructure; and forced countries to curtail their purchases of Iranian oil in the face of US third-party sanctions.

Since 2010, the EU has joined the US to pressure Iran by instituting six major Council Decisions - Council Decisions 2010/413/CFSP (issued July 27, 2010), 2011/235/CFSP (issued April 14, 2011), 2012/35/CFSP (issued January 23, 2012), 2012/152/CFSP (issued March 15, 2012), 2012/168/CFSP (issued March 23, 2012), and 2012/365/CFSP (issued October 15, 2012). These sanctions have targeted various dual-use items, Iranian transportation and shipbuilding services, oil and gas technology, investments in the Iranian petrochemical industry, and maritime insurance. They also cut Iran off from the international banking system.

The EU embargoed Iranian oil and natural gas, which accounted for roughly 23% of Iran's total oil exports; oil exports comprise 80% of Iran's total export earnings and 50-60% of government earnings.[57] The EU embargo prohibits the purchase, transportation, and importation of Iranian crude oil, the exportation of petrochemical equipment and technology, as well as related financial investments including insurance. Additionally, the EU froze the CBI's European assets, and banned the trade of gold and other precious materials between Europe and the CBI.[58]

The chronology of US and EU actions against Iran can be summarized as follows:

- On March 14, 2013 the US Government identified and instituted sanctions against Dimitris Cambis, the Greek shipping owner of Impire Shipping Company based in Greece. According to the State Department announcement, Cambis had purchased at least eight oil tankers on Iran's behalf, took on Iranian oil through ship-to-ship transfers, and sold the oil to international customers who were unaware of the oil's origin.[59]
- On February 27, 2013, H.R. 850, the "Nuclear Iran Prevention Act of 2013" was introduced with bipartisan support to Congress. The legislation would increase the list of blacklisted Iranian companies, potentially block Iranian assets held in Euros, designate the IRGC as a terrorist entity, continue to restrict business dealing with Iran. The bill has been referred to committee.[60]
- On January 2, 2013, President Obama signed into law the FY 2013 National Defense Authorization Act that blocks property and imposes at least five sanctions on entities that provides goods or services to energy, shipbuilding, shipping, port operations, or provides insurance for those operations and blacklists foreign banks which do provide such services from using the US banking system. These sanctions do not apply for countries with exemptions, nor do they apply to purchases of natural gas from Iran. The law imposes at least five sanctions on any entity that provides precious metals to Iran (such as gold), or semi-

finished metals or software for integrating industrial processes. It also imposes human rights abuser sanctions on Islamic Republic of Iran Broadcasting. On February 6, any funds used to purchase Iranian oil must be credited to an account located in the purchasing country and can only be used for the purchase of non-sanctioned goods. This will reduce the hard currency earnings Iran receives from oil sales.

- On October 15, 2012, the EU issued Council Decision 2012/365/CFSP, instituting additional sanctions against Iran's banking system, oil and petrochemical industry, and shipping industry. The EU decision prohibits any transactions between European and Iranian banks except for those authorized in advance. It also bans the export of graphite, aluminum, steel, and industrial facility control software. The decision prohibits the provision of flagging and classification services to Iranian tankers and cargo vessels in the EU or by EU nationals. Finally, the decision also forbids EU companies from providing shipbuilding technology and naval equipment to Iran and broadens the export ban on equipment for Iran's oil, gas, and petrochemical industries.
- On August 10, 2012, President Obama signed into law the "Iran Threat Reduction and Syria Human Rights Act of 2012" which strengthened sanctions on Iran's energy sector by increasing the number of sanctions the Administration is required to impose from three to five. The law also imposes sanctions against foreign companies who conduct business in Iran's energy sector and any company that insures, sells, or leases tankers to Iran. This action has resulted in higher insurance costs for Iranian tankers and has resulted in major insurance companies refusing to insure Iranian ships.
- On March 15, 2012, the Society for Worldwide Interbank Financial Telecommunication, or SWIFT, complied with EU instructions to, "discontinue its communications services to Iranian financial institutions that are subject to European sanctions."[61] SWIFT is essential to international banking because it provides a secure worldwide financial communication and transaction network to more than 10,000 financial institutions and corporations in 210 countries. In 2010, SWIFT reported that 19 Iranian banks and 25 Iranian financial institutions used the network over 2 million times during the course of the year.[62] All banking transactions with Iran, international insurance coverage in Iran or for Iranian oil transportation, and all transactions with Iran's state-owned oil company and its main tanker fleet, are affected by this decision.[63]
- On February 27, 2012, the Treasury Department strengthened the preexisting Iranian Financial Sanctions Regulations (IFSR) with the implementation of subsection 1245(d). The amendment extends sanctions to "foreign financial institutions that knowingly conduct or facilitate certain significant financial transactions with the Central Bank of Iran (CBI) or a U.S.-designated Iranian financial institution." In accordance with these actions, the Secretary of Treasury will impose sanctions on privately-owned foreign institutions, as well as government-owned or controlled financial institutions that conduct business with the CBI.[64]
- On February 5, 2012, President Obama issued Executive Order 13599, which implemented section 1245 of the FY2012 NDAA that froze the assets of the Iranian government and prevented all Iranian financial assets in the US from being "transferred, paid, exported, withdrawn, or otherwise dealt with."[65] The order also implemented new sanctions that required US banks to seize the funds of those on the Specially Designated Nationals (SDN) list, even if the funds are not destined to a US entity or firm. Previously, US banks were required to block the transaction and return the funds to the sender. This order effectively blocks Iranians from using the US banking system.
- On January 23, 2012, the EU, which accounts for roughly one-fifth of Iran's oil exports, introduced new sanctions to be phased in over the course 2012. The EU enacted an embargo on the purchase, transportation, and importation of Iranian crude oil; the exportation of petrochemical equipment and technology; as well as related financial investments including insurance. Existing European contracts were allowed to continue until July 1, 2012. Additionally, the EU froze the CBI's European assets, and banned the trade of gold and other materials between Europe and the CBI.[66]
- On December 31, 2011, President Obama signed the FY2012 National Defense Authorization Act (NDAA) (S.1867) that contained an amendment that required the President to bar foreign banks from opening accounts in the US if that bank processed payments for oil through the CBI. Section 1245 of the FY2012 NDAA imposed unilateral sanctions on CBI in ways that impose major penalties against entities –

including corporations and foreign central banks – which engage in transactions with the CBI. The sanctions on transactions unrelated to petroleum were to come into force 60 days after the bill was signed. Sanctions on transactions related to petroleum were to take effect a minimum of 180 days after the bill's signing. The amendment provided for a renewable waiver of 120 days if the President determined that doing so is in the interest of the US.

- On December 5, 2011, the State Department launched a "virtual embassy" for Iran. This consisted of a website which was quickly blocked by Tehran amidst allegations that the US was attempting to recruit spies and foster regime change. US State Department officials claimed that the site was merely an attempt to inform Iranians about student visas and explain US policy towards Iran. It appears that the effort intended to weaken support for the regime among young, technically savvy Iranians. This was one in a series of attempts to make pro-American media and resources available to populations inside Iran.
- In November 2011, the US Treasury Department introduced new unilateral sanctions under the auspices of the Comprehensive Iran Sanctions, Accountability, and Divestment Act of 2010 (CISADA). These new sanctions targeted Iran's petrochemical industry, the CBI and financial sector, and transportation infrastructure, and added dozens of names to the list of sanctioned individuals. These restrictions barred institutions from conducting any business with any Iranian banks – including the CBI and its affiliates – as well as expanded sanctions on Iranian individuals and placed new restrictions on the importation of Iranian goods.
- On November 21, 2011, the US Treasury Department designated Iran's entire financial sector, including the CBI, as "money laundering entities" under Section 311 of the USA Patriot Act.
- On July 27, 2010, the EU issued Council Decision 2010/413/CFSP that establishes an embargo on nearly all dual-use goods, military arms, and nuclear-related items; bans EU export of key equipment and technology for oil and natural gas production, exploitation, and refining; bans technical assistance, training, and financing in Iran's energy sector; and bans access to EU airports for Iranian cargo flights as well as the provision of bunkering or ship services to Iranian or Iranian contracted vessels and aircraft if they have been involved in sanctions violations.
- On July 1, 2010, President Obama signed the Comprehensive Iran Sanctions, Accountability, and Disinvestment Act (CISADA). The act imposes sanctions on any person that makes an investment of $20 million or more in Iran's petroleum industry; any person that provides Iran with goods, services, technology, or information with a fair market value of $1 million or more for the maintenance or expansion of Iran's production of refined petroleum products; and/or any person that exports more than $1 million worth of gasoline to Iran or provides $1 million worth of goods or services that could contribute to Iran's ability to import gasoline.[67]

Associated with this long list of US and EU actions is the impact that the sanctions have had over time and the statistics and indications of the impact of sanctions:

- In March 2013, the value of the Iranian Rial, Iran's currency, gained roughly 10% of its value due to increased government intervention in the form of providing more dollars to the Iranian market and a positive tone at the P5+1-Iran talks in Kazakhstan.[68]
- On March 22, 2013, a report by the Wall Street Journal detailed that Iran's maximum sustainable oil production capacity has been reduced by 20% (700,000 bpd) since December 2011.[69]
- A March 18, 2013 report by The Guardian detailed an Iranian medicine shortage due to the impact of sanctions; imports of medicine from US and Europe are down 30% since 2011.[70]
- On March 13, 2013, the International Energy Agency released their monthly oil report for February which showed Iranian oil exports rose to 1.28 mbpd 1.13 mbpd.[71]
- In February 2013, South Korea's importation of Iranian oil fell by 30% compared to a year earlier and 25% compared to January 2013. South Korea imported roughly 141,900 bpd in February and Iran currently supplies Seoul with 6.1% of its oil needs, compared to 8.1% a year earlier. However, China imported an increased amount of Iranian oil, up by 2.7% in the first two months of the year a 74% increase from a year

earlier. However, the latter number is skewed due to a pricing dispute with Iran that brought Chinese imports of Iranian oil to a virtual halt.[72]

- In February, Reuters reported that over the last 11 months, falling electricity demand in Iran has led to a 29% rise in Iranian electricity exports. Numbers reported from the Islamic Republic News Agency detailed that Iran exported 10,000 gigawatt hours since March 20, 2012, up from 7,758 the year before.[73]
- In February the Iranian Rial hit an all-time low against the dollar, trading between 39,000 and 40,000 Rials per dollar according to a report by AFP
- On February 16, 2013, the Iranian government ordered a moratorium on Pistachio nut exports. According to the New York Times, Pistachio nuts, one of Iran's most profitable exports other than gas and oil, had doubled in price in Iran and the export ban may cause the loss of $500 million in revenue.[74]
- On January 26, 2013, the Central Bank of Iran fixed the official exchange rate of Iranian Rials to 12,260 dollars.[75]
- On January 23, 2013 it was reported that Iran's automotive output dropped sharply in the previous Persian calendar year to 677,000 automobiles from 1.2 million automobiles a year before. According to the report, Mohammad Bayatian, a member of the parliament's industries committee, said that losses at two Iranian manufactures, Khodro and Saipa, were at $407 million due to increases in raw material prices. The government has also pledged some $814 million to the car makers.[76]
- On January 9, 2013, the CBI disclosed that the annual inflation rate hit 27.4%.[77]
- On January 8, 2013, the US Energy Information Administration (EIA) released their short-term energy outlook report. The report estimates that Iranian crude production has been falling since the last quarter of 2011 due to the lack of funds available for upkeep and natural decline in production. The report also estimates that Iranian supply averaged 3.4 million barrels per day (mbpd) during the first quarter of 2012 and declined to an average of 2.6 mbpd during the fourth quarter of 2012.[78]
- On December 12, 2012, the International Energy Agency (IEA) released its monthly oil market report. The report estimated that Iranian crude production was lower in November at 2.7 mbpd and may reach 1.0 mbpd into 2013. It also estimates that Iran's exports in 2012 have fallen 50% compared to 2011, however, imports of Iranian oil edged upwards to 1.3 mbpd in November 2012 compared to 1.07 mbpd in September 2012. US sanctions continued to exert pressure on the remaining major importers of Iranian oil: China, South Korea, Japan, and India. The share of Iranian oil to these importers has dropped since the summer.[79]
- On December 10, 2012, the Institute for International Finance released a report that estimates that the impact of sanctions has greatly affected the Iranian economy. The report says that Iran's GDP is expected to contract by 3.5% in 2012, opposed to 1.2% growth in 2011. Inflation is also expected to have increased from 26.5% in 2011 to nearly 50% in 2012. Government revenues from oil exportation, if the current price of $110 a barrel holds, could be 40% less than in 2011.[80]
- In October 2012, the Iranian Rial dropped to record lows against the US Dollar, at an unofficial rate of 37,000 Rials to one US Dollar, down from 28,000 Rials in September 2012 and 13,000 Rials in September 2011.[81] The Rial has lost roughly 80% of its value since 2011 and in October 2012 was trading at roughly 37,000 Rials to the US Dollar. This devaluation has increased everything from Iranian energy prices, food prices, trade, and imports. It has also vastly increased the rate of inflation, which may be as high as 70%. There have been sporadic reports of 40-50% inflation on consumer goods, striking workers due to unpaid wages, bankrupt Iranian companies, and the government's inability to pay worker's wages. Iran has also begun "means testing" to reduce social spending, leading to a ban on the importation of luxury goods. Analysts at one outside group have predicted Iran's economy will shrink by 3.5% in 2012, a reversal from the 1.2% positive growth in 2011.
- On July 1, 2012, the EU's embargo of Iranian petroleum products entered into force. This has had a major impact on Iran's oil exports, as oil sales to the EU accounted for roughly 23% of Iran's exports. Total

Iranian oil exports in July were estimated at 940,000 bpd, down from 1.7 million bpd in June and 2.8 million bpd in July 2011. Oil export revenue fell from $9.8 billion in July 2011 to $2.9 billion in July 2012.

The New US and EU Efforts

A high-level State Department official summarized the US reasons for taking a much stronger stand on sanctions as follows in December 2011: "Our policy leverages the power of multilateral action and of like-minded countries to pressure Iran to comply with its international obligations, coupled with an offer to engage diplomatically…if Iran is serious about negotiating and addressing our and the world's concerns about its nuclear program."[82]

The end result is that the US, EU, and their allies are engaged in a duel with Iran over sanctions that will continue to become more intense. The US - with the support of the EU and its European allies in the P5+1 - is now simultaneously focusing on checking Iranian efforts to avoid or end sanctions and pursuing additional sanctions gradually in ways that maximize multilateral buy-in. It is seeking to isolate the Iranian financial, oil, transportation, and petrochemical sectors to the extent possible. The US Administration is also attempting to inform and empower population centers within Iran through channels such as the State Department's "Virtual Embassy" program, in hopes that an opposition movement will again challenge the regime as external financial constraints and domestic mismanagement continue to cause economic stagnation.

This helps explain why past statements by the President, Secretary of State Clinton, Secretary of Defense Panetta, and Chairman of the US Joint Chiefs indicated that military strikes - while "on the table" - were unlikely to be pursued as long as negotiations seemed to be a viable option. A range of senior US officials and officers have also said that preventive military strikes on Iran would not destroy Iran's nuclear ambitions, but only delay them for several years. As Secretary of Defense Panetta has said, the relevant targets "are very difficult to get at."

At the same time, as the analysis of Iranian missile and nuclear development in this series indicates, the US has very real military options that it is actively pursuing and for which it has detailed strike plans. It also is pursuing a range of options which will deter and contain Iran regardless of whether the US carries out preventive strikes, is building up the military capabilities of the Arab Gulf states, and is working with Turkey and Jordan. The US and allied preference for diplomacy has not in any way led the US to take the military option off the table or wait to respond to Iranian developments. The US and its allies are actively improving their missile defense capabilities, and the US has also offered its regional allies "extended deterrence."

The Iranian Reaction

As for Iran, both economic indicators and verbal statements from its leadership since late 2011 indicate that stronger sanctions are a source of increasing pressure and stronger sanctions may have influenced the leadership to resume P5+1 negotiations over the summer in 2012. As the following chronology of sample statements by Iranian leaders shows, Iran's leaders still take a mixed stand on the effectiveness of sanctions. Some statements coming from members of the Iranian government or military say that sanctions have in fact helped or are helping Iran become more self-sufficient and say that they are not working. However, other statements do shed some light on the effects of sanctions inside Iran:

- On June 5, 2013, Iran's new President Hassan Rowhani said in a documentary broadcasted on state television that, "It's very beautiful if a centrifuge revolves, but on the condition that the country is

revolving as well. We do not accept that one factory in Natanz works but hundreds of other factories do not due to sanctions preventing provisions of materials and parts."

- On June 3, 2013, Abdolhossein Bayat, Managing Director of the National Iranian Petrochemical Company said that, "The US is voluntarily boycotting Iran and its industry. Iran today, however, has strong capabilities in the petrochemical sector, and production has exceeded 60 million tons a year. Boycotting Iran in the petrochemical market will result in higher prices and will encourage the black market. The sanctions do not paralyze us, but only lead us to identify and correct weaknesses."[83]
- On April 1, 2013, Mohammad Reza Bahonar, First Deputy Speaker of Iran's Majlis, said that, "Unfortunately, the increase in liquidity has had a bad effect on the increase in prices. The pressure of sanctions increased little by little. The effect of the sanctions on Iran's economic affairs was 20%-30%, and the rest was due to decision-making problems."[84]
- On March 6, 2013, Hasan Khosrojerdi, head of the Iranian Oil, Gas and Petrochemical Products Exporters' Association said that, "Specific policies by some banks and the National Iranian Oil Company (NIOC) have resulted in the stoppage of oil exports by the private sector…Self-imposed sanctions have brought oil exports by the private sector to a halt…The private sector has had absolutely no oil exports since two months ago and is facing managerial barriers from NIOC."[85]
- On February 28, 2013, Mahmoud Bahmani, Governor of the Central Bank of Iran said that inflation will surpass 31% by the end of March and that, "We are engaged in economic war and need to think of arrangements that can overcome these hurdles…Like any other war, economic wars also have casualties."[86]
- On February 23, 2013, former President Ahmadinejad said during a live television interview that 2012, "was a very difficult year for our economy,"[87]
- On January 7, 2013, Gholam Reza Kateb, head of the parliament's budget committee said of the impact of sanctions, "On the basis of the report, oil sales are down 40 percent and income has dropped 45 percent in the last nine months."[88]
- On January 7, 2013, Ahmad Tavakkoli, a member of the Iranian Majlis discussed the reasons behind the currency depreciation, "Liquidity disproportional to national production, (western) sanctions, the trend of fluctuations combined with the incompetency of the government's monetary and economic affairs officials have been the key factors behind the rising currency exchange rate."[89]
- On December 11, 2012, former President Ahmadinejad declared Iran has made progress despite sanctions, "they (the westerners) think that the Iranian nation is dependent on a number of goods (which they have sanctioned) and foreign currency and they don't understand that the Iranian nation can pass through obstacles whenever it wants…Such hues and cries will not affect the Iranian nation and 10 years later such words (uttered by the western officials about sanctioning Iran) will be jokes that people will laugh at."[90]
- On December 5, 2012, Vice-Speaker of the Iranian Parliament Mohammad Hassan Aboutorabi-Fard said that the sanctions have allowed Iran to reduce its dependence on oil exports, "Our enemies helped us today and we managed to cut Iran's dependence on oil revenues in a short time which is a great development in the country's economy. One of the problems that we were facing for a century was reliance on oil revenues…The sanctions imposed on us have created an opportunity to prepare the ground for cutting the connection between the (country's) budget and oil (revenues)."
- On December 12, 2012, Iranian Parliament Speaker Ali Larijani said that US and other sanctions have not crippled Iran's economy, "Americans imagined that Iran's economy will be crippled through sanctions after a while, but this did not happen…"[91]
- On October 10, 2012, Supreme Leader Ali Khamenei downplayed the impact of sanctions, "Today, our enemies magnify sanctions. Sanctions are not an issue of yesterday or today. Sanctions have existed from the very beginning; they intensified the sanctions, which didn't work; they intensified them again; these won't work either…They pretend that the sanctions will be lifted if the Iranian nation gives up nuclear

energy. They lie. They make decisions out of grudge and aversion [toward Iran] and impose irrational sanctions."[92]

- On October 15, 2012, Supreme Leader Ali Khamenei declared that the West could not harm Iran's economy, "With God's grace, as was the case in other issues which the enemies were not able to do anything, they can do no damn thing in their economic confrontation with our people…This is a war against a nation…But the Iranian nation will defeat them."[93]
- On October 2, 2012, former President Ahmadinejad admitted that oil and banking sanctions have had an impact saying, "One factor is from outside, and one factor is from inside. The enemy has stated that it will impose (more) sanctions, and part of the oil purchases from Iran has decreased, and a considerable segment of our foreign currency revenues was generated through oil sales…What is worse than the oil sanction is the sanctions on banking transactions. If oil is sold, the payment cannot be transferred, and a massive and great secret war (against Iran) is actually underway in the world."[94] However, he blamed physiological pressures rather than government policies for the economic problems, "Are these currency fluctuations because of economic problems? The answer is no…Is this because of government policies? Never…It's due to psychological pressure. It's a psychological battle."[95]
- On September 10, 2012, Iran's Oil Minister, Rostam Qasemi declared that the sanctions have had little effect on ongoing oil development projects and sanctions have made Iran increasingly self-reliant, "Previously, we used to import most of the commodities from abroad. We do so to some extent at present as well, but thanks to the sanctions and our own capabilities, we hope that we would be able to manufacture all the [needed] equipment domestically and even become an exporter of equipment."[96]
- On September 5, 2012 former President Ahmadinejad stated in an interview that sanctions were an, "…all-out, hidden, heavy war" and that sanctions were impeding the economy, "there are barriers in transferring money, there are barriers in selling oil, but we are removing the barriers."[97]
- On July 31, 2012, Iran's Central Bank Governor, Mahmoud Bahmani, stated that the CBI had started an asymmetric war against sanctions saying, "…like military wars that we have a series of asymmetric tactics, we should start a series of asymmetric economic wars under these sanctions since these embargos are no less than a military war."[98]
- On March 8, 2012, Ayatollah Khamenei responded to President Obama's stated preference for diplomacy over war, Khamenei said "The US president has said…that he wants to bring the Iranian nation to its knees through sanctions, which reflects a continuation of [being under] a delusion in this regard…The lingering of this illusion will deal a blow to the US officials and will lead their calculations to failure."[99]
- On January 24, 2012, Mohsen Qamsari of the National Iranian Oil Company declared to Mehr News Agency that, "Iran can readily find new customers for its oil. We have no problem in selling oil."[100] However, two days prior, on January 26, the former Iranian Oil Ministry deputy, Mehdi Hosseini, admitted that, "Losing the European oil market will have an impact on Iran's economy which needs rational planning by the authorities. Selling oil at sub-market level prices is not a good way to counter the oil embargo."[101]
- On October 29, 2011, National Iranian Oil Company deputy, Mohsen Qamsari, said Iran, "reached new agreements for receiving money for Iran's oil exports" and that, "Iran's central bank has different and diversified ways and methods for receiving its money from selling oil to India…at the moment there is no Indian accumulated oil debt to Iran." An Iranian state media outlet claimed Indian firms are making payments for oil imports through Russia's Gazprombank. An "Indian industry source" told Reuters there have only been discussions about opening Indian accounts with Gazprombank, and that India continues to make oil payments to Iran through Turkey's Halkbank. India previously paid off a $5 billion oil debt by submitting payments through Halkbank.[102]
- On October 26, 2011, Iranian Deputy Minister of Economy and Finance Mohammad-Reza Farzin, spoke at the German Council on Foreign Relations, and claimed that Iranian imports increased to $24 billion in six

months, $8 billion of which came from Europe. Farzin predicted that "Iran-East trade" would reach approximately $140 billion.[103]

- On September 14, 2011, Ali Rafsanjani stated in a speech to Iran's assembly of Experts that, "Gentlemen, you should be vigilant and careful. Do not downplay the sanctions...people should not be tricked...Iran has such a big capacity that it is able to overcome (the sanctions), but I am doubtful that these capacities are being utilized in a proper way, We have never had such intensified sanctions and they are getting more and more intensified every day. Wherever we find a loophole, they (Western powers) block it."[104]

The Growing Impact of Sanctions on Iran

As of April 2013, most official Iranian statements still claimed that sanctions either were not affecting Iran's economy or were not having a critical impact; but some Iranian officials had increasingly admitted that sanctions were having such an impact. The Iranian regime fluctuated between denial and admissions about the effect of sanctions, threats to close the Gulf, boasts about Iran's capability to deter and retaliate, and calls for negotiations.

While it is not possible to obtain reliable information on the effects of sanctions, most sources report a steadily tougher economic climate within Iran, with high inflation, high unemployment, and rising consumer goods prices hitting the country. The new sanctions that went into effect over the summer of 2012 have created serious banking and trade problems by cutting off Iranian banks from international finance networks.

The sanctions against foreign banks that finance Iranian oil sales and the EU embargo on all Iranian oil that came into full effect July 1, 2012 have dramatically cut the amount of oil products Iran exports and the prices they receive. Even when oil sales are completed, banking sanctions are making it difficult to receive the proceeds of such sales, forcing Iran to trade oil for gold, wheat, or consumer products.[105]

The oil embargo – coupled with the Comprehensive Iran Sanctions, Accountability and Divestment Act in 2010 – has been effective at forcing other nations to reduce or completely eliminate their purchase of Iranian oil products. The US Treasury Department announced in September 2012 that it estimated that Iranian oil exports had dropped by 1 million barrels of oil from levels of 2.4 million barrels a day in 2011.[106] The Undersecretary of the Treasury, David Cohen, stated that, "[t]his decrease in exports is costing Iran about $5 billion a month, forcing the Iranian government to cut its budget because of a lack of revenue…Sanctions have effectively terminated international access for most Iranian banks…Today, the Iranian government is relegated to the backwaters of the international financial system, and they know it."[107]

The US Energy Information Agency (EIA) estimated in March 2013 that the growing impact of sanctions was impacting Iran's ability to produce and sell oil. The EIA announced that: [108]

> In 2012, Iran exported approximately 1.5 million bbl/d of crude oil and condensate, according to the International Energy Agency (IEA).
>
> …Iran's net oil export revenues amounted to approximately $69 billion, significantly lower than the $95 billion total generated in 2011. Oil exports make up 80 percent of Iran's total export earnings and 50-60 percent of government revenue, according to the Economist Intelligence Unit. Iranian oil exports saw dramatic declines in 2012 compared with the previous year, as tightening of sanctions by the United States and the European Union brought Iranian oil exports to a near standstill in the summer of 2012. This was particularly the result of the EU ban on all Iranian petroleum imports as well as the imposition of insurance and reinsurance bans by European P&I Clubs effective on July 1, 2012…Iranian exports dropped to less

> than 1.0 million bbl/d in July as Japanese, Chinese, Korean, and Indian buyers scrambled to find insurance alternatives.
>
> Estimates through the end of 2012 show that Iranian oil exports saw a 1-million-bbl/d decrease compared with the previous year. Every customer of Iranian crude oil and condensate decreased its imports of Iranian oil, mainly in response to U.S. and EU sanctions.

Estimates of macroeconomic data on Iran's economy and petrochemical industries are even more uncertain. There are major difficulties in getting accurate data from Iran, and Iran often issues politicized and opaque data. It is possible, however, to investigate and evaluate trends over time, and some of the costs of sanctions for Iran's economy are clear. Iran's currency, long held artificially high by a regime that could afford to subsidize it, has nose-dived since the implementation of more stringent sanctions. It has lost more than 80% of its value against the dollar since 2011 and was trading at around 37,500 Rials to one dollar in February 2013, up from 13,000 Rials in September 2011.[109] As of March 2013, the Rial has gained roughly 10% of its value against the dollar and is currently trading at 33,200 Rials per dollar.[110]

Iran is now seen in some countries as an unreliable energy supplier due to the difficulties of the current banking sanctions and is scrambling to find markets for its crude oil. Furthermore, the Iranian Rial's value fell to a record low in September 2012 as sanctions continued to bite at the Iranian economy and fears of increased EU sanctions hit the market. Iran's government, economy, and citizens are feeling the effects of intense sanctions, and indications point to a bad economic condition within Iran.

Since the two periods in January and October 2012, the Iranian currency has since become increasing stable due to Iranian measures to shut down black market money lenders, but the currency has not regained much of its previous value and inflation, which the CBI calculated at 31%, continues to eat at Iranian's savings.[111] In response to the currency crisis, in October the Iranian government instituted a new tiered exchange rate policy, where another level besides the official rate (used to buy essentials such as medicine, grain, and sugar) has been instituted at the rate of 25,480 Rials per dollar.[112] However, the black market prices are still reported to be significantly higher than this figure. The exchange rate that is used for official government business, and is therefore not open to private use, has been fixed at 12,260 since January 2012.

It is also clear that there have been major increases in food prices that sharply affected access to food in a country that the World Trade Organization estimates imported $8.2 billion worth of food and $9.4 billion worth of agricultural products in 2010.[113] It has reduced meat consumption, led to the buying and hoarding of gold, dollars, and even cars, has sharply reduced foreign and domestic investment, strained government revenues, and forced Iran into massive new efforts to use third parties and other nations to disguise its economic activities.

This does not mean Iran is being forced to negotiate on terms acceptable to the US and the EU. Sanctions could still lead to serious and ultimately successful negotiations between Iran and the P5+1, or could be the beginning of years of more intense but non-violent US and Iranian confrontation at every level, or create a crisis that leads to armed clashes or serious conflict. In the late spring and summer of 2012, for example, it looked as though successful negotiations were possible.

The negotiations between Iran and the P5+1 in the summer of 2012 did slightly relieve tensions as the first significant meetings in years took place. However, the fact that both parties were

talking to each other in the same room had little impact. The differences between Iran and the P5+1 derailed the process and there were statements that no new sessions were planned.

Only an agreement between the two sides can solve the crisis. Since the summer of 2012, Iran has made new threats, carried out new exercises, and announced that it is deploying more efficient centrifuges. This follows a pattern of more than a decade in which Iran has used negotiating efforts as stalling tactics.

The Impact of Iran's Dependence on Petroleum Exports and Iran's Vulnerability

In order to more fully understand the pressures Iran faces, it is necessary to understand just how dependent Iran is on petroleum and gas exports. Regardless of what Iranian officials may say, petroleum exports make up the bulk of Iran's revenues, and are highly vulnerable to sanctions, embargoes, or military attacks. Iran's economy is simply not sufficiently diversified that it is able to withstand a large drop in oil exports. The Iran-Iraq War, sanctions, years of mismanagement, badly structured state intervention, and endemic corruption have taken their toll on the Iranian economy.

As **Figure 1** and **Figure 2** show, Iran has massive oil and gas reserves, although it has politicized its estimates of its reserves ever since the beginning of the Iran-Iraq War in order to increase its relative importance. The EIA reports that, "According to Oil & Gas Journal, as of January 2013, Iran has an estimated 154 billion barrels of proven oil reserves, nine percent of the world's total reserves, and over 12 percent of OPEC reserves."[114] OPEC released its 2012 Annual Statistical Bulletin in July 2012 that raised Iran's proven reserves to more than 154 billion barrels of crude. Some analysts are skeptical of this estimate, however, as Iran revised its reserves a week after Iraq had revised its own, leading some to speculate the move was political.

As for Natural Gas the EIA reported that, "According to Oil & Gas Journal, as of January 2013, Iran's estimated proved natural gas reserves stood at 1,187 trillion cubic feet (Tcf), second only to Russia. Eighty percent of Iranian natural gas reserves are located in non-associated fields, and most of these reserves have not been developed."[115] While Iran has not been able to fully exploit these reserves, the EIA assess that Iran, "In contrast to the decreasing oil production, natural gas development has been slowly expanding. Nonetheless, natural gas production has been lower than expected as a result of a lack of foreign investment and technology."[116]

The location of these reserves, Iran's pipelines and export facilities, and key potential targets in Iran's petroleum system are shown in **Figure 3**. But massive oil and gas reserves do not translate into national wealth unless they are produced and sold.

While such estimates are uncertain, the CIA estimates that Iran only had a per capita income of around $13,300 in 2011 - even before the US and Europe imposed new and far more draconian sanctions. Iran's per capita income then ranked 84th in the world and was by far the lowest rank of any major oil producer in the Gulf, except Iraq. Iran also had an unemployment level in excess of 15%, and youth unemployment somewhere between 20-30% when acute underemployment was taken into account. Some 18.7% of the population was below the poverty line, and Iran's middle class and business class had already suffered from years of inflation, state intervention, and government corruption.[117]

Iran's per capita income has decreased slightly to $13,100, its ranking in the world has dropped to 97th place, and the CIA estimates that its unemployment rate and youth unemployment rate

remain above 15% and above 20%, respectively.[118] Inflation has also risen, from 22.9% in July 2012 to 23.5% in August 2012.[119] More recent reporting indicates that inflation has continued to rise over the past year as sanctions have increased. The figure of 23.6% inflation that the CIA estimated Iran was experiencing in 2012 has increased to 31.5% according to a March 2013 report by the CBI; this is compared to 30.2% in February 2013.[120]

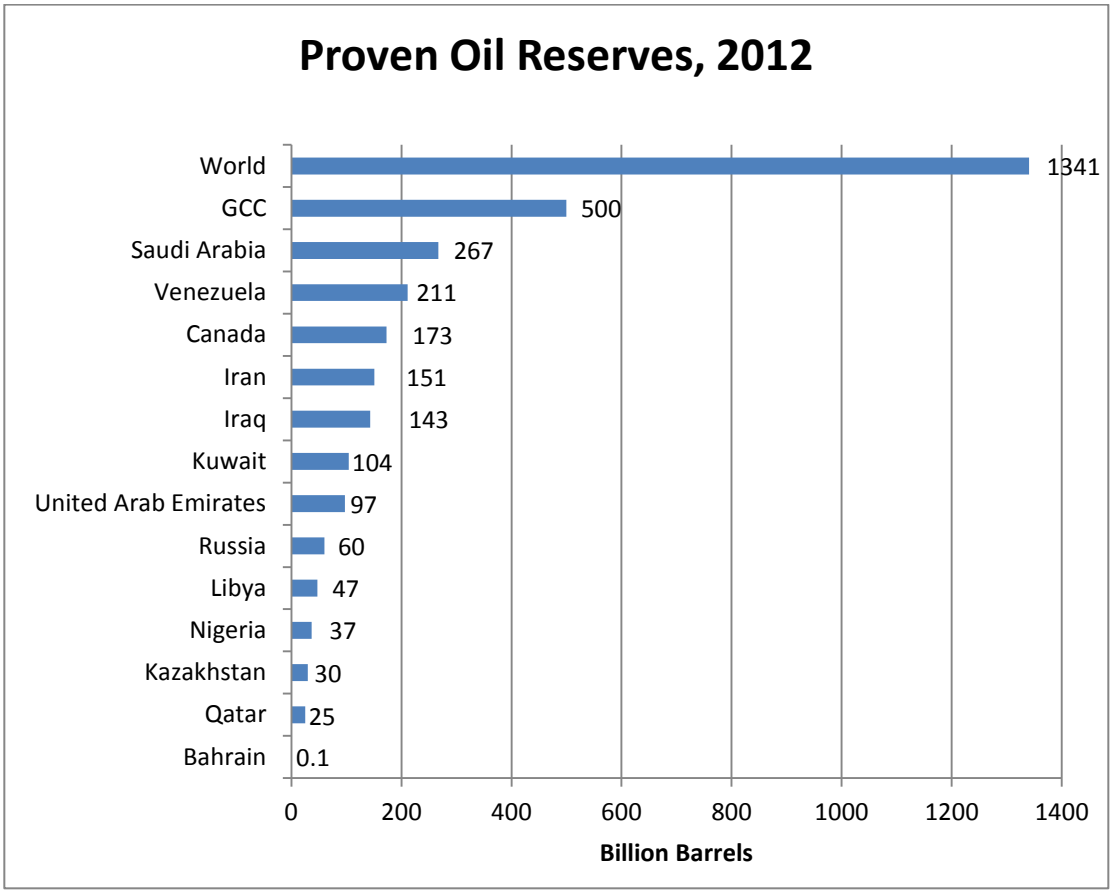
The EIA has estimated that Iran received roughly $69 billion in petroleum export revenues in 2012, down from their previous estimate of $95 billion in February 2012, before new sanctions were implemented. This $95 billion figure, according to the EIA, translates into $1,409 in per capita revenues – roughly one-twelfth of the entire per capita income.[121] With roughly $27 billion cut from previous estimates this per capita income figure is lower.

Oil revenues are still Iran's only major source of hard currency, and the CIA estimates that they account for 80% of all Iranian exports in 2011, or some $87.2 billion out of a total of $109.5 billion in annual exports.[122] Their value was larger than the nation's entire total for imports in 2011 ($74 billion). The Iranian economy could simply not function without them, and is sufficiently marginal so every dollar equivalent matters – particularly since Iran's foreign currency reserves only totaled some $109.7 billion at the end of December 2011 and have so far dwindled to $69 billion in December 2012.[123]

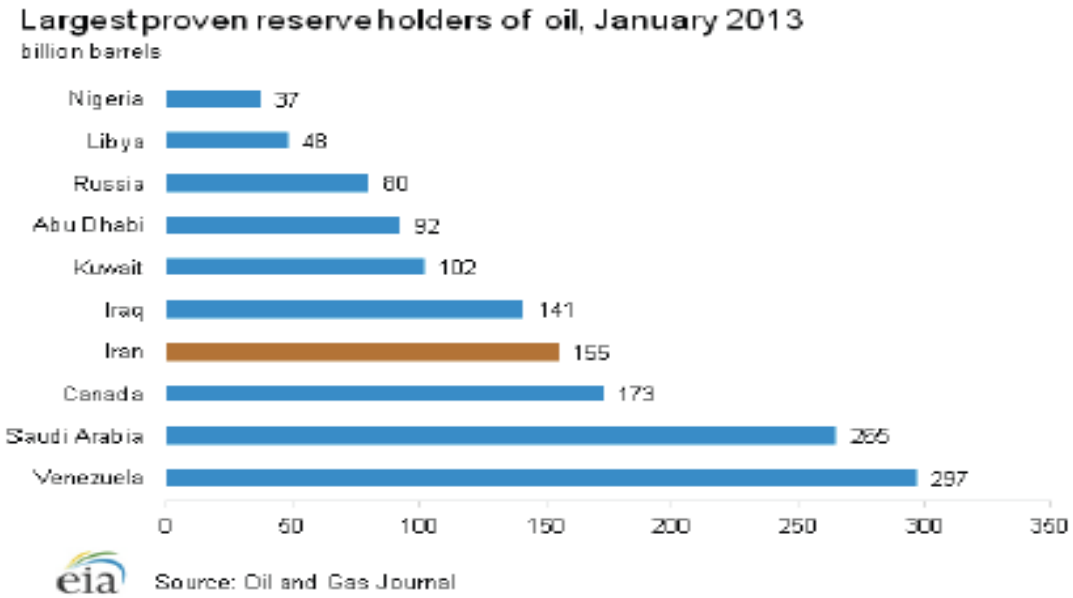
As another reminder of the difficulty of getting accurate information about Iran's economy, the EIA estimated that Iran's earnings from oil sales in 2011 were $95 billion, opposed to the $87 billion estimated by the CIA. Unfortunately there is no way to know which estimate is better.

Figure 1: Iran's Comparative Oil and Gas Reserves – Part One

Oil



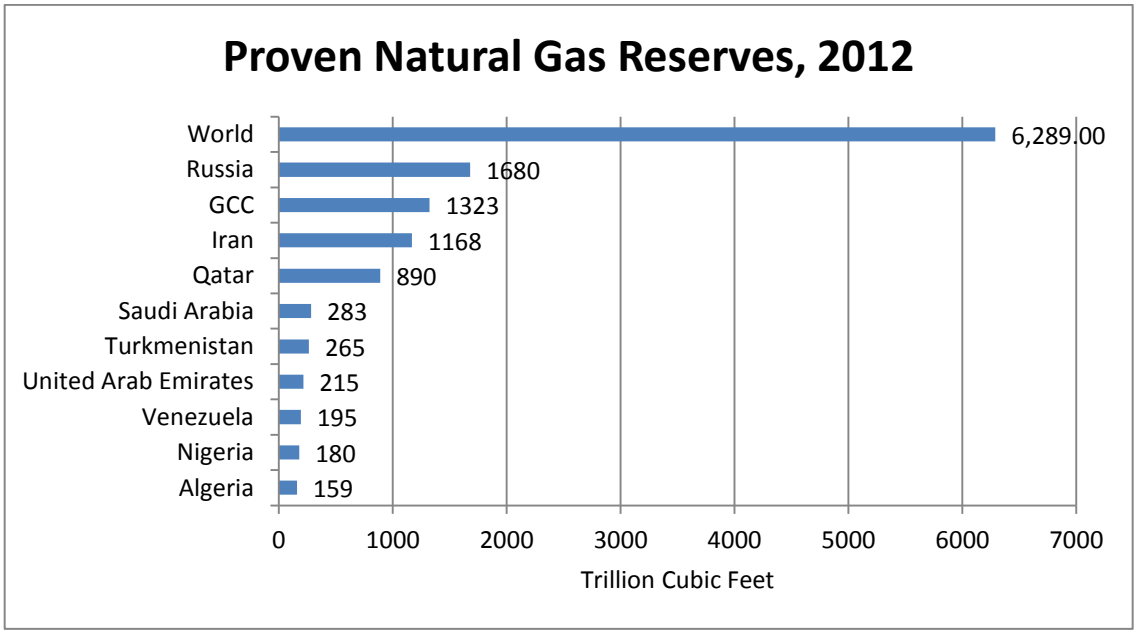
Source: Adapted from EIA, "International Energy Statistics", 2012



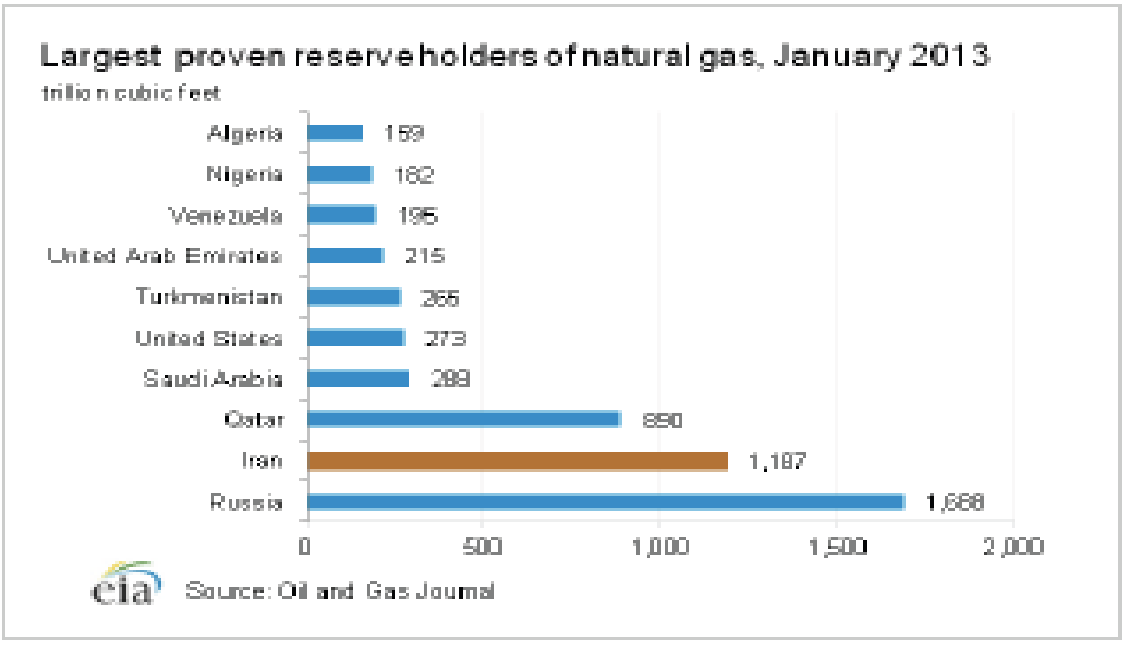
Source: US Energy Information Agency, "Country Analysis: Iran," March 28, 2013. http://www.eia.gov/countries/cab.cfm?fips=ir

Figure 1: Iran's Comparative Oil and Gas Reserves – Part Two

Gas



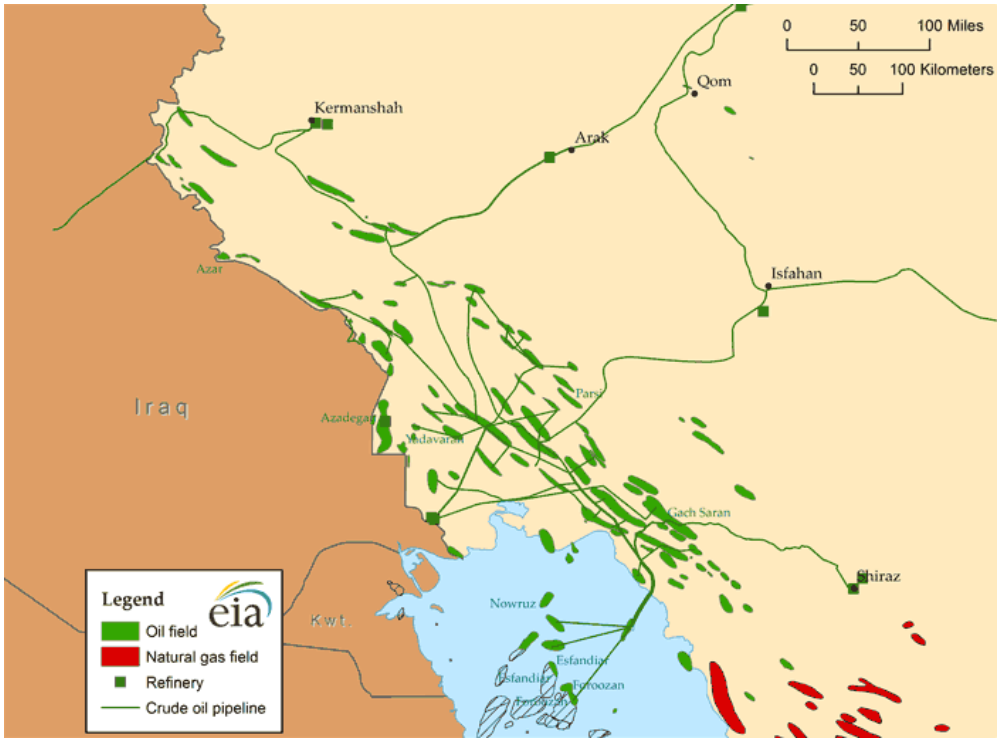
Source: Adapted from EIA, "International Energy Statistics", 2012



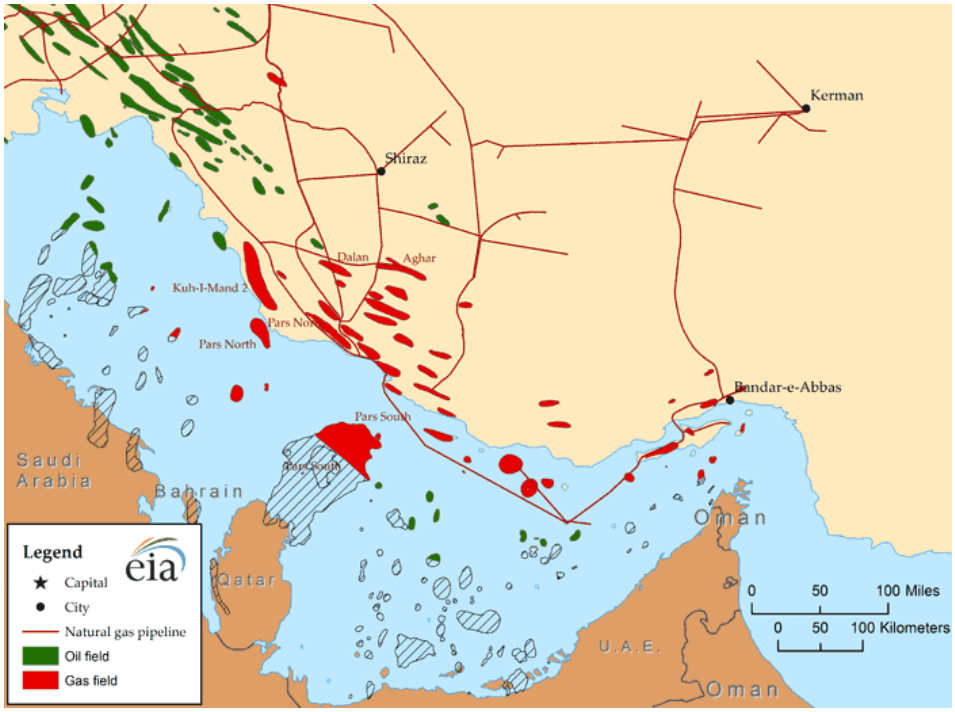
Source: US Energy Information Agency, "Country Analysis: Iran," March 28, 2013. http://www.eia.gov/countries/cab.cfm?fips=ir

Figure 2: Location of Iran's Oil and Gas Reserve

Largest Oil Fields



Major Gas Fields



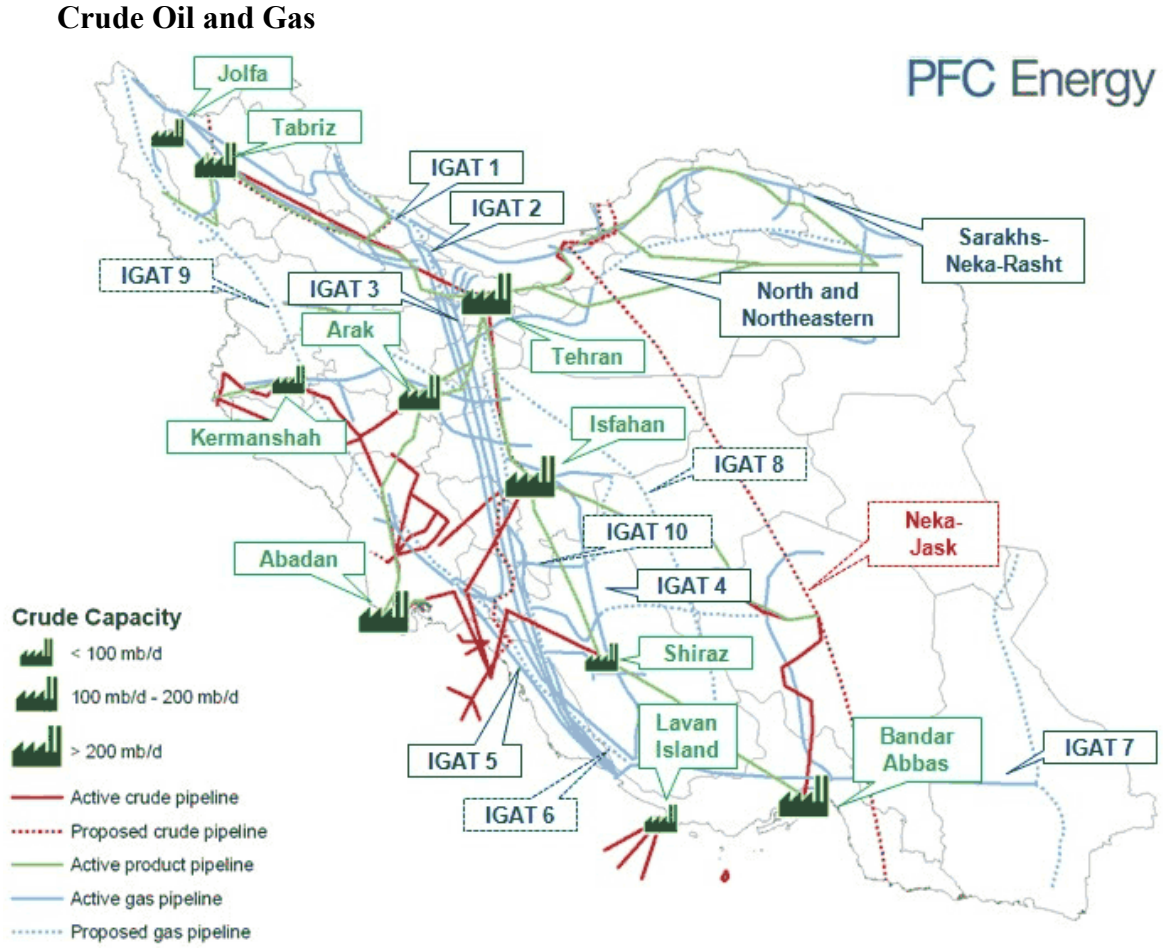
Source: US Energy Information Agency, "Country Analysis: Iran," March 28, 2013. http://www.eia.gov/countries/cab.cfm?fips=ir

Figure 3: Location of Iran's Pipelines, Refineries, and Export Facilities – Part One

Oil

Gas

Figure 3: Location of Iran's Pipelines, Refineries, and Export Facilities – Part Two



Source: US Energy Information Agency, "Country Analysis: Iran," March 28, 2013. http://www.eia.gov/countries/cab.cfm?fips=ir; US Energy Information Agency, "Country Analysis: Iran," February 17, 2012

Sanctions and Oil Production Capacity

Sanctions and embargoes affect four major aspects of Iran's energy income: its ability to exploit its reserves by developing new sites and to improve its recovery technology, its ability maintain or increase its production rates, its ability maintain or increase its export capacity, and its ability to create new refinery capacity to reduce its dependence on product imports and gain added value through its own product exports.

Experts disagree over how sanctions affect Iran's broader problems in maintaining and increasing its oil production capacity. The EIA seems to be relatively neutral, and it makes public analyses that seem to track broadly with in-house OPEC and IEA studies.

In the case of oil, EIA reporting in March 2013 noted that

> International sanctions enacted in 2011 and 2012 have limited progress in many aspects of Iran's energy sector, especially affecting upstream investment in both oil and natural gas projects. The United States and the European Union, in particular, have enacted measures that have affected the Iranian energy sector more

> profoundly than any previously enacted sanctions. These sanctions have prompted a number of cancellations of upstream projects and have resulted in declining oil production capacity. Sanctions have also impeded the import of refined products, effectively reshaping the midstream sector and forcing Iran to become self-sufficient.
>
> …Iran faces continued depletion of its production capacity, as its fields have relatively high natural decline rates (8-13 percent), coupled with an already low recovery rate of around 20-30 percent. Sanctions and prohibitive contractual terms have impeded the necessary investment to halt this decline. Moreover, sanctions enacted in late 2011 and throughout 2012 have accelerated Iran's production capacity declines.
>
> …Iran's fifth five-year development plan covering 2010-2015 calls for an increase in crude oil production capacity to 5 million bbl/d in 2015. In addition, it identifies a need for $35 billion per year in upstream investment in both the oil and natural gas sector and anticipates that the majority of the funds would come from foreign investors under buyback contracts. However, given that the previous five-year (2005-2010) plan saw total upstream investment of only about $10 billion, the latest plan likely will be difficult to implement, even without western sanctions.
>
> …A series of sanctions targeting the oil sector have resulted in cancellations of new projects by a number of foreign companies, while also affecting existing projects. Following the implementation of sanctions in late-2011 and mid-2012, Iranian production dropped dramatically. Although Iran had been subject to four earlier rounds of United Nations sanctions, the much tougher measures passed by the United States and the European Union have severely hampered Iran's ability to export its oil, which directly affected its ability to produce petroleum and petroleum products.
>
> …Iran Light crude stream is the other key grade and is sourced from several onshore fields in the Khuzestan region…Many of the fields that produce Iran Light have been producing for decades and are declining rapidly. NIOC has been working on offsetting these declines through the use of enhanced oil recovery (EOR) techniques, mainly using associated gas. However, this effort was severely hampered as a result of a shortage of natural gas available for reinjection.
>
> …Although there were a number of new exploration and development blocks announced over the last several years, which could provide Iran with an increase in its crude oil production capacity, sanctions have negatively affected the Iranian oil industry. In the last year in particular, Iran has seen a significant erosion of production capacity that is at least in part attributable to the sanctions.
>
> Virtually all western companies have halted their activities in Iran, although there are a number of Chinese and Russian companies that are still participating. The sanctions and lack of international involvement has particularly affected the upstream projects negatively, as the lack of expertise, technology, and investment has resulted in delays and, in some cases, cancellations of projects. Nonetheless, development of a few projects continues, albeit at a slower pace than planned.

Iran's development problems have been compounded by the fact that the Iranian National Oil Company (INOC) and the Iranian government have done a notoriously bad job of structuring attractive proposals for outside investment and participation in petroleum deals, although they sometimes eventually compromise on more financially realistic agreements. Investment in Iranian oil and gas does not give the outside country or company control over Iran's reserves, forces it to sell to the highest bidder at world prices, and presents the constant risk of nationalization, unilateral cancellation without compensation, or sanctions. The EIA sums up contractual difficulties foreign companies have in exploiting Iranian oil and natural gas resources, even without the impact of sanctions:[124]

> The Iranian constitution prohibits foreign or private ownership of natural resources, and all production-sharing agreements are prohibited under Iranian law. The government permits buyback contracts that allow international oil companies (IOCs) to enter into exploration and development contracts through an Iranian affiliate. The contractor receives a remuneration fee, usually an entitlement to oil or gas from the developed operation, leaving the contractor to provide the necessary capital up front. Once development of a certain field is complete, however, operatorship reverts back to NIOC or the relevant subsidiary. The payback of the capital cost is deducted from oil and gas sales revenues. According to FACTS Global Energy, the rate

> of return on buyback contracts varies between 12 and 17 percent with a payback period of about five to seven years.

Iran's internal political debates over foreign investment and economic policy add to this risk and the end result is that energy investments in other more stable oil exporting countries often offer better terms. Outside powers and companies are also increasingly cautious about dealing with Iran in ways that lead to tensions with the Arab oil and gas exporting states.

Sanctions and Natural Gas Production Capacity

In the case of gas, Iran has roughly 16% of the world's proven *conventional* gas reserves, second only to Russia. This distinction is critical since gas extraction technology is changing so rapidly, and past estimates of conventional reserves are losing much of their meaning.

The EIA estimates that Iran has the second largest conventional gas reserves in the world at 1,187 Trillion Cubic Feet (TCF) vs. 1,688 TCF for Russia, and 890 TCF for Qatar.[125] However, fracturing, directional drilling, deepwater drilling, and other technological developments are quickly reducing the importance of conventional versus total reserves, and Iran's percentage of potentially commercial reserves may be closer to 8% than 16%.[126] Iran is estimated to be the 4th largest producer of natural gas and accounts for 5% of the world's natural gas production, but has limited export capacity.[127] In contrast, the Arab Gulf states have some 26% of world natural gas reserves and are responsible for 10% of world gas production. [128]

The EIA reports that: [129]

> Iran's natural gas reserves are located predominantly offshore, although significant associated natural gas production originates from the country's onshore oil fields. The giant South Pars gas field, only a portion of which is in Iranian territory, comprises over 27 percent of Iran's total proved natural gas reserves and is Iran's largest natural gas field. South Pars' proved natural gas reserves are estimated at 325 Tcf, according to FGE, with 3-4 billion barrels of condensate in place, as reported by Arab Oil and Gas Directory.
>
> …As a result of the poor investment climate and international political pressure, some international oil companies, including Repsol, Shell, and Total, have divested from Iran's natural gas sector. In response, Iran has looked toward eastern firms, such as state-owned Indian Oil Corp., China's Sinopec, and Russia's Gazprom, to take a greater role in Iranian natural gas upstream development. Activity from these sources has also been on the decline because of imposition of sanctions on technology and financial transactions.
>
> Under Iran's buy-back scheme, foreign firms hand over operations of fields to the National Iranian Oil Company (NIOC), and after development they receive payment from natural gas production to cover their investment. National Iranian South Oil Company (NISOC), a subsidiary of NIOC, is responsible for much of the southern natural gas production.
>
> Gross natural gas production totaled 7.9 Tcf in 2011, increasing nearly 2 percent compared with the year prior. Nearly three quarters of total production originated in non-associated gas fields, with the remainder of gross natural gas being produced associated with oil.
>
> The South Pars field accounts for about 35 percent of Iran's total natural gas production, with sizeable production coming also from the Kangan and Tabnak fields. In addition, Gonbadli began producing in June 2011 and contributed about 25 thousand cubic feet (Mcf) during the remainder of the year.
>
> …Much like in the oil sector, the natural gas sector has been hampered by international sanctions. Although sanctions targeting the Iranian natural gas exports were only recently enacted by the EU, lack of foreign investment and sufficient financing has resulted in slow growth in Iran's natural gas production. According to some analysts, Iran should have become one of world's leading natural gas producers and exporters given its large resource base. Development of its fields has been hampered by a combination of financing, technical, and contractual issues.

> Nonetheless, Iran's natural gas production has grown and likely will continue to increase in coming years. FGE [FACTS Global Energy] estimates that Iran's gross natural gas production will increase to 10.9 Tcf in 2020, but that growth will depend on the pace of development of the South Pars field.
>
> …Because of repeated contractual disagreements among companies involved in the development of this field [Kish natural gas field], as well as the infrastructure required (which includes the construction of a natural gas processing plant, gas pipelines, and a new power plant), the first phase of this field is unlikely to come online before 2020.
>
> …The North Pars field, adjacent to South Pars, has approximately 50 Tcf of reserves of sour gas. China National Offshore Oil Corporation (CNOOC) signed an agreement with NIOC to develop North Pars, however, CNOOC recently halted its activities as a result of U.S. sanctions. According to FGE, this project is not likely to come online before 2020.
>
> …Overall, Iran's natural gas consumption is expected to grow around 7 percent annually for the next decade. The potential for shortfalls in natural gas supply will also increase as domestic natural gas projects face delays.
>
> In 2011, Iran's imports of natural gas grew to 1,024 MMcf/d, while its exports totaled 875 MMcf/d. Preliminary data for 2012 show that, on average, Iran exported more natural gas (850 MMcf/d) than it imported (513 MMcf/d)…Since 2000, Iran's annual natural gas imports have exceeded its exports in all but two years (2010 and 2012). In 2011 and 2012, Iran accounted for less than 1 percent of global dry natural gas imports and exports.

This analysis shows that Iran has far greater potential to produce and export gas and oil than it has thus been able to exploit. Iran's gas and oil production and exportation problems are compounded by old facilities, limited upkeep, and the lack of expertise to reach harder shale deposits. The degree to which past sanctions have affected delays, bid failures, and delayed or prevented contract negotiations remains uncertain, but it is clear that new sanctions introduced in late 2011 and throughout 2012 have had a major impact. As of July 1st, 2012, the EU has fully embargoed Iranian oil, India has cut back its purchases, Japan is looking for alternate sources, and Chinese imports have dropped. This, coupled with soaring production from Iraq, increasing production from Libya and Saudi Arabia, and the growth of "non-conventional" sources of oil and gas, makes it easier for countries to find alternate sources of oil.

More importantly, new sanctions that the US and EU have imposed will continue to make it difficult for Iran find outside investment to develop and exploit their oil and gas fields and additional sanctions in the recently-introduced "Nuclear Iran Prevention Act of 2013" would further increase the list of blacklisted Iranian companies, potentially block Iranian assets held in Euros, designate the IRGC as a terrorist entity, and continue to restrict business dealing with Iran. Sanctions have affected Iran's ability to reinforce its oil exports and upkeep; the exodus of oil companies from Iran in the past few years will continue to have an impact on Iran's oil sector. Iran's ability to maintain and expand its production capacity is fragile and sanctions will hit hard over time.

Sanctions and Iranian Oil Exports

The practical impact of Iran's export potential must be kept in perspective. Iran at most has some 10% of the world's proven oil reserves (154 billion barrels versus 265 billion for Saudi Arabia, 297 billion for Venezuela, and 173 billion for Canada), and its percentage of potential reserves is substantially lower.[130] Iran currently only produces 3.6% of world conventional oil liquids according to December 2012 EIA data. Without large investments into the oil sector it is unlikely that this figure will increase dramatically.[131]

In contrast the Arab Gulf states have some 72% of the world's conventional oil reserves and produce some 25% of world oil.[132] Iran lacks refinery capacity, and its large, steadily growing population consumes a significantly larger part of its total production than in the Arab Gulf states. Moreover, Iran has already tapped 75% of its known reserves, so the likelihood of new, major discoveries is low. Recently discovered sources have allowed Iran to hold oil production relatively steady, and they may even help production levels to grow somewhat in the immediate future, but new sources will not be able to offset natural declines beyond the short-term. As a result, Iran will have to rely heavily on proven but undeveloped reserves, which will require major new investments.[133]

Impact on Production and Exportation

The impact of sanctions on Iran's ability to export its oil and gas resources is determined by current production and has been far more immediate – although estimates of the trends involved differ strikingly by source. As **Figure 4** shows, Iran has had major cycles of problems in its oil production and exports ever since the fall of the Shah – a time when Iran's exports peaked at 3 million barrels a day. At the same time, **Figure 5** shows that Iran's exports have dropped since the new US and EU sanctions have been applied.

While the estimates and numbers differ by source and time period, they agree on the broad trends. The EIA reports that Iran exported approximately 2.2 mbpd of crude oil in 2010, and that Iranian Heavy Crude Oil was Iran's largest crude export followed by Iranian Light: "In 2010, Iran's net oil export revenues amounted to approximately $73 billion. Oil exports provided half of Iran's government revenues, while crude oil and its derivatives accounted for nearly 80 percent of Iran's total exports."[134]

Data suggest that the additional US and EU oil and insurance sanctions, especially the July 1st EU embargo, have had dramatic effects on Iranian oil exports. Overall, Iran's oil exports in July were down 45% from a month before due to import reductions from China (down 28%); India (42%); Turkey (71%); and zero imports from Japan, South Africa, Taiwan, and South Korea.[135] Revenue was also down in July – $2.9 billion compared to July 2011 at $9.8 billion.[136]

EIA's updated March 2013 report detailed Iran received $95 billion in oil sales in 2011 but only received $69 billion in 2012. Production was down as well from 4.2 mbpd in 2011 to 3.5 mbpd in 2012. However, again illustrating the difficulty of getting accurate information on the Iranian energy sector, the EIA reported that Iran's February 2013 production level was 2.72 mbpd, down from 2.35 mbpd in February 2012.[137]

A US EIA estimate for May 2013, indicated that,

> In 2012, Iran's exports of crude oil and lease condensate dropped to their lowest level since 1986 (see chart above) as the United States and the European Union (EU) tightened sanctions targeting Iran's oil sector. Iran's 2012 net estimated oil export revenue, at $69 billion, was significantly lower than the $95 billion total generated in 2011. Oil exports make up 80% of Iran's total export earnings and 50% to 60% of its government revenue, according to the Economist Intelligence Unit.
>
> Sanctions affecting investment in Iran's oil sector have also been tightened, resulting in cancellation of new projects by several foreign companies; they also negatively affected existing projects. Following the implementation of sanctions in late-2011 and mid-2012, Iranian oil production dropped dramatically. Although Iran had been subject to four earlier rounds of United Nations sanctions, these much-tougher measures passed by the United States and the European Union have severely hampered Iran's ability to export its oil, which directly affected its production of petroleum and petroleum products.

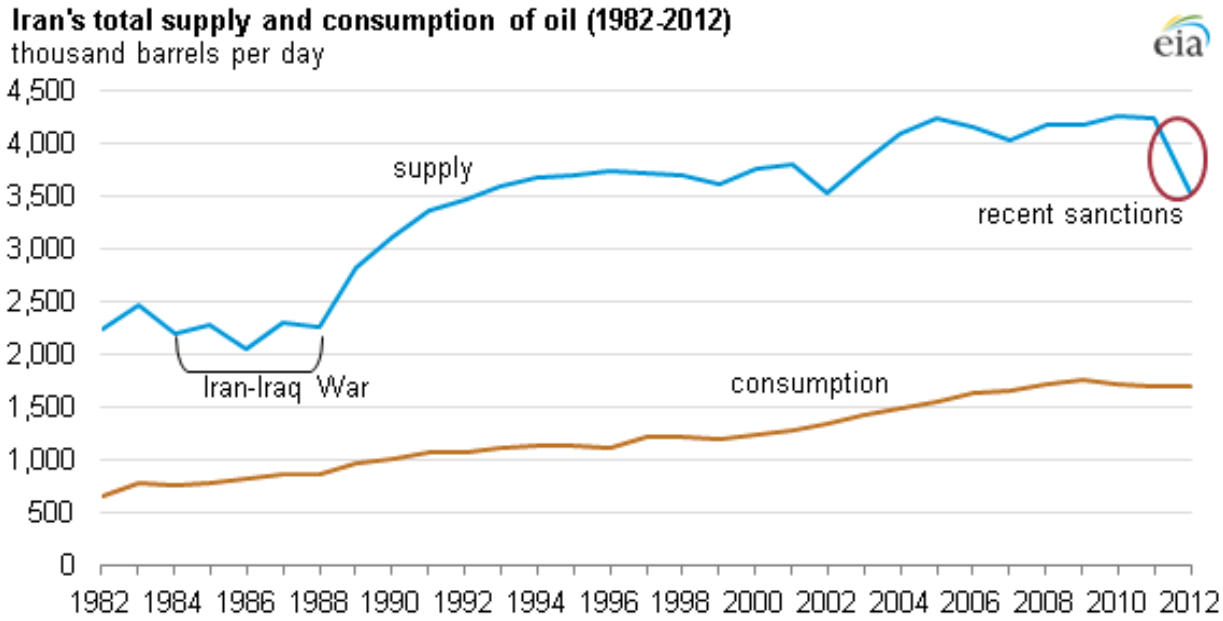
> The U.S. and EU measures prohibited large-scale investment in the country's oil and gas sector, and cut off its access to European and U.S. sources of financial transactions. Further sanctions were implemented against the Central Bank of Iran, while the EU imposed an embargo on Iranian oil and banned European protection and indemnity clubs (P&I Clubs) from providing Iranian oil carriers with insurance and reinsurance. The implementation of insurance-related sanctions was particularly effective in stemming Iranian exports, which affected not only European importers but also Iran's Asian customers who were forced to temporarily halt imports.
>
> Iran's exports of crude oil and lease condensate declined to approximately 1.5 million barrels per day (bbl/d) in 2012, compared to 2.5 million bbl/d in 2011. This 39% decline in exports was coupled with a 17% drop in crude oil and condensate production and a 1% decline (see chart below) in liquid fuels consumption including gasoline, diesel, jet fuel, and other products.
>
> While the world's supply of oil increased by about 2%, or 1.8 million bbl/d in 2012, oil production in Iran declined by nearly 700,000 bbl/d from the 2011 level. Most of the 2012 drop in production is attributable to tightened sanctions. A smaller decline in 2011 resulted mainly from declining production in aging fields. Iran remained the second-largest OPEC crude oil producer on average during 2012, but it exceeded Iraq's production only narrowly. In August 2012, Iran's monthly crude oil production fell below Iraq's for the first time since 1989.

The EU reinsurance ban from 2012 began to affect refiners in April of this year when insurance contracts for refineries came up for renewal. The EU ban created uncertainty for refiners as to whether they would be able to obtain insurance. These sanctions have been interpreted by EU insurance companies to mean that they are barred from providing coverage to any refiner and refinery operators that process crude oil of Iranian origin. This provision will mostly affect refiners in South Korea and India, which rely heavily on European insurance providers. The sanctions may further affect Iran's exports and production over the next few months as refiners try to find alternative suppliers of insurance. At the same time, the effectiveness of sanctions is partially dependent on the ability of importing nations to cut back on Iranian oil imports, and there are several important cases where US and EU sanctions have not been fully applied. **Figure 4** shows that China, Japan, and India were far more dependent on Iranian exports than others before the US and EU imposed new sanctions. Therefore, Section 1245 of the FY2012 NDAA included a provision for a 180 day sanctions wavier if a country had significantly reduced its purchases of Iranian oil. This has allowed countries that depend on Iranian oil time to find alternate sources of supply.

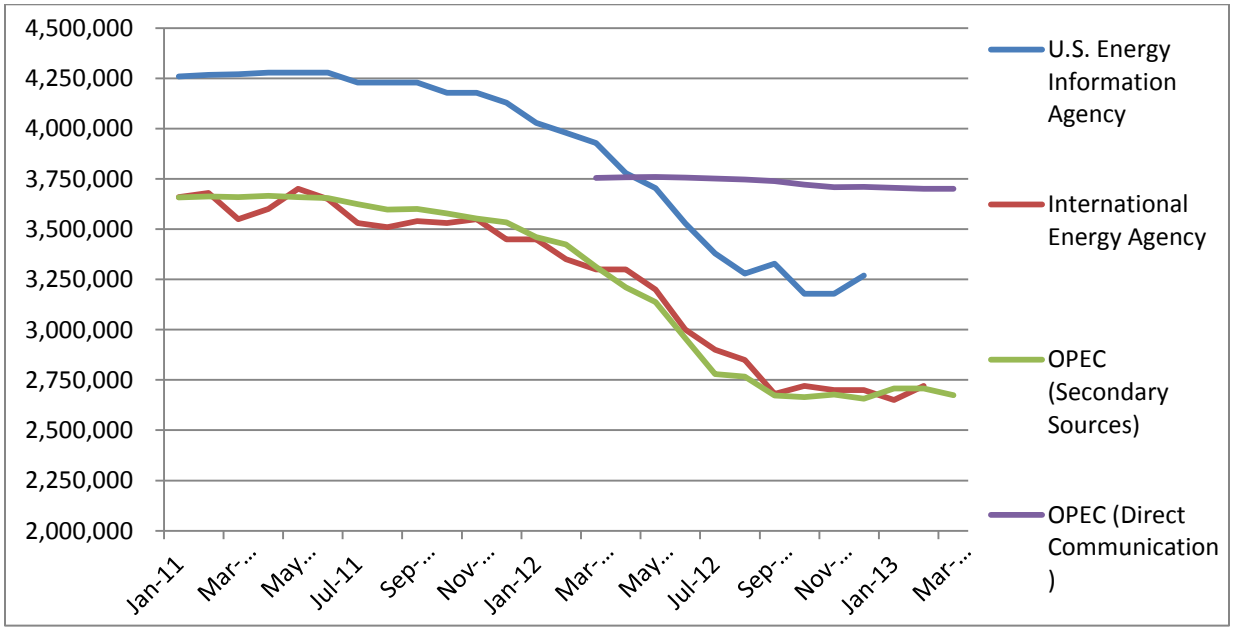
Yet, these same importing states have to carefully consider what happens if they do not comply in the future. As the EIA noted in November 2011:[138]

> Iran’s oil exports also have been affected by sanctions. In 2011, Iran experienced significant problems with receiving payments from India for its exports, when the Reserve Bank of India halted a clearing mechanism due to sanctions. Some of the payments have been cleared through Turkish and UAE banks. More recently, NIOC announced that India has cleared all oil debts to Iran through Gazprombank of Russia and Iran has already received all overdue payments for its exports to India.

Figure 4: Comparative Estimates of Iran's Oil and Gas Production - Part One

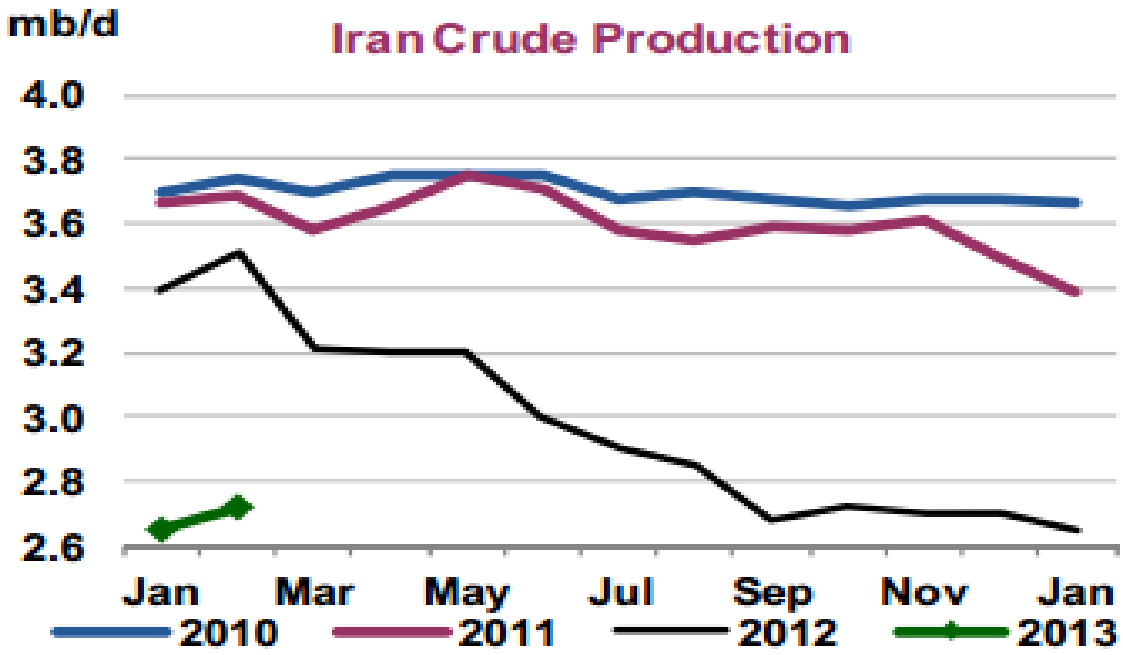


DOE/EIA, "Sanctions Reduced Iran's Oil Exports and Revenues in 2012," *Today In Energy*, as modified May 15, 2013, http://www.eia.gov/todayinenergy/detail.cfm?id=11011#.



Source: OPEC Monthly Oil Report, International Energy Agency Oil Monthly Report, US Energy Information Agency Monthly Oil Report, April 2013.

Figure 4: Comparative Estimates of Iran's Oil and Gas Production - Part Two



Source: International Energy Agency, Oil Market Report, March 13, 2013. http://omrpublic.iea.org/omrarchive/13mar2013fullpub.pdf

Iran's Refining Capacity, 2011	
Refinery	**000 bbl/d**
Abadan	350
Isfahan	284
Bandar Abbas	232
Tehran	220
Arak	170
Tabriz	100
Shiraz	40
Lavan Island	30
Kermanshah	25
Total Output	**1,451**

Source: US Energy Information Agency, "Country Analysis: Iran," March 28, 2013. http://www.eia.gov/countries/cab.cfm?fips=ir; US Energy Information Agency "Iran, Country Analysis," February 17, 2012

Figure 4: Comparative Estimates of Iran's Oil and Gas Production – Part Three

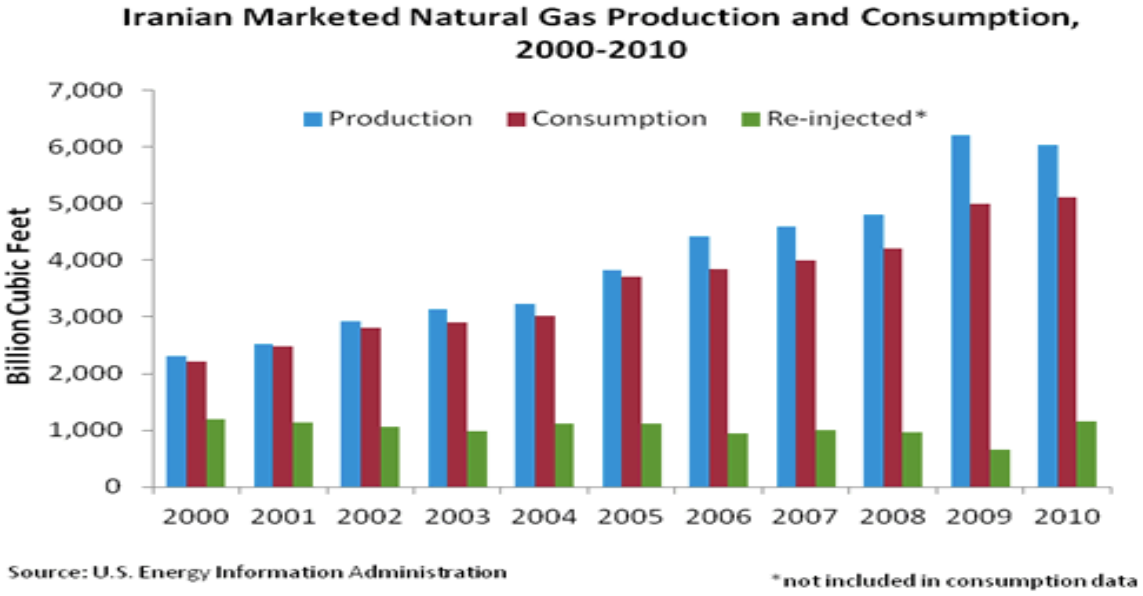
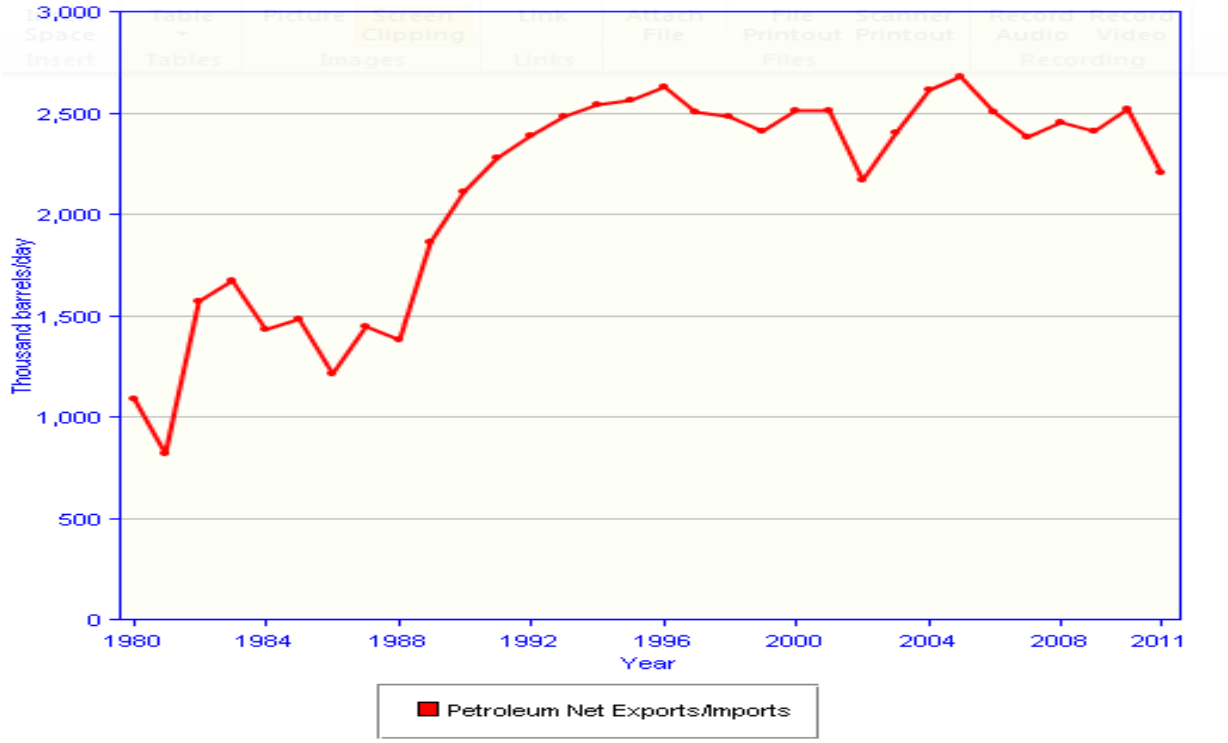
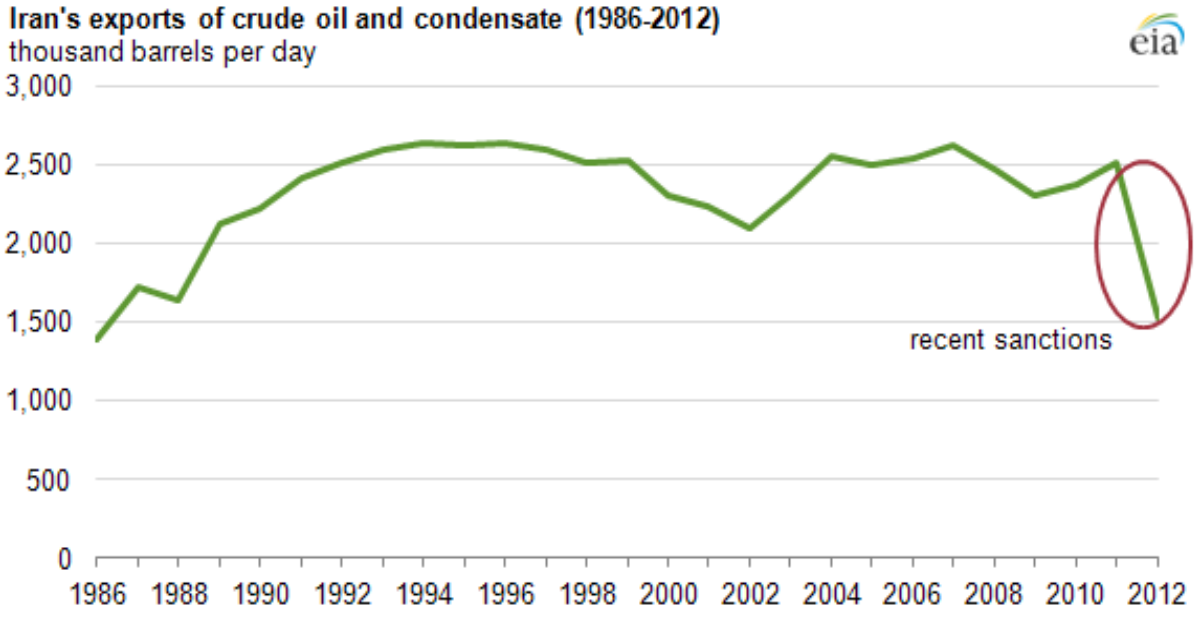


Figure 5: Comparative Estimates of Iran's Oil and Gas Exports – Part One

Iranian Oil Exports



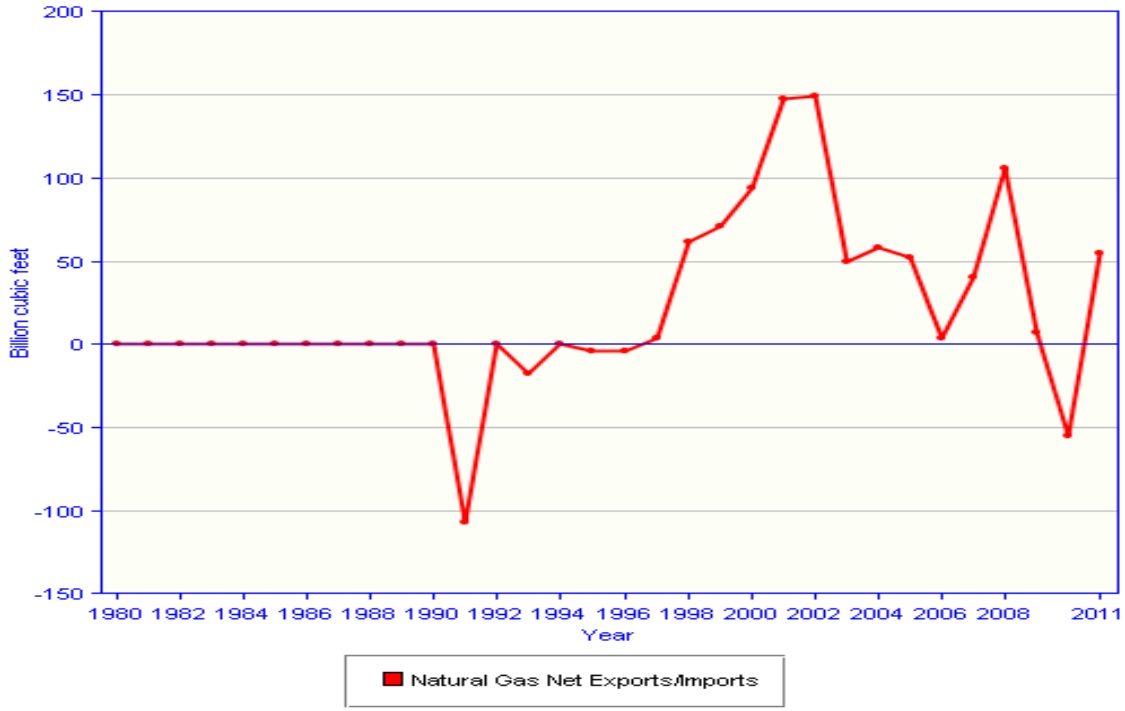
Source: US Energy Information Agency, "Country Analysis: Iran," February 17, 2012.



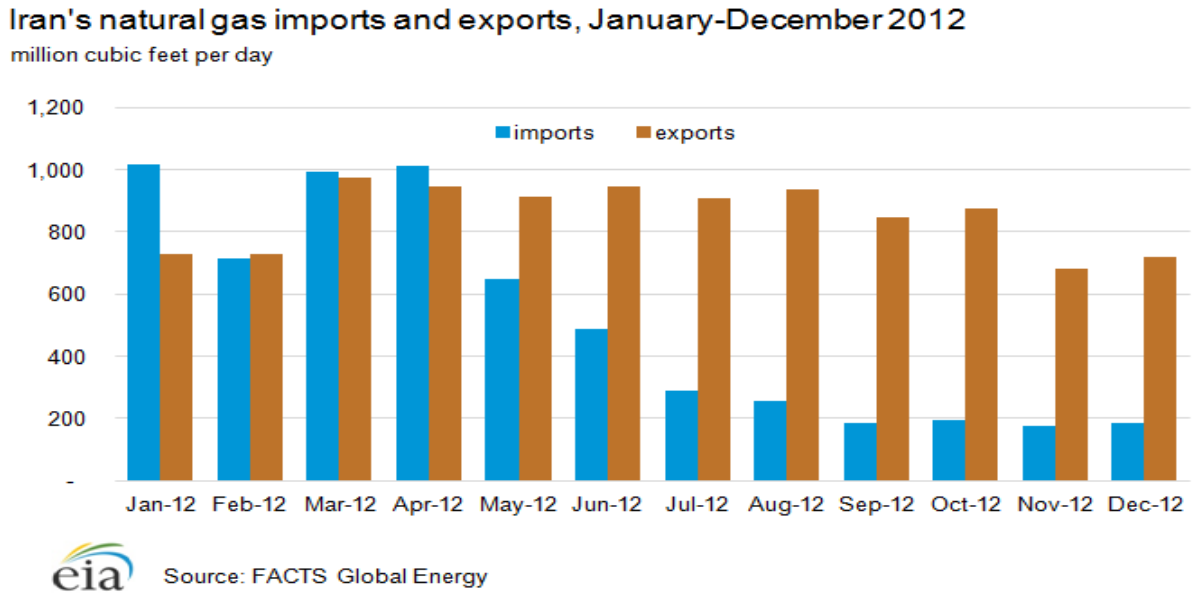
DOE/EIA, "Sanctions Reduced Iran's Oil Exports and Revenues in 2012," *Today In Energy*, as modified May 15, 2013, http://www.eia.gov/todayinenergy/detail.cfm?id=11011#.

Figure 5: Comparative Estimates of Iran's Oil and Gas Exports – Part Two

Iranian Gas Exports



Source: US Energy Information Agency, "Country Analysis: Iran," February 17, 2012.



Source: US Energy Information Agency, "Country Analysis: Iran," March 28, 2013. http://www.eia.gov/countries/cab.cfm?fips=ir; US Energy Information Agency "Iran, Country Analysis," February 17, 2012

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Impact of Domestic Consumption

Iran faces another set of problems because it has very high domestic consumption of petroleum products. In 2011, the energy intensity in Iran was as high as the Middle Eastern average, but twice as high as the world average, and the energy factor, the ratio of final energy use growth to GDP was more than triple the world average at 1.27.[139] This means that Iran is relatively energy inefficient and has relied on energy subsidies in the past to reduce the price burden on its population. Subsidized prices, coupled with a population that has doubled since 1979, has created excessive demand and inefficient energy uses.

Natural gas and oil accounted for 59% and 39%, respectively, of domestic energy consumption; Iran consumed 5.4 TCF of natural gas in 2012 and 1.7 mbpd of oil (mostly diesel and gasoline) in 2011.[140] The majority of Iranian petrochemical exports are crude oil (mostly the Heavy variety), condensate, naphtha, fuel oil, kerosene, and a small amount of gasoline (3,000 bbl/d in 2011 to Pakistan and Afghanistan).

In the past Iran was forced to rely on imports for higher value-added refined products, such as gasoline, jet fuel, and diesel. But recent improvements and expansions of refineries have increased the level of domestically-produced gasoline and the EIA estimates that gasoline imports will end in 2013.[141] Previous analysis by the EIA stated that Iran could become a gasoline exporter by 2015.[142]While reliable numbers are hard to come by, the EIA estimates that in 2010, Iran imported 78,000 bbl/d of refined oil products, roughly 70% of total imports.

The EIA noted in February 2012 that:[143]

> Iranian domestic oil demand is mainly for diesel and gasoline. Total oil consumption was approximately 1.8 million bbl/d in 2010, about 10 percent higher than the year before. Iran has limited refinery capacity for the production of light fuels, and consequently imports a sizeable share of its gasoline supply. Iran's total refinery capacity in January 2011 was about 1.5 million bbl/d, with its nine refineries operated by the National Iranian Oil Refining and Distribution Company (NIORDC), a NIOC subsidiary.
>
> The Iranian government subsidizes the price of refined oil products, however price reforms instituted in December 2010 removed some of the subsidies, which significantly affected gasoline consumption in Iran (see Gasoline section below). Iran is an overall net petroleum products exporter due to large exports of residual fuel oil.
>
> …Sanctions imposed on Iran have made it difficult for the country to import needed volumes of gasoline. The government has attempted to control consumption by implementing accelerated subsidy reform, resulting in a sharp increase in the price of gasoline. The subsidy reform spurred political opposition because of inflationary fears in the midst of an economic downturn. Furthermore, petrochemical plants were converted so that they can produce gasoline as a short-term measure. However, the converted plants produce low quality gasoline, causing significant environmental problems.
>
> In 2010, Iran consumed around 400,000 bbl/d of gasoline, about 4 percent less than consumed in 2009. Iran does not currently have sufficient refining capacity to meet its domestic gasoline and other light fuel needs. However, the government has approved a number of expansions of existing as well as construction of new refineries with the aim to make Iran self-sufficient (and an exporter of gasoline).

The updated March 2013 analysis contains roughly similar numbers:[144]

> Iranian domestic oil consumption is mainly diesel and gasoline. Total oil consumption was approximately 1.7 million bbl/d in 2011, about 1.5 percent lower than the year before.
>
> …In response to international sanctions and the resulting difficulty in purchasing refined products, Iran expanded its domestic refining capacity. As of January 2013, its total refining capacity was nearly 1.5 million bbl/d, with all nine of its refineries operated by the National Iranian Oil Refining and Distribution Company (NIORDC), a NIOC subsidiary.

> Iran plans to increase refining capacity to become self-sufficient in gasoline production. Over the last several years, Iran's gasoline import dependence has decreased significantly as a result of increased domestic refining capacity and lower demand. According to FGE, Iran's gasoline imports will cease sometime in 2013 as some upgrades to refineries take place. Furthermore, following the installation of crackers, fuel oil upgrading facilities, and upgrades to existing refineries post-2015, fuel oil exports are expected to decline.
>
> …Iran's energy prices are heavily subsidized, particularly for gasoline. At the end of 2010, the government decreased the subsidies on energy prices to discourage waste. Over the next couple of years, the government plans to further reduce subsidies so that Iranian consumers would pay prices that more closely reflect the market value of energy. Removal of subsidies includes both petroleum and natural gas.

As part of an effort to reduce the wasteful and expensive Iranian government energy subsidies that reportedly cost around $70 billion year, or nearly 20% of Iran's GDP, former President Ahmadinejad instituted a Targeted Subsidy Plan in 2010.[145] This plan has since reduced subsides on staple goods such as bread and gasoline and compensated lower and middle class people with monthly cash handouts equaling $40. Prices for bread and some other foods have increased and gasoline is now priced between $1.60 and $2.60 per gallon.[146]

An International Monetary Fund (IMF) report indicated the plan has eliminated about $60 billion in expenses for Iran, but some Iranian economists believe that the number of people taking cash handouts has all but eliminated the savings from the subsidy cut.[147] As a result, it is unclear what has affected the Iranian economy most: the Targeted Subsidy Plan, additional sanctions, or Iran's underlying structural problems. What is clear is that Iran is suffering from stagnant or negative economic growth.

The EIA reported in February 2012 that: [148]

> Iran has had other difficulties with refinery capacity expansion recently. During the inauguration ceremony of the Abadan refinery expansion –which was conducted by former Iranian president Mahmoud Ahmadinejad --a gasoline unit blew up as a result of a gas leak. It took NIORDC four months to rebuild the unit and bring it online.
>
> Finally, Iran plans to increase refining capacity with the aim to become self-sufficient for gasoline. Plans for capacity increases through expansions at existing refineries as well as planned Greenfield refinery construction have been announced. Iran has issued permits to construct six new refineries with a combined refining capacity of 1.2 million bbl/d; however there has been little progress because of financing difficulties.
>
> Iranian gasoline imports were approximately 78,000 bbl/d in 2010, nearly 70 percent of total product imports. Current and proposed expansions of Iranian refineries likely will come online between 2012 and 2017. Iran is expected to remain a gasoline importer next year, however if proposed expansions occur as planned, it is possible the country will become a gasoline exporter in 2015.

Other reports indicate that Iran has been able to cut its imports while increasing its domestic refining capabilities. A Reuters report in early 2012 stated that Iranian imports of gasoline have been reduced from around 40% of total imports to roughly 5% of total imports.[149] This reporting may have been corroborated by recent EIA analysis which states that in 2011 Iran's total oil consumption was 1.7 mbpd but in January 2013, Iran's total refining capability was 1.5 mbpd and has increased over the last several years.[150] This report underscores one of the current questions over sanctions in the past few years, notwithstanding the questionable accuracy of the data, if the sanctions have pressed Iran into moving towards self-sufficiency in gasoline production.

Previous reporting makes it apparent that Iran may still have a refined oil shortage, A report by Reuters in November 2012 detailed Iran's plan to ration diesel sales, mix gasoline with methanol, and only accept cash from domestic airlines for jet fuel.[151] In addition, the ticket prices of national flag carrier Iran Air have drastically increased – double for some international destinations, and between 70-90% for domestic destinations because of fuel prices.[152] In another report by the Washington Post, Seyyed Abdolreza Mousavi, head of the Iranian Airlines Association, stated that most flights from Tehran, Mashhad, and other airports were canceled due to the failure of domestic airlines to pay their debts. He also said that fuel would be given to airlines on a cash only basis.[153]

Official pronouncements of domestic Iranian gasoline production seemingly run counter to other news about rising gas prices and new gasoline mixtures. It is too difficult to "balance the equation" when it comes to Iranian oil and natural gas exports because so much of the Iranian data and news is politicized to such a degree that they are useless. Therefore, it is only possible to investigate the trends in the aggregate.

Data from November 2012 indicate that the combined US, EU, and UN sanctions have had a large effect on the amount of oil that Iran has exported in the past year. Exports have declined to about 1.25 million barrels a day in December 2012, down from 2.5 million barrels a day that Iran exported in 2011.[154] The loss in customers due to sanctions and provisions in the FY2012 NDAA that required countries to reduce their Iranian oil purchases has caused Iran to reduce their oil production to about 2.6 million barrels a day, down from a baseline of 4 million barrels per day.[155]

Sanctions and Iranian Gas Exports

Gas exports are far less important to the Iranian economy than oil exports, but the EIA estimated in February 2012 that: [156]

> Iran's natural gas production has increased by over 550 percent over the past two decades, and the consumption has kept pace. As demand growth rates persist, the potential for shortfalls in natural gas supply grows. Iran's natural gas exports likely will be limited due to rising domestic demand, even with future expansion and production from the massive South Pars project, and other development projects.
>
> In 2010, Iran produced an estimated 6 Tcf of marketed natural gas and consumed an estimated 5.1 Tcf. A sizeable volume of the gross natural gas produced (7.7 Tcf in 2010) was reinjected (1.2 Tcf). As Iran implements its plans for increased crude production through EOR techniques, however, the share of natural gas used for re-injection is expected to increase dramatically.

The updated March 2013 analysis contains similar numbers:[157]

> Over the last two decades, Iran's dry natural gas production has rapidly increased, rising from 0.9 trillion cubic feet (Tcf) in 1991 to 5.4 Tcf in 2011, and accounts for around 5 percent of the world's natural gas production. Domestic consumption, also estimated at 5.4 Tcf in 2011, has kept pace.
>
> Gross natural gas production totaled 7.9 Tcf in 2011, increasing nearly 2 percent compared with the year prior. Nearly three quarters of total production originated in non-associated gas fields, with the remainder of gross natural gas being produced associated with oil.
>
> …In 2011, more than 67 percent of the gross natural gas was delivered to market as dry gas, with 16 percent (1.2 Tcf) reinjected to enhance oil recovery. Approximately 0.6 Tcf of total natural gas produced was flared, with shrinkage, loss, and flaring representing 17 percent of the total.
>
> Much like in the oil sector, the natural gas sector has been hampered by international sanctions. Although sanctions targeting the Iranian natural gas exports were only recently enacted by the EU, lack of foreign investment and sufficient financing has resulted in slow growth in Iran's natural gas production. According

> to some analysts, Iran should have become one of world's leading natural gas producers and exporters given its large resource base. Development of its fields has been hampered by a combination of financing, technical, and contractual issues.
>
> Nonetheless, Iran's natural gas production has grown and likely will continue to increase in coming years. FGE estimates that Iran's gross natural gas production will increase to 10.9 Tcf in 2020, but that growth will depend on the pace of development of the South Pars field.

While Iran's production of natural gas has increased, its domestic consumption has increased as well, reducing the amount of gas available for export. This has affected both Iran's imports and exports. In 2011, Iran imported a total 47.983 Tcm with its imports coming from Turkmenistan and Azerbaijan.[158] And in 2012, Iran exported 9.11 Bcm, mostly to Turkey and less so to Armenia.[159] EIA estimates that Iran was a net importer of gas in 2011, 1,024 MMcf/d and exporting 875 MMcf/d.[160]

This has an impact on an important American ally. Iran plays an important role in Turkish efforts to meet its energy needs and improve its energy diversification, even if Turkey's purchases of energy have decreased due to newly instituted EU and US sanctions. According to the Turkish Ministry of Foreign Affairs, oil and natural gas purchases account for 90% of Iranian exports to Turkey. Turkey imported over 50% of its oil and 21% of its natural gas from Iran in 2011. After US and EU sanctions on Iran's oil and gas industry, however, Iran's share of Turkey's energy imports have decreased to roughly 30% and 19% respectively.[161] Iran was still Turkey's largest oil supplier as the next largest supplier, Iraq, only accounted for 11.28% and Russia was third with 8.45%.[162]

Iran supplies Turkey with natural gas through the Tabriz-Ankara Pipeline that connects Iranian natural gas reserves to Turkey's internal distribution network. However, supplies of gas to Turkey have been routinely disrupted by unexplained Iranian stoppages, Iranian mechanical failures, and PKK attacks in the border region between Iran and Turkey. Iran has repeatedly failed to supply Turkey with its contractually obligated 10 bcm of gas a year and has recently increased the price of gas more than $\$100/1{,}000m^3$; This has led Turkey to sue Iran. The pipeline was supposed to reach its full capacity of 10 bcm by 2007 but only 6.05 bcm had been pumped through in that year. In later years, the pipeline had still not reached capacity: 4.11 bcm in 2008, 5.24 bcm in 2009, and 7.77 bcm in 2010.[163]

The main impact of sanctions and US diplomatic pressure to date has been in reducing Iran's capacity to export. The EIA reported in February 2012 that,[164]

> Due to the poor investment climate and international political pressure, some international oil companies including Repsol, Shell, and Total have divested from Iran's natural gas sector. In response, Iran has looked toward eastern firms, like state-owned Indian Oil Corp., China's Sinopec, and Russia's Gazprom to take an increased role in Iranian natural gas upstream development. Activity from these sources has also been on the decline due to logistical difficulties experienced as a result of sanctions on technology and financial transactions.
>
> …In May 2009, Iran began exports of natural gas to Armenia after a couple of years of delays. Exports to Armenia totaled 24 MMcf per day of gas in 2010 in exchange for electricity. Pipeline exports to Armenia are expected to increase to 224 MMcf per day in 2020.
>
> …Iran has an extensive natural gas pipeline system, which includes trunk lines, import/export pipelines, and gathering and distribution lines. The backbone of the domestic pipeline system is the Iranian Gas Trunkline (IGAT) pipeline series, which transport natural gas from processing plants to end-use consumers.
>
> Development of IGAT pipelines, fed by South Pars development phases, is important to Iran's natural gas transport. IGAT-8 (2012/2013) will run nearly 650 miles to Iran's northern consumption centers, including

Tehran. IGAT-9 and IGAT-10 are still in the planning phase and are not likely to become operational before 2017. Iran exports natural gas via pipeline to Turkey and Armenia. The Iran-Turkey pipeline began exports in 2001 with 34 million cubic feet (MMcf) per day and exports gradually rose to 762 MMcf per day in 2010.

Future pipeline projects (at various stages of planning) include the Iran-UAE pipeline, Iran-Pakistan pipeline, and Iran-Europe gas export project. Additionally, the governments of Iran and Syria have signed several MOUs to build a pipeline linking the two countries. However, this project is becoming less likely as a result of the unrest in Syria and is predicated upon the survival of the Assad regime.

A controversial pipeline proposal **(Figure 6)** is the $7.4-billion Iran-Pakistan-India (IPI) line that would transport Iranian natural gas south to the Asian subcontinent. With a proposed 1,700 miles and a 5.4 Bcf/d capacity, the pipeline has been stalled in the past due in part to disputes over the cost of the shipments. Iran and Pakistan have finalized gas sales and purchase agreements, but without India's participation in the negotiations. It is probable that Iran would extend its domestic Iran Gas Trunkline 7 (IGAT-7) pipeline into Pakistan, avoiding the creation of a new, parallel pipeline.

It again is unclear how much US sanctions and diplomatic efforts have really limited these pipeline developments. Their cost and the risk of going through Afghanistan and Pakistan is a major deterrent, and Iran has not always presented viable business terms. However, although the EIA treats prospects for the Iran-Pakistan-India pipeline with some skepticism, recent evidence suggests that the IPI line may be feasible. In March 2013, former President Ahmadinejad met with President Zardari to commemorate the beginnings of construction on the Pakistani half of the pipeline. Furthermore, India has announced that it will hold talks with both Iran and the US regarding the construction of the Indian portion: thought the US has lobbied India hard to withdraw from the project, Iranian-Indian relations have been growing stronger, and India has even worked with Iran to help them avoid various rounds of US-EU sanctions.[165]

However, sanctions have been less effective against natural gas exportation and field development. And, as sanctions have squeezed Iran's refined oil imports, Iran is attempting to increase its reliance on the production and use of natural gas. While Iran does export gas to its neighbors, mostly Armenia and Turkey, the positive impacts on Iran's economy are low due to the low amounts exported, Iran's high import and domestic consumption levels, and the fact that Iran's neighbors are also large gas producers. Moreover, to counter sanctions and the difficulty of using the international banking system, Turkey has paid Iran for its natural gas imports with gold.[166] This leaves China, South Korea, and other countries as possible targets for Iranian gas, but US and EU sanctions have prevented Iran from obtaining the requisite technology, infrastructure, and financing necessary to export liquefied natural gas.

In addition to the impact of these sanctions, Iran faces internal challenges that hamper its attempts to become a natural gas importer:

- Internal power struggles: so many domestic institutions, including some semi-autonomous organizations, have a share of power over the gas industry that the central government cannot effectively implement and enforce policies that would help Iran become a gas exporting country. [167]
- Domestic overconsumption: Iran has a far reaching subsidies program for domestic goods. Iranian consumers, in general, pay far less than the average gas consumer; as a result, in 2010 Iranians used 3.6 times more gas than the world average and 1.8 times more gas than the Middle Eastern average. This massive domestic overconsumption and inefficient use mean that there was simply no gas left over for export. Though a program of subsidy reform was implemented in December 2010, it was subsequently suspended and the rise in gas prices was halted.[168]

- Lack of foreign involvement: Opposition to foreign involvement in domestic affairs has been a facet of Iranian economic and political life since the Iranian revolution. In the context of the gas industry, this means that foreign corporations are offered very limited and restricted ways to invest. As a result, Iran does not have the external capital and investment necessary to developing the production capacity necessary for export capabilities.[169]

Given all these obstacles, it is unlikely that Iran will ever become a major exporter of natural gas. For the Islamic Republic to reach export levels of 20-30 bcm/year, they must reduce domestic consumption, generate a sufficient surplus for export, and win foreign contracts and allow outside investment. Even if Iran is able to achieve each of these benchmarks, it is highly unlikely that Iran would reach the 20-300 bcm/year level of exports before 2025. [170]

Figure 6: Iran's Gas Pipeline "Dreams": The Iran-Pakistan-India Pipeline

Source: US Energy Information Agency, "Country Analysis: Iran," February 17, 2012.

Iran's Energy Targets

Iran also has to consider what happens if sanctions are replaced by preventive strikes and military escalation. **Figure 3** has already shown that Iran has many highly vulnerable energy targets that are potential hostages to any Iranian effort to "close the Gulf" as described in The Gulf Military Balance: the Missile and Nuclear Dimensions and the Conventional Dimensions. Iran's main oil export terminals and other ports could easily be mined by air or be hit surgically with precision-guided munitions or cruise missiles.[171]

Iran's main oil terminal is at Kharg Island and is easy to "close" or destroy using mines, cruise missiles, and stand-off air munitions. The EIA reports that Kharg Island has a crude storage capacity of 20.2 million barrels of oil and a loading capacity of 5 mbpd, but it is along the upper coast of the Gulf, and any ships or tankers moving in or out could be easily embargoed or attacked. Lavan Island is closer to the Strait, but only has the capacity to store 5.5 million barrels and load 100,000 bbl/d. Other terminals that are potential – but much less important targets – include Kish Island, Abadan, Bandar Mahshar, and Neka (which helps facilitate imports from the Caspian region).[172]

As Figure 3 has also shown, many of Iran's refineries are near the coast and easy to strike – and present an attractive follow-up target to any Iranian reprisals or a preventive strike. Similarly, Iran's internal gas distribution system has no major impact on world oil exports and the global economy, but has many critical points that could cut off gas to key cities and areas in Iran. Such strikes could be combined with attacks on electric facilities that will have a major impact on Iran's electricity supply.

Iran's power grid is another attractive set of targets and one where attacks could be combined with attacks on Iran's domestic gas distribution system. Even though Iran exports electricity to some of its neighbors – including Iraq – its power grid is extremely vulnerable, as are many of its generating facilities.[173] The EIA reports that Iran generated 312.715 billion kilowatt hours (Bkwh) of electricity in 2010, and consumed 173.094 Bkwh in 2009. This was generated from a network capacity of 56.171 gigawatts (GW) in 2009, which is strained during times of peak demand. Approximately 97% of total electricity supply was generated by conventional thermal electric power that inevitably creates highly vulnerable targets and distribution systems.

Moreover, the EIA reported in February 2012 that: [174]

> Some power plants are running as low as 10 percent of their nameplate capacity as Iran's electricity infrastructure is largely in a state of dilapidation and rolling blackouts become endemic in summer months. The amount of generation lost in distribution is a central indicator of the disrepair of the electricity network, with upwards of 19 percent of total generation lost during transmission…Iran has focused on meeting higher demand by expanding gas-fired combined-cycle and hydroelectric power capacity. Expansion of electric power generation capacity will require significant investment, made much tougher by international sanctions. The government has announced that it has opened the sector to foreign investment, but sales of existing state-owned facilities as well as new independent power projects have been almost non-existent.

In March 2013, the EIA reported:[175]

> In 2011, Iran generated approximately 220 billion kilowatt hours (Bkwh) of electricity. This power was generated from a network capacity of 64 gigawatts (GW), which is strained during times of peak demand. Approximately 95 percent of total electricity supply during the year was generated by conventional thermal electric power. The remaining portion was from hydroelectric and other renewable sources, with marginal

generation from a nuclear power plant that came online in the third quarter of 2011 and operated below maximum capacity for most of the next 12 months.

In addition to nuclear power plants, the Iranian government is focused on expanding power generation from thermal sources, with a number of new projects being developed as independent power projects, including a station near Assaluyeh (natural gas-fired), one in the East Azerbaijan province (gas-fired combined-cycle), and another at Parehsar on the Caspian Sea coast.

Increasing its generation capacity will help ensure that Iran can meet its increasing domestic demand and continue to export electric power to neighboring countries. Preliminary data show that as of 2011, Iran was a net exporter of electric power to Armenia, Pakistan, Turkey, Iraq, and Afghanistan. Azerbaijan and Armenia supply electricity to Iran under a swap agreement.

It should be stressed that while Iran has many targets, and its lack of modern aircraft and surface-to-air missiles make it highly vulnerable, any such strikes would have a major impact on the Iranian civil population – particularly if they did lasting damage to key facilities. They will suffer most from attacks on gas or electric facilities and distribution, not the government. Like sanctions, the people will suffer before the ruling elite. Moreover, it is far easier to talk about precision that avoids civilian casualties as well as unnecessary collateral damage and lasting damage than it is to execute such strikes.

The fact remains, however, that no discussion of the vulnerability of the Gulf, or closing the Strait of Hormuz, should ignore the fact that if sanctions should lead Iran to try to use military action in response, anything Iran initiates can lead to US and allied strikes that are far more damaging to Iran's economy. Unless Iran can radically improve its military capabilities and deter outside attacks, it will lose virtually any conflict that involves serious escalation both in terms of terms of military and economic losses. This is the reason why Iran is building its nuclear program, to hedge against preemptive military action and reduce the risk and loss associated with a military confrontation.

The Sanctions Game

This complex mix of vulnerabilities in Iran's economic make-up helps explain why sanctions and related diplomatic efforts have become a key instrument for the US and its allies in competing with Iranian ambitions. It must be stressed that the history of sanctions is complex, their exact impact is often impossible to measure or is controversial, and their ultimate success remains uncertain. However, even a brief survey of this aspect of US and Iranian competition shows that sanctions have already put serious pressures on Iran - pressures compounded by the economic policies and mistakes of the Iranian regime, despite Iranian claims to the contrary.

Moreover, the history of sanctions shows they have forced Iran to shift its strategy. Iran has responded by trying to leverage its international economic position through its energy exports, by talking about its right to peaceful nuclear programs, and by trying to exploit Arab-Israel tensions in order to shift the focus to Israel and away from the threat Iran's actions pose to Arab states.

US Unilateral Sanctions - Background

As **Figure 7** shows, sanctions have been the main diplomatic tool the US has used in competing with Iran across a broad spectrum of issues since the overthrow of the Shah. Washington has imposed a growing range of sanctions on Tehran, focusing on Iranian activities ranging from petroleum exports and investments to arms control and non-proliferation measures.

Sanctions now block US companies from operating in Iran and give foreign firms a strong incentive not to operate there as well. And while their aim has been broad, the sanctions have all sought to push the current Iranian regime into changing its behavior by isolating it politically and economically from the international community.

Sanctions: 1980-2009

The first major period of US sanctions began in 1979, as US and Iranian relations deteriorated sharply following the Islamic Revolution and the hostage crisis. In response, President Carter laid out a series of economic sanctions that were intended to both punish Tehran and change its behavior.[176]

The Reagan Administration continued this trend and declared Iran "a sponsor of international terrorism," making Iran ineligible for various forms of US foreign assistance.[177] President Reagan also prohibited Iran from receiving US arms under the US Arms Export Control Act[178] and through Executive Order 12613, in which a ban was imposed on US imports of Iranian crude oil and all other Iranian imports in 1987.[179]

The George H.W. Bush Administration continued to institute sanctions, signing the Iran-Iraq Arms Non-Proliferation Act into law in 1992. It included provisions regarding dual-use items with potential military purposes and called for the sanctioning of any person or entity that assisted Tehran in weapons development or acquisition of chemical, biological, nuclear, or destabilizing numbers and types of advanced conventional weapons.[180]

Unilateral sanctions against Iran were expanded further under the Clinton administration. Executive Order 12957 banned all U.S. participation in the Iranian petroleum industry.[181] Executive Order 12959 broadened the sanctions to encompass a total trade and investment embargo, and in 1996 Congress overwhelmingly passed the Iran and Libya Sanctions Act (ILSA), expanding US sanctions legislation to cover foreign companies.[182,183] The ILSA received an extension during the George W. Bush Administration in 2001 and again in 2006 when it was renamed the Iran Sanctions Act.[184] Executive Order 13382 froze the assets of proliferators of WMD, their supporters, and isolated them financially - eight Iranian entities and external organizations that were believed to be supporting Iranian WMD programs were sanctioned. [185]

In 2000, President Clinton signed the Iran Nonproliferation Act, which authorized sanctions and other measures against persons, entities, and governments that are providing assistance to WMD programs in Iran. It also allowed implementation of any or all sanctions pursuant to Executive Order 12938 (opposition of Multilateral Development Bank assistance, denial of credit or other financial assistance, prohibition of arms sales and national security sensitive goods and technology, import and export restrictions, and landing rights termination), arms exports prohibition, and dual use export prohibition.

In 2006, Congress passed the Iran, North Korea, and Syria Nonproliferation Act (INKSNA), which provided penalties for the transfer to or acquisition from Iran of equipment and technology controlled under multilateral control lists (the Missile Technology Control Regime, Australia Group, Chemical Weapons Convention, Nuclear Suppliers Group, and Wassenaar Arrangement).[186]

Sanctions Since 2010

The Obama Administration and Congress have drastically increased the size and scope of US sanctions as Iran's nuclear program has grown increasingly closer to nuclear weapons production capability. In 2010, Congress passed the Comprehensive Iran Sanctions, Accountability, and Divestment Act (CISADA).

CISADA imposed sanctions on any person that makes an investment of $20 million or more in Iran's petroleum industry; any person that provides Iran with goods, services, technology or information with a fair market value of $1 million or more for the maintenance or expansion of Iran's production of refined petroleum products; and/or any person that exports more than $1 million worth of gasoline to Iran or provides $1 million worth of goods or services that could contribute to Iran's ability to import gasoline.[187]

Since 2010, the United States has focused on isolating Iran economically by targeting Iran's financial and commercial systems. In doing so, the US has hoped to obstruct Iran's connections to international markets and dismantle the means by which it conducts economic transactions. This makes sense given the composition of Iran's GDP:

- Industry, including Iranian petroleum and petrochemical products, comprises 40.2% of Iran's GDP.[188]
- Services, including banking and trade-related services, account for 49.5% of its GDP.[189]

As a result, US sanctions have affected a number of key sectors in Iran's economy, as has the steady increase in the number and scope of other national and international sanctions.

On December 31, 2011, President Obama signed into law the FY2012 National Defense Authorization Act that implemented new sanctions through Section 1245. These new sanctions froze the assets of the Iranian government and prevented all Iranian financial assets in the US from being "transferred, paid, exported, withdrawn, or otherwise dealt with."[190] The order also implemented new sanctions that required US banks to seize the funds of those on the Specially Designated Nationals (SDN) list, even if the funds are not destined for a US entity or firm. Previously, US banks were required to block the transaction and return the funds to the sender. This order effectively blocks the Iranians from using the US banking system.

On August 10, 2012, President Obama signed into law H.R. 1905, the "Iran Threat Reduction and Syria Human Rights Act of 2012" which strengthened US sanctions against Iran. Most importantly, the Act makes US firms liable for their foreign subsidiaries' involvement in sanctionable activities with Iran.[191] It further required the President to sanction US companies who violate this act and increases the minimum number of sanctions the President is required to impose from three to five. The Act further widened sanctionable actions under CISADA to include the development of petroleum resources, the transportation of oil from Iran, the production or manufacture of Uranium, the issuance of underwriting services or insurance to ships transporting Iranian oil, or the purchase, facilitation, or issuance of sovereign debt to the Government of Iran.[192]

On November 30, 2012, Senators Robert Menendez (D-NJ) and Mark Kirk (R-IL) introduced an amendment into the FY2013 National Defense Authorization Act that would implement stricter sanctions on Iran in the form of blacklisting Iran's energy, port, shipping, and shipbuilding sectors while restricting Iran from obtaining insurance on those industries.[193] This amendment was inserted and passed as part of the FY2013 NDAA under Subtitle E and is called "The Iran

Freedom and Counter-Proliferation Act of 2012." The new provisions would use the same sanction implementation methods currently used under the CISADA sanctions act. However, the Administration has opposed the new round of sanctions saying that they are not needed, will complicate current actions, and will impose a new burden on the Intelligence Community; specifically Section 1272, which mandates that the President submit a list of vessels docked at Iranian ports and airports that have been used by Iranian air carriers.[194] These new sanctions will continue to squeeze the Iranian economy but will also perpetuate the cat and mouse game between the implementations of sanctions and Iran's attempts to bypass them.

A little known part of the "The Iran Freedom and Counter-Proliferation Act of 2012" states that funds used to pay for oil must remain in a bank account in the purchasing country and can only be used for non-sanctioned trade, mostly related to food or medical imports. The result of this provision is that it will prevent more hard currency from going to Iran to pay for other sanctioned imports. Iranian oil dues are piling up in both China and South Korea, the latter of which reportedly has $5 billion due to Iran for oil purchases.[195]

On February 27, 2013, H.R. 850, the "Nuclear Iran Prevention Act of 2013" was introduced with bipartisan support to Congress. The legislation would increase the list of blacklisted Iranian companies, potentially block Iranian assets held in Euros, designate the IRGC as a terrorist entity, and continue to restrict business dealing with Iran. The bill was referred to committee.[196]

In May 2013, the Congress introduced the "Iran Sanctions Loophole Elimination Act," that would prevent the CBI from conducting transactions in foreign currencies and require the US to impose sanctions on any entity, "conducts or facilitates a transaction in a non-local currency for or on behalf of the CBI or any entity within the blacklisted Iranian energy, shipping, shipbuilding and port operator sectors."[197] This legislation would mainly affect Turkey and Asian buyers of Iranian crude and may force those countries to establish local currency exchanges.

This legislation s received some push back from Secretary Kerry who stated that that additional sanctions could become an issue in Iran's elections, "We don't need to spin this up at this time…You need to leave us the window to try to work the diplomatic channel."[198] Nevertheless, the State Department and Treasury Department took action through Executive Orders to expand sanctions that covered Iranian petrochemicals and tightened controls on trade and transfers of money.

On May 31, 2013, the State Department announced that,[199]

> The Administration took action today under a variety of authorities against companies helping Iran to evade U.S. sanctions and doing illicit business with Iran.
>
> **Executive Orders 13622 and 13599:**
>
> The Administration imposed sanctions today under Executive Orders (E.O.) 13622 and 13599 on a series of companies related to Iran's petrochemical industry. These actions underscore U.S. resolve to cut off funds from the Iranian petrochemical sector as the second largest revenue source for Iran's illicit nuclear program.
>
> The Department of State imposed sanctions on Jam Petrochemical Company and Niksima Food and Beverage JLT pursuant to E.O. 13622 for knowingly engaging in a significant transaction for the purchase or acquisition of petrochemical products from Iran. Jam Petrochemical Company is an Iranian manufacturer and seller of petrochemicals. Niksima Food and Beverage JLT received payments on behalf of Jam Petrochemical Company. The sanctions selected for both companies prohibit: financial transactions subject to U.S. jurisdiction, transactions with respect to property and interests in property under U.S. jurisdiction, and foreign exchange transactions subject to U.S. jurisdiction.

> In addition to these entities, the Department of the Treasury also identified eight Iranian petrochemical companies as owned or controlled by the Government of Iran.
>
> **Iran Sanctions Act and Executive Order 13608:**
>
> Also today, the Department of State and the Department of the Treasury took actions to impose sanctions, including a visa ban on corporate officers, on Ferland Company Limited (Ferland) under both the Iran Sanctions Act, as amended by the Iran Threat Reduction and Syria Human Rights Act of 2012 (TRA), and Executive Order 13608 for efforts to evade U.S. sanctions on Iran.
>
> In March 2013, Ferland and the National Iranian Tanker Company (NITC) cooperated in a scheme to sell Iranian crude oil deceptively in order to help Iran evade international sanctions. This operation involved a vessel owned by Dimitris Cambis, a Greek national sanctioned by the Department of State and identified by the Department of the Treasury in March 2013 (for more details on that action click **here**). The details of the ship-to-ship operations were arranged by a NITC manager and a representative of Ferland. Ferland later furnished a falsified certificate of origin as part of its cargo documentation, claiming that the crude oil loaded onto the Aldawha was a "product of Iraq."
>
> The sanctions imposed by the Department of State against Ferland prohibit: U.S. visas for corporate officers, loans from U.S. financial institutions, financial transactions subject to U.S. jurisdiction, transactions with respect to property and interests in property under U.S. jurisdiction, and foreign exchange transactions subject to U.S. jurisdiction. Separately, the sanctions imposed by the Department of the Treasury on Ferland generally prohibit U.S. persons from engaging in any transactions with that entity.
>
> Our decision makes clear the risks involved in helping Iran evade sanctions and reaffirms that the only relief Iran will get from sanctions must come through negotiations. Iran continues to ignore its international nuclear obligations, and the result of these actions has been an unprecedented international sanctions effort aimed at convincing Iran to change its behavior. The sanctions announced today represent an important step toward that goal, as they target the individual companies that help Iran evade these efforts.
>
> These sanctions today send a stark message that the United States will act resolutely against attempts to circumvent U.S. sanctions. Any business that continues irresponsibly to support Iran's energy sector or to help facilitate the nation's efforts to evade U.S. sanctions will face serious consequences.

Both the Treasury Department and the White House took further action to strengthen sanctions. On June 3rd, 2013, President Obama signed Executive Order 13645 that prohibited international foreign institutions from conducting business transactions that are dependent on the exchange rate of the Rial, holding significant assets denominated in Rials, selling or trading gold to the Islamic Republic, or materially aiding the Iranian automotive industry.

The sanctions against the trade in precious metals could shut down a key work-around that Iran had developed after being shut out of most other traditional methods of payment: Iran would trade oil and gas for gold, and then use the gold to buy dollars or euros to finance other purchases and keep the Rial afloat.[200] The Executive Order authorized significant penalties, which would shut out non complying institutions from US financial or precious metals markets by July 1st. President Obama's end goal is to make the Rial useless for any financial dealings outside of Iran, as well as the devaluation of the Rial .[201]

At the same time, the US took account of the needs and sensitivities of key importers. China, India, Malaysia, Republic of Korea, Singapore, South Africa, Sri Lanka, Turkey, and Taiwan were all granted 180 day waivers on these sanctions as a result of their significant decrease in imports of Iranian crude oil.[202]

On June 4th, 2013, the Department of the Treasury sanctioned 37 companies that it identified to be fronts for funneling money to the Iranian government. These companies were controlled by

the Execution of Imam Khomeini's Order, an organization that is tasked with providing the Iranian leadership with under the table, non-transparent funding that both the international community and the Iranian public were unaware of. The Department of the Treasury estimated that each year these front companies generated tens of billions of dollars for Tehran. The sanctions applied to these companies are pursuant to Executive Order 13599, detailed above.[203]

The US took other steps as well. Despite this tightening of sanctions against some key Iranian industries, the US also authorized the exportation of various types of software, hardwire, and personal communications devices to Iran. This will likely benefit the Iranian opposition movement, which has so far lacked access to crucial communications technology. It could also play a role in the upcoming Iranian Presidential election by providing the political opposition movement with the resources to combat the Iranian government's crackdown on various methods of electronic communications.[204]

Figure 7: Selected US Sanctions Against Iran

Year	Sanction	Content
1979	Executive Order 12170	Blocked all property owned by the Central Bank and the government of Iran within U.S. jurisdiction.
1980	Executive Order 12205	Created an embargo on US exports to Iran.
	Executive Order 12211	Imposed a ban on all imports from Iran and prohibited US citizens from traveling to Iran or conducting financial transactions there.
1986	US Arms Export Control Act	Prohibited the sale of U.S. arms to Iran.
1987	Executive Order 12613	Banned all Iranian imports to the US. As a result of Iran's support for international terrorism and its aggressive actions against non-belligerent shipping in the Persian Gulf, President Reagan, on October 29, 1987, issued Executive Order 12613 imposing a new import embargo on Iranian-origin goods and services. Section 505 of the International Security and Development Cooperation Act of 1985 ("ISDCA") was utilized as the statutory authority for the embargo, which gave rise to the Iranian Transactions Regulations, Title 31, Part 560 of the U.S. Code of Federal Regulations (the "ITR").
1992	Iran-Iraq Arms Non-Proliferation Act	Imposed sanctions on any entity that helped Iran develop or acquire weapons of mass destruction or "destabilizing numbers" of advanced conventional weapons.
1995	Executive Order 12957	Banned any American firm or individual from investing in or developing Iranian petroleum

		products, not including natural gas.
	Executive Order 12959	Banned all American trade and investment in Iran. On August 19, 1997, the President signed Executive Order 13059 clarifying Executive Orders 12957 and 12959 and confirming that virtually all trade and investment activities with Iran by U.S. persons, wherever located, are prohibited.
1996	Iran and Libya Sanctions Act	Sanctioned foreign firms that conducted business with Iran. On August 19, 1997, the President signed Executive Order 13059 clarifying Executive Orders 12957 and 12959 and confirming that virtually all trade and investment activities with Iran by U.S. persons, wherever located, are prohibited.
2000	Iran Nonproliferation Act	Authorized sanctions and other measures against persons, entities, and governments that are providing assistance to WMD programs in Iran. Allowed implementation of any or all sanctions pursuant to Executive Order 12938 (opposition of Multilateral Development Bank assistance, denial of credit or other financial assistance, prohibition of arms sales and national security sensitive goods and technology, import and export restrictions, and landing rights termination), arms exports prohibition, and dual use export prohibition.
2005	Executive Order 13382	Froze the assets of proliferators of WMD and their supporters and isolated them financially. Eight Iranian entities and external organizations believed to be supporting Iranian WMD programs were designated under the executive order and sanctioned.
2006	Iran, North Korea, and Syria Nonproliferation Act	Penalized entities and individuals for the transfer to or acquisition from Iran since January 1, 1999, of equipment and technology controlled under multilateral control lists (the Missile Technology Control Regime, Australia Group, Chemical Weapons Convention, Nuclear Suppliers Group, Wassenaar Arrangement).
2006	Iran Freedom Support Act	Codified Executive Orders 12957, 12959, and sections 2, 3, and 5 of Executive Order 13059 to remain in effect. Amended the Iran and Libya Sanctions Act of 1996 to mandate that the president impose two or more sanctions to persons that in any way assist Iran to acquire or develop chemical, biological, or nuclear weapons or technology, or acquire or develop destabilizing numbers and types of advanced conventional weapons. Authorizes the president to provide financial and political assistance

		to people and entities promoting democracy in Iran. Effective November 10, 2008, the authorization for "U-turn" transfers involving Iran was revoked. As of that date, U.S. depository institutions are no longer authorized to process transfers involving Iran that originate and end with non-Iranian foreign banks. Details concerning the revocation of the U-turn authorization and a description of currently permissible funds transfers can be found in the Financial Dealings with Iran section of this document.
2010	Comprehensive Iran Sanctions, Accountability, and Divestment Act of 2010	Imposed sanctions on any person that makes an investment of $20 million or more in Iran's petroleum industry, any person that provides Iran with goods, services, technology or information with a fair market value of $1 million or more for the maintenance or expansion of Iran's production of refined petroleum products, and/or any person that exports more than $1 million worth of gasoline to Iran or provides $1 million worth of goods or services that could contribute to Iran's ability to import gasoline. September 29, 2010, the authorization to import into the United States, and deal in, certain foodstuffs and carpets of Iranian origin was revoked pursuant to section 103 of the Comprehensive Iran Sanctions, Accountability, and Divestment Act of 2010.
2011	FY 2012 National Defense Authorization Act (Section 1245)	Included language that sanctions any international bank or financial institution that does business with the Central Bank of Iran including purchases of crude oil.
2012	Iran Threat Reduction and Syria Human Rights Act	Made US firms liable for their foreign subsidiaries' involvement in sanctionable activities and increases the minimum number of sanctions required to impose from three to five; widened sanctionable actions under CISADA to include, among others, the development of petroleum resources, the issuance of underwriting services or insurance to ships transporting Iranian oil, or the purchase or facilitation of the issue of sovereign debt to the Government of Iran.
2013	FY 2013 National Defense Authorization Act (Subtitle D- "Iran Freedom and Counter-Proliferation Act of 2012")	Blocked property and imposes at least five sanctions on entities that provide goods or services to the energy, shipbuilding, shipping, port operations, or provides insurance for those operations and blacklists foreign banks that do provide such services from using the US banking system. Prevented Iran from repatriating money from oil sales and allowed Iran to purchase non-sanctioned goods only. These sanctions do not apply for countries with exemptions

		or to purchases of natural gas from Iran. Imposed at least five sanctions on any entity that provides precious metals to Iran (such as gold) or semi-finished metals or software for integrating industrial processes. Imposed human rights abuser sanctions on the Islamic Republic of Iran Broadcasting.
2013	Executive Order 13645-Authorizing the Implementation of Certain Sanctions Set Forth in the Iran Freedom and Counter-Proliferation Act of 2012 and Additional Sanctions with Respect to Iran	Authorized certain sanctions against international financial institutions that conducted transactions in Rials, held a considerable amount of assets denominated in Rials, traded or sold gold to Iran, or was deemed to be providing considerable assistance to the Iranian automotive industry. Failure to comply with these new regulations by July 1st will result in companies being barred from the US financial market. China, India, Malaysia, Republic of Korea, Singapore, South Africa, Sri Lanka, Turkey, and Taiwan all qualified for 180 day exemptions from these sanctions for a substantial reduction in crude oil purchases in Iran.

Note: Separate Iranian sanctions regulations appear at 31 C.F.R. Part 535. On November 14, 1979, the assets of the Government of Iran in the United States were blocked in accordance with IEEPA following the seizure of the American Embassy in Teheran and the taking of U.S. diplomats as hostages. Under the Iranian Assets Control Regulations (Title 31, Part 535 of the U.S. Code of Federal Regulations), some US$12 billion in Iranian Government bank deposits, gold, and other properties were frozen, including $5.6 billion in deposits and securities held by overseas branches of U.S. banks. The assets freeze was eventually expanded to a full trade embargo, which remained in effect until the Algiers Accords were signed with Iran on January 19, 1981. Pursuant to the Accords, most Iranian assets in the United States were unblocked and the trade embargo was lifted. The U.S. Government also canceled any attachments that U.S. parties had secured against Iranian assets in the United States, so that the assets could be returned to Iran or transferred to escrow accounts in third countries pursuant to the Accords. This action was upheld by the Supreme Court in 1981 in Dames & Moore v. Regan. Although greatly modified in scope, the old Iranian Assets Control Regulations remain in effect. Many U.S. nationals have claims against Iran or Iranian entities for products shipped or services rendered before the onset of the 1979 embargo or for losses sustained in Iran due to expropriation during that time. These claims are still being litigated in the Iran- United States Claims Tribunal at The Hague established under the Algiers Accords. Certain assets related to these claims remain blocked in the United States and consist mainly of military and dual-use property.

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International Sanctions - A Competition for Influence

International sanctions have grown in importance since 2006 when the UN Security Council passed Resolution 1737 banning nuclear cooperation with Iran. The UN has now passed seven resolutions on Iran, four of which have imposed sanctions (see **Figure 8**). The US and Iran have competed for Russian and Chinese support throughout this process, while America's key European allies (Britain, France, and Germany) have played a growing role in shaping sanctions and the diplomatic process that has followed.

Not only has the UN implemented new multilateral sanctions, but both the EU and the US have crafted additional sanctions and consistently pushed for broader international adoption of these optional constraints.[205] This US-led coalition has rolled out strong new limitations on Iranian financial institutions, energy exports, and weapons acquisition. Kenneth Katzman explains that the expanded sanctions regime has been widely implemented by US allies, though compliance from Iran's neighbors remains a challenge.[206]

> U.S. and European/allied approaches have converged since 2002, when the nuclear issue came to the fore. Previously, European and other countries had appeared less concerned than is the United States about Iran's support for militant movements in the Middle East or Iran's strategic power in the Persian Gulf—and had been reluctant to sanction Iran to address those issues. Since 2010, this convergence of views has produced an unprecedented degree of global cooperation in pressuring Iran.
>
> Many U.S. allies—including several neighbors of Iran, such as UAE and Saudi Arabia—have joined a U.S.-led informal coalition called the "like minded countries" to pressure Iran. And, increasingly, even Iran's neighbors are joining the effort—a result caused by the growing concerns about Iran's nuclear intentions. Some countries have joined the burgeoning sanctions regime not necessarily out of conviction of the efficacy of sanctions but rather as a means of perhaps heading off unwanted military action by the United States or Israel against Iran's nuclear facilities.

Iran has tried to counter additional UN sanctions by leveraging its economic resources and relationships with non-Western powers such as Russia and China. Iran has also increasingly sought ties to powers, such as Brazil and Nigeria, and to non-democratic governments, including the regimes of the late Hugo Chavez and his successor, Nicolas Maduro, in Venezuela and Robert Mugabe in Zimbabwe. However, it is debatable how deep and significant the ties are to Venezuela and Zimbabwe, two countries that are, at most, marginal regional powers. And the cooling of relations with Brazil in the wake of Dilma Rousseff's election due to her focus on human rights issues has the potential to hurt Iran more than Venezuela and Zimbabwe could help, as trade between Iran and Brazil totaled $2.33 billion in 2011.[207] Furthermore, with the election of Ms. Rousseff, Iran lost the support of her predecessor, Luis da Silva, who had attempted to insert Brazil into international politics by championing the Iranian nuclear issue.

Figure 8: UN Sanctions Against Iran

Year	Sanction	Content
2006	Resolution 1737	Halted nuclear cooperation with Iran, demanded Tehran's compliance with the IAEA, and froze the assets of persons and organizations linked the Iran's nuclear and missile programs. It also established a committee to ensure that sanctions were implemented correctly.
2007	Resolution 1747	Banned Iranian arms exports.
2008	Resolution 1803	Strengthened travel and financial restrictions on designated Iranian individuals and companies.
2010	Resolution 1929	Imposed a complete arms embargo on Iran, banned Iran from any activities related to ballistic missiles, authorized the inspection and seizure of shipments violating these restrictions, and specifically targeted the assets of the Iranian Revolutionary Guard Corps (IRGC) and the Islamic Republic of Iran Shipping Lines (IRISL).

Source: United Nations, "Security Council Resolutions." http://www.un.org.

The European Union and Other Western Nations

Since 2010, the EU has instituted six major Council Decisions that sanction Iran, and which are summarized in **Figure 9**. On July 27, 2010, the EU countries imposed sanctions on Iran that exceeded those mandated in Security Council resolutions. Norway, Canada, and Australia all announced similar, though less sweeping, sanctions at the same time.[208] The EU did make it clear in late October 2010 that these sanctions did not then prohibit importation of Iranian oil and gas, nor did they ban exports of gasoline to Iran.[209] This was consistent with the EU's efforts to diversify its gas supply options and reduce its reliance on Russian gas imports, which amounted to around 32% of total EU demand in 2008.[210]

This policy changed, however, as Iran's nuclear program became more threatening. A movement led by France and Britain in late 2011 culminated in an agreement by the EU at the end of January 2012 to implement a full import embargo on Iranian crude oil and petrochemicals. This move potentially affected some 450,000 barrels a day of Iranian exports, nearly 20% of Iran's average crude exports in 2011, and the source of some 25% of its oil exports income. It also affected international insurance coverage of Iran, and all transactions with Iran's state-owned oil company and its main tanker fleet.[211]

There was hesitation by some European governments that centered on ensuring that there would be sufficient excess supply - mainly from Saudi Arabia - to prevent a major supply shock. Saudi Arabia, however, stated it would seek to make up the difference, which triggered decisive European action.[212]

The EU decision also tracked closely with the language of Section 1245 of the FY2012 NDAA that required the President to phase in sanctions on foreign purchases of Iranian oil and on the banks that facilitated those payments by barring transactions with the Central Bank of Iran or any Iran-affiliated or owned bank.

Switzerland has been reluctant, however, to fully implement the US and EU sanctions. In April 2012, Swiss authorities froze the assests of 11 companies or individuals, but did not prohibit the Swiss central bank from continuing to conduct business with the Islamic Republic, nor did they impose an oil embargo like the EU has done. Swiss companies process nearly one-third of all oil transactions, though it remains to be seen if the Swiss government or companies will halt or severely curtail their business to avoid new US sanctions.[213]

In 2012, Christa Markwalder, who serves on the Swiss Foreign Affairs Committee in the House of Representatives, stated that, "[we] have no interest in losing market access, licences and so on in the US…Switzerland would need some very good arguments if it were to break ranks with the western states – that's to say, the EU and US."[214] But, in March 2013, Switzerland rejected a stricter framework for commodity traders in favor of voulentary standards. The new oversight would have subjected Switzerland's largest commodity groups to a heightened group of scrutiny, potentially limiting the amount of trade they conduct with Iran. The Ministry of Economics also indicated that the impact of transparency requirements would need to be carefully evaluated before implementation.[215]

The Europeans acted in spite of threats by Iran's Vice President Mohammed Reza Rahimi and Iranian officers to shut off the flow of oil from the Gulf. They also acted after Mohammad Ali Khatibi, Iran's OPEC governor said, on January 17, 2012, that "Applying the scenario of sanctions on Iran's oil exports to EU members would be economic suicide for the member countries…Regarding the economic crisis in the Eurozone, imposing any sanction on Iran's oil will push European countries into a deeper crisis."[216]

These threats were so exaggerated that they would have rung hollow under any circumstances, but they were particularly hollow at this time because Saudi Arabia's oil minister, Ali Al-Naimi, had stated on January 16th that, "We are prepared to meet the increase in global demand as a result of any circumstances."[217] While Iran then responded by indirectly threatening Saudi Arabia, it had no more impact on the Saudis than it did on Europe.

Moreover, the EU took another critical step, directing the Society for Worldwide Interbank Financial Telecommunication (SWIFT) to "discontinue its communications services to Iranian financial institutions that are subject to European sanctions."[218] SWIFT is essential to Iran's international banking because it provides secure communications for more than 10,000 financial institutions and corporations in 210 countries.

SWIFT reported in 2010 that 19 Iranian member banks and 25 financial institutions used the network over two million times during the course of the year.[219] These institutions included the Central Bank of Iran and other major Iranian banks, including Bank Melli, Bank Mellat, Tejarat Bank, Bank Refah, Future Bank, Persia International Bank, Post Bank, and Europäisch-Iranische Handelsbank; unlike with import sanctions, Iran had no alternative to the use of SWIFT.

On October 15, 2012, the EU instituted new sanctions that affected the Iranian financial industry and central bank; shipping industry; oil and gas sector; and restricted Iranian importation of graphite, steel, and other raw materials. The sanctions also prohibited the provision of flagging and classification services to Iranian tankers and cargo vessels in the EU or by EU nationals, banned vessels owned by EU citizens or companies from transporting or storing Iranian oil, and forbid EU companies from providing shipbuilding technology and naval equipment to Iran.

The Council of the European Union adopted the following conclusions:[220]

1. The Council reiterates its serious and deepening concerns over Iran's nuclear programme and the urgent need for Iran to comply with all its international obligations, including full implementation by Iran of UNSC and IAEA Board of Governors' Resolutions.
2. The Council condemns the continuing production of enriched uranium and expansion of Iran's enrichment capacity, including at the Fordow site, and continued heavy-water activities in breach of UNSC and IAEA Board of Governors' Resolutions, as reflected in the most recent IAEA report. The Council notes with particular concern Iran's obstruction of the IAEA work towards the clarification of all outstanding issues, including with respect to the possible military dimension to Iran's nuclear programme. Therefore, the Council welcomes the adoption with overwhelming majority by the IAEA Board of Governors of its Resolution on 13 September 2012 deciding that Iran's cooperation was essential and urgent in order to restore international confidence in the exclusively peaceful nature of Iran's nuclear programme.
3. Iran is acting in flagrant violation of its international obligations and continues to refuse to fully co-operate with the IAEA to address the concerns on its nuclear programme. In this context, and in coherence with previous European Council and Council conclusions, the Council has agreed additional restrictive measures in the financial, trade, energy and transport sectors, as well as additional designations, notably of entities active in the oil and gas industry. In particular, the Council has agreed to prohibit all transactions between European and Iranian banks, unless authorized in advance under strict conditions with exemptions for humanitarian needs. In addition, the Council has decided to strengthen the restrictive measures against the Central Bank of Iran. Further export restrictions have been imposed, notably for graphite, metals, software for industrial processes, as well as measures relating to the ship building industry.
4. The restrictive measures agreed today are aimed at affecting Iran’s nuclear programme and revenues of the Iranian regime used to fund the programme and are not aimed at the Iranian people. The Iranian regime itself can act responsibly and bring these sanctions to an end. As long as it does not do so, the Council remains determined to increase, in close coordination with international partners, pressure on Iran in the context of the dual track approach.
5. The Council reaffirms the longstanding commitment of the European Union to work for a diplomatic solution to the Iranian nuclear issue in accordance with the dual track approach.
6. The Council reaffirms that the objective of the EU remains to achieve a comprehensive, negotiated, long-term settlement, which would build international confidence in the exclusively peaceful nature of the Iranian nuclear programme, while respecting Iran's legitimate rights to the peaceful uses of nuclear energy in conformity with the NPT, and fully taking into account UN Security Council and IAEA Board of Governors' Resolutions. The Council welcomes the determination for a diplomatic solution expressed by E3+3 Foreign Ministers on 27 September in New York and fully endorses the efforts led by the High Representative on behalf of the E3+3 in this regard. E3+3 have made a credible and substantial confidence building proposal for negotiations guided by the agreed principles of reciprocity and a step by step approach. The Council urges Iran to engage constructively, by focusing on reaching an agreement on concrete confidence building steps, negotiating seriously and addressing the concerns of the international community.

Figure 9: EU Sanctions Against Iran

Year	Sanction	Content
July, 2010	Council Decision 2010/413/CFSP[221]	Establishes an embargo on nearly all dual-use goods, military arms, and nuclear-related items. Bans EU export of key equipment and technology for oil and natural gas production, exploitation, and refining. Bans technical assistance, training, and financing of Iran’s energy sector. Bans access to EU airports for Iranian cargo flights and the provision of bunkering or ship services to Iranian or Iranian contracted vessels and aircraft if

		they have been involved in sanctions violations. Requires all cargo to and from Iran to be inspected. Money transfers of more than €40,000 require authorization; transfers of more than €10,000 require notification. Bans Iranian banks from establishing a presence in the EU and any relationships with EU banks. Prohibits the sale, purchase of, or facilitation of public or public-guaranteed bonds to and from the Government of Iran or any Iranian bank. Bans the provision of insurance and reassurance to the Government of Iran or any entities connected.[222]
April, 2011	Council Decision 2011/235/CFSP[223]	Freezes the funds and prevents entry into Europe of people responsible for human rights violations.
January, 2012	Council Decision 2012/35/CFSP	Amends Council Decision 2010/413/CFSP. Bans the import, purchase, or transport of all Iranian oil products and financing, facilitation of financing, or participation in the Iranian petrochemical industry. Freezes the assets of additional Iranian entities. Bans the direct or indirect sale, transportation of, or facilitation of gold, precious metals, and diamonds to or from the Government of Iran or its associate entities. Expands the list of prohibited dual-use items or technology. Prohibits the delivery of newly minted or unissued Iranian banknotes and coinage.[224]
	Council Decision 2012/168/CFSP	Amends Council Decision 2011/235/CFSP. Establishes an embargo on telecommunications monitoring, interception equipment, and other equipment used for internal repression.
March, 2012	Council Decision 2012/152/CFSP	Amends Council Decision 2010/413/CFSP. Prohibits the provision of specialized financial messaging services to any financial institution subject to EU Iranian sanctions.[225]
October, 2012	Council Decision 2012/635/CFSP[226]	Amends Council Decision 2010/413/CFSP. Prohibits any transactions between European and Iranian banks except for those authorized in advance and under strict conditions. Bans the export of graphite, aluminum, steel, industrial facility control software, and their related technical or financial assistance. Prohibits the importation of Natural Gas from Iran. Bans short-term credits, guarantees, and insurance. Prohibits the provision of flagging and classification services to Iranian tankers and cargo vessels in the EU or by EU nationals. Bans vessels owned by EU citizens or companies from transporting or storing Iranian oil. Forbids EU companies from providing shipbuilding technology and naval equipment to Iran. Broadens the export ban on equipment for Iran's oil, gas, and petrochemical industries. Targets 34 Iranian entities with asset freezes and travel bans including the Ministries of Petroleum and Energy, the Iranian Central Bank, and various Iranian oil and petrochemical companies.[227]

The Role of Other Importers

As has been pointed out earlier, much depends on the policies of other importing states. For sanctions to fully succeed, however, other key importers and trading partners - the nations shown in **Figure 10** and **Figure 11** - must agree to major reductions in imports and actually make these reductions over time.

An EIA analysis issue summarizes these trends as follows:[228]

> Once the third-largest exporter of crude oil, Iran has seen its exports drop to 1.5 million bbl/d in 2012 as the United States and the European Union tightened sanctions that target the country's oil exports. Despite the precipitous decline in exports, it remained among the top ten exporters in 2012.
>
> In 2012, Iran exported approximately 1.5 million bbl/d of crude oil and condensate, according to the International Energy Agency (IEA). Iranian Heavy crude oil is Iran's largest crude export, followed by Iranian Light. In 2012, Iran's net oil export revenues amounted to approximately $69 billion, significantly lower than the $95 billion total generated in 2011. Oil exports make up 80 percent of Iran's total export earnings and 50-60 percent of government revenue, according to the Economist Intelligence Unit.
>
> Iranian oil exports saw dramatic declines in 2012 compared with the previous year, as tightening of sanctions by the United States and the European Union brought Iranian oil exports to a near standstill in the summer of 2012. This was particularly the result of the EU ban on all Iranian petroleum imports as well as the imposition of insurance and reinsurance bans by European P&I Clubs effective on July 1, 2012. European insurers underwrite the majority of insurance policies for the global tanker fleet, covering about 95 percent of tankers. The insurance ban particularly affected Iranian oil exports as lack of adequate insurance impeded the sales of Iranian crude to all of its customers, including those in Asia. Iranian exports dropped to less than 1.0 million bbl/d in July as Japanese, Chinese, Korean, and Indian buyers scrambled to find insurance alternatives.
>
> By August and September 2012, Iranian exports recovered somewhat as Japan, South Korea, and India began to issue sovereign guarantees for vessels carrying Iranian crude oil and condensate. China and India began to accept Iranian Kish P&I Club guarantee on the vessels that shipped oil to its refineries.
>
> Nonetheless, Iranian exports failed to reach levels recorded in the first half of 2012. Adding to the insurance difficulties was continued pressure imposed by the U.S. sanctions on Iranian oil customers to decrease their purchases.
>
> …Estimates through the end of 2012 show that Iranian oil exports saw a 1-million-bbl/d decrease compared with the previous year. Every customer of Iranian crude oil and condensate decreased its imports of Iranian oil, mainly in response to U.S. and EU sanctions.
>
> However, sanctions were not the only driver of export decreases. For example, commercial interests drove the decrease in China's imports, which was engaged in a contractual dispute in the first quarter of 2012. China is Iran's largest trading partner and biggest oil importer, according to the World Bank. Chinese refiners significantly decreased their purchases of Iranian crude and condensate as a result of a dispute over the terms of annual purchase contracts. Although eventually Unipec (the trading arm of China's largest refiner Sinopec Corporation) signed a supply contract with NIOC for volumes comparable to those imported in 2011, the contract did not allow NIOC to make up for the oil sales that did not get delivered to China in the first quarter of that year.
>
> In addition to crude oil and condensate, Iran also exports liquefied petroleum gas (LPG), naphtha, fuel oil, kerosene, and gasoline. According to FGE, Iran's exports of petroleum products totaled approximately 320,000 bbl/d in 2011. Iran's LPG is generally destined for Asian markets, in particular Japan, South Korea, and Indonesia, while fuel oil also went eastward, including Singapore. The relatively small volumes of gasoline are exported to Afghanistan and Iraq, which FGE estimates at 3,000 bbl/d in 2011.
>
> Iran also has had swap agreements in place since 1997 with Azerbaijan, Kazakhstan, and Turkmenistan. Under these agreements, Iran receives crude oil at its Caspian Sea port of Neka, which is processed in the Tehran and Tabriz refineries. In return, Iran exports the same amount of crude oil through its Persian Gulf ports. Volumes traded under these swap agreements averaged close to 100 thousand bbl/d in 2009 and 2010, but they have declined since then to below 40 thousand bbl/d, mainly as a result of disagreements over contractual terms.

Such reporting has its limits. Almost all international statistics are contradicted by other sources, and lack clear sources for obtaining the data and any meaningful effort to measure their uncertainty. The data on the impact of sanctions are no exception to what has become the

equivalent of international liars contest where virtually no meaningful effort is made at statistical standardization and validation.

Source like the EIA do make a serious effort to assess the quality of their data and its uncertainty, and to explain its sources, but even the EIA effort has limits and most national government reporting, commercial reporting, and reporting by international organization like the UN, INMF, and World Bank need to be taken with great reservation. The lack of adequate reporting on sources and methodology, explicit analysis of uncertainty by country and source, and lack of any resulting parametric analysis is the rule and not the exception. This affects many—if not most – of the data that can be used in assessing the impact of sanctions and is reason that some Figures in this analysis show multiple sources.

Figures 10 and 11 provide an example. They show that the country-by-country energy export and trade data involved are sometimes contradictory and show considerable fluctuation over time. Moreover, much of the trade data on Iran consists of staff estimates by international organization or Iranian figures of uncertain validity.

It is far too early to determine how well such efforts to broaden reductions in imports from Iran will succeed, but key exporters like Saudi Arabia, Iraq, and Libya have increased production to help make up for the loss of Iranian exports, and key nations like China, India, and Japan have already reached out to Saudi Arabia and other Arab exporters to help reduce their dependence on Iranian oil. China, Iran's largest export partner by volume, has reduced its purchases recently, importing 454,000 barrels per day in July 2012, compared to 522,000 barrels per day in May 2012.[229] However these first quarter cuts was mostly due to contract negotiations and not, it seems, because of pressure from the West.[230] China's imports of Iranian oil averaged 550,000 bpd in April 2011 and have now decreased to an average of slightly above 400,000 bpd in February 2013.

Nevertheless, the general trend over the past two years has been downward as these countries reduce their Iranian oil imports, despite the month-to-month spikes or drops in Chinese, Japanese, and Indian imports. However, these countries have previously stated that they will not, either because of the difficulty of finding additional suppliers or due to other pressures, be able to completely remove Iran as an oil source.

Figure 10: Comparative Estimates of Major Importers of Iranian Crude Oil and Gas: 2010-2012: Part One

EIA: 2010 and 2011

Iran's Top Export Destinations, 2010		
Country	000 bbl/d	Share of total (percent)
China	426	20
Japan	362	17
India	345	16
Italy	208	10
South Korea	203	9
Other	610	28
Total Exports	2,154	100

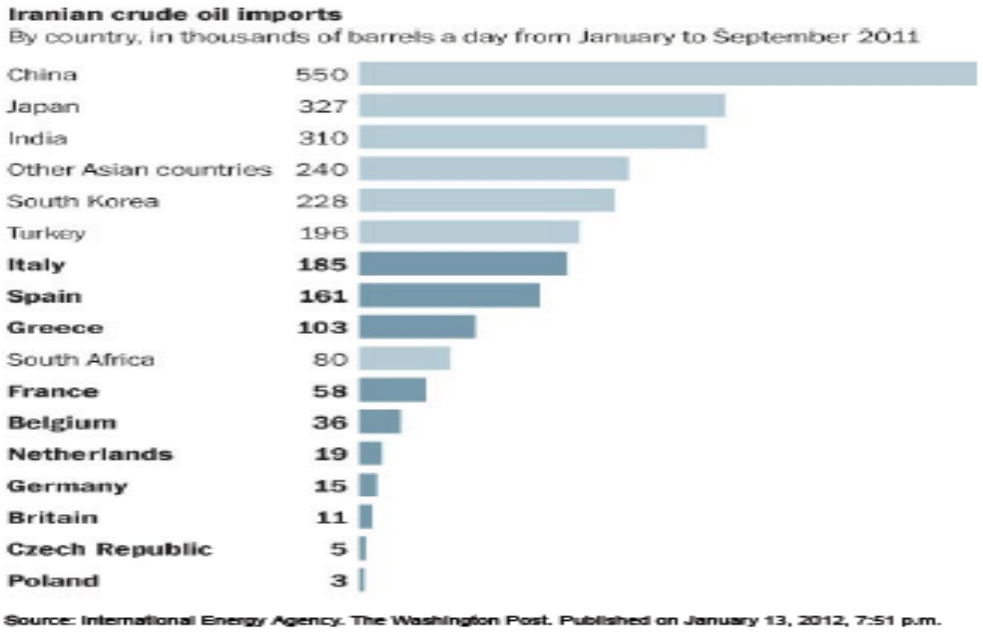
IRAN CRUDE OIL AND CONDENSATE EXPORTS FOR KEY COUNTRIES
January - June 2011

	Percent of Iran's Exports	Total Volume of Crude Imported from Iran ('000 b/d)	Iran as a Percentage of Total Crude Imported
European Union	18	452	
Italy	7	183	13
Spain	6	137	13
France	2	49	4
Germany	1	17	1
UK	<1	11	1
Netherlands	1	33	2
Others	1	22	1
Japan	14	341	10
India	13	328	11
South Korea	10	244	10
Turkey	7	182	51
South Africa	4	98	25
Sri Lanka	2	39	100
Taiwan	1	33	4
China	22	543	11

Figure 10: Comparative Estimates of Major Importers of Iranian Crude Oil and Gas: 2010-2012: Part Two

IEA: January – September 2011

(Iran exported some 2.2 million barrels a day in 2011)



EIA: 2012

Average Iranian imports and exports of natural gas, 2012 (million cubic feet per day)

	Imports	Exports
Armenia	–	44
Azerbaijan	35	56
Turkey	–	670
Turkmenistan	770	–
Total	805	770

Source: FACTS Global Energy, Iran Oil and Gas Monthly Reports

Source: US Energy Information Agency, "Country Analysis: Iran," March 28, 2013. http://www.eia.gov/countries/cab.cfm?fips=ir; US Energy Information Agency "Iran, Country Analysis," February 17, 2012

Figure 10: Comparative Estimates of Major Importers of Iranian Crude Oil and Gas: 2010-2012: Part Three

EIA 2011 and 2012:

Estimates of Iran's monthly and annual average exports of crude oil and condensate in 2012, million barrels per day

	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	2012 average
Japan and Korea	0.57	0.51	0.43	0.44	0.26	0.38	0.13	0.10	0.25	0.34	0.38	0.39	0.35
China and India	0.96	0.70	0.66	0.66	0.77	0.98	0.66	0.56	0.68	0.82	0.65	0.87	0.75
Other non-IEA	0.12	0.26	0.32	0.15	0.09	0.07	0.09	0.13	0.03	0.00	0.33	0.09	0.14
Greece, Italy, Spain, and Turkey	0.63	0.42	0.54	0.40	0.29	0.39	0.05	0.22	0.11	0.07	0.11	0.10	0.28
Other Europe	0.06	0.04	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Total Exports	2.35	1.92	1.96	1.65	1.42	1.82	0.93	1.01	1.07	1.24	1.47	1.46	1.53

Note: IEA member countries are Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Republic of Korea, Luxembourg, The Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Spain, Sweden, Switzerland, Turkey, United Kingdom, and the United States.
Source: IEA, APEX, Eurostat

Estimates of Iran's average exports of crude oil and condensate in 2011 and 2012, million barrels per day

	2011 average	2012 average
Japan and Korea	0.55	0.32
China and India	0.88	0.76
Other non-IEA	0.31	0.13
Greece, Italy, Spain, and Turkey	0.63	0.22
Other Europe	0.14	0.02
Total Exports	2.51	1.53

Note: IEA member countries are Australia, Austria, Belgium, Canada, Czech Republic

Source: US Energy Information Agency, "Country Analysis: Iran," March 28, 2013.

Figure 10: Comparative Estimates of Major Importers of Iranian Crude Oil and Gas: 2010-2012: Part Four

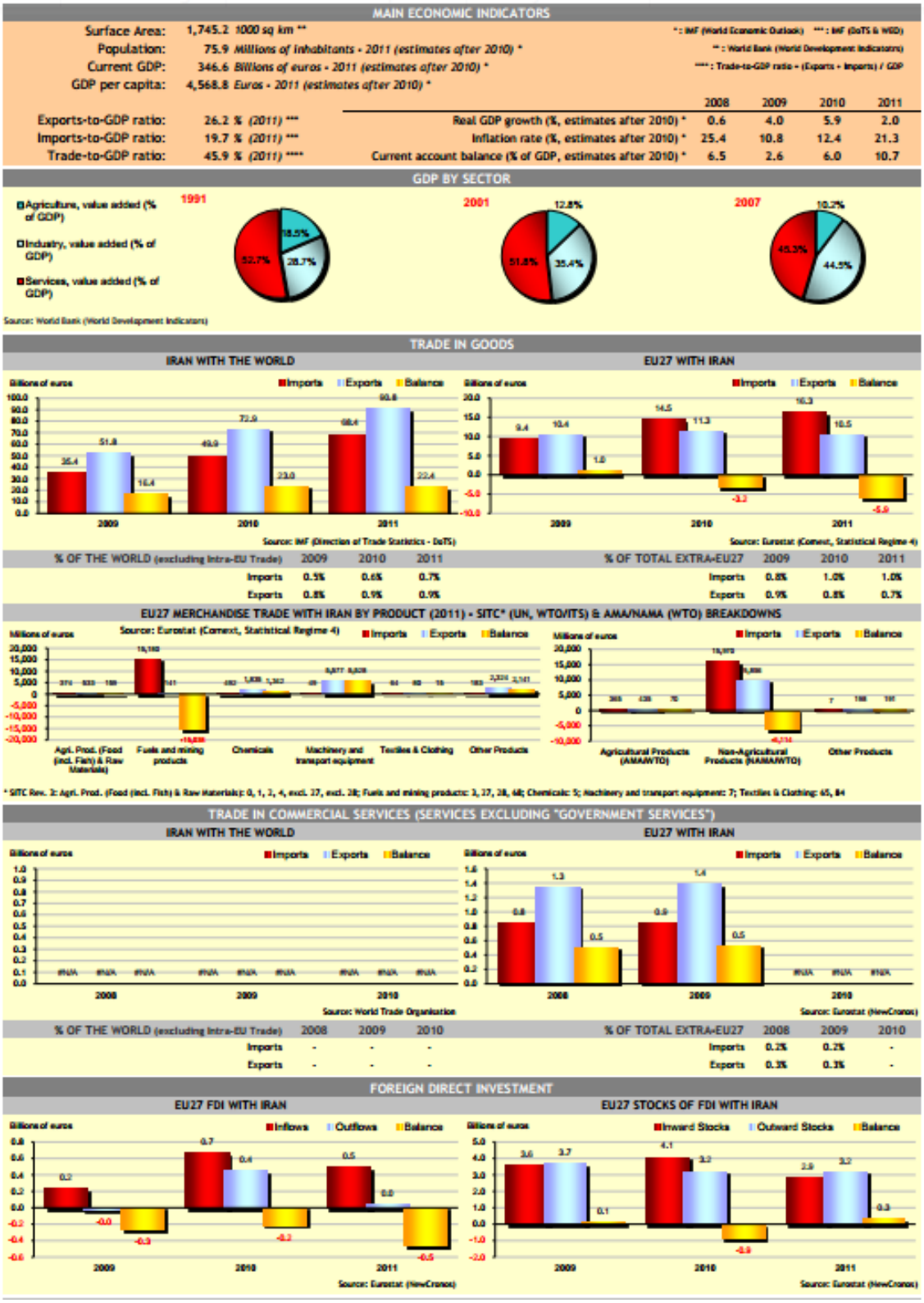
EIA: 2012

Average Iranian imports and exports of natural gas, 2012 (million cubic feet per day)

	Imports	Exports
Armenia	--	44
Azerbaijan	35	56
Turkey	--	670
Turkmenistan	770	--
Total	805	770

Source: US Energy Information Agency, "Country Analysis: Iran," March 28, 2013.

Figure 11: Iran's Major Trading Partners 2008-2012 – Part One



Source: "Iran-EU Bilateral Trade and Trade with the World," DG Trade Statistics, May 23, 2013. http://trade.ec.europa.eu/doclib/docs/2006/september/tradoc_111518.pdf

Figure 11: Iran's Major Trading Partners 2008-2012 – Part Two

The Major Imports Partners

Rk	Partners	Mio euro	%
	World (all countrie	71,700.6	100.0%
1	United Arab Emirat	21,841.8	30.5%
2	China	12,277.9	17.1%
3	EU27	11,337.7	15.8%
4	South Korea	5,043.4	7.0%
5	Turkey	2,978.5	4.2%
6	Russia	2,714.8	3.8%
7	India	2,127.7	3.0%
8	Brazil	1,935.2	2.7%
9	Japan	1,412.6	2.0%
10	Ukraine	935.6	1.3%
11	Argentina	897.0	1.3%
12	Malaysia	872.9	1.2%
13	Kazakhstan	868.9	1.2%
14	Thailand	791.8	1.1%
15	Indonesia	651.6	0.9%
16	Switzerland	630.0	0.9%
17	Pakistan	349.4	0.5%
18	Oman	307.2	0.4%
19	Saudi Arabia	229.7	0.3%
20	United States	190.4	0.3%
21	New Zealand	177.5	0.2%
22	Turkmenistan	170.7	0.2%
23	Hong Kong	153.9	0.2%
24	Sri Lanka	150.7	0.2%
25	Australia	128.4	0.2%
26	Azerbaijan	120.2	0.2%
27	Kuwait	110.2	0.2%
28	Belarus	107.7	0.2%
29	Canada	105.8	0.1%
30	Uzbekistan	90.7	0.1%
31	Bangladesh	88.7	0.1%
32	Armenia	88.2	0.1%
33	South Africa	79.8	0.1%
34	Vietnam	79.7	0.1%
35	Egypt	77.6	0.1%
36	Lebanon	64.5	0.1%
37	Tunisia	62.7	0.1%
38	Bahrain	58.1	0.1%
39	Paraguay	52.8	0.1%
40	Qatar	45.4	0.1%
41	Iraq	40.8	0.1%
42	Philippines	39.0	0.1%
43	Tadjikistan	38.8	0.1%
44	Syria	28.8	0.0%
45	Norway	26.5	0.0%
46	Guatemala	17.6	0.0%
47	Georgia	13.5	0.0%
48	Jordan	12.6	0.0%
49	Ecuador	12.5	0.0%
50	Afghanistan	11.2	0.0%

The Major Export Partners

Rk	Partners	Mio euro	%
	World (all countrie	95,368.7	100.0%
1	China	20,753.9	21.8%
2	EU27	15,734.6	16.5%
3	Japan	8,816.4	9.2%
4	Turkey	8,545.4	9.0%
5	India	7,895.9	8.3%
6	South Korea	7,771.5	8.1%
7	South Africa	2,817.4	3.0%
8	Pakistan	1,090.7	1.1%
9	Sri Lanka	985.7	1.0%
10	Syria	954.0	1.0%
11	United Arab Emirat	847.5	0.9%
12	Indonesia	734.9	0.8%
13	Saudi Arabia	709.6	0.7%
14	Philippines	535.3	0.6%
15	Malaysia	397.9	0.4%
16	Russia	234.5	0.2%
17	Turkmenistan	207.6	0.2%
18	Hong Kong	175.2	0.2%
19	Armenia	148.8	0.2%
20	Oman	135.3	0.1%
21	Tadjikistan	123.4	0.1%
22	Azerbaijan	110.1	0.1%
23	Thailand	95.9	0.1%
24	Sudan	82.2	0.1%
25	Qatar	74.8	0.1%
26	Vietnam	61.4	0.1%
27	Kenya	56.4	0.1%
28	Australia	49.6	0.1%
29	Senegal	44.5	0.0%
30	Georgia	44.4	0.0%
31	Lebanon	33.4	0.0%
32	Ukraine	31.9	0.0%
33	Bangladesh	27.5	0.0%
34	Brazil	26.6	0.0%
35	Canada	26.3	0.0%
36	Croatia	24.8	0.0%
37	Kazakhstan	23.9	0.0%
38	Switzerland	23.7	0.0%
39	Egypt	23.5	0.0%
40	Algeria	14.3	0.0%
41	Tunisia	13.9	0.0%
42	Tanzania	13.4	0.0%
43	Argentina	11.6	0.0%
44	Ivory Coast	7.9	0.0%
45	Kyrgyz Republic	7.7	0.0%
46	Morocco	7.3	0.0%
47	Jordan	7.2	0.0%
48	Venezuela	6.8	0.0%
49	Yemen	6.8	0.0%
50	Belarus	6.1	0.0%

The Major Trade Partners

Rk	Partners	Mio euro	%
	World (all countrie	167,069.3	100.0%
1	China	33,031.8	19.8%
2	EU27	27,072.3	16.2%
3	United Arab Emirat	22,689.3	13.6%
4	South Korea	12,814.9	7.7%
5	Turkey	11,523.9	6.9%
6	Japan	10,229.0	6.1%
7	India	10,023.6	6.0%
8	Russia	2,949.3	1.8%
9	South Africa	2,897.2	1.7%
10	Brazil	1,961.8	1.2%
11	Pakistan	1,440.1	0.9%
12	Indonesia	1,386.5	0.8%
13	Malaysia	1,270.7	0.8%
14	Sri Lanka	1,136.4	0.7%
15	Syria	982.8	0.6%
16	Ukraine	967.5	0.6%
17	Saudi Arabia	939.3	0.6%
18	Argentina	908.6	0.5%
19	Kazakhstan	892.8	0.5%
20	Thailand	887.7	0.5%
21	Switzerland	653.7	0.4%
22	Philippines	574.3	0.3%
23	Oman	442.5	0.3%
24	Turkmenistan	378.3	0.2%
25	Hong Kong	329.1	0.2%
26	Armenia	236.9	0.1%
27	Azerbaijan	230.2	0.1%
28	United States	191.0	0.1%
29	New Zealand	180.0	0.1%
30	Australia	177.9	0.1%
31	Tadjikistan	162.1	0.1%
32	Vietnam	141.1	0.1%
33	Canada	132.1	0.1%
34	Qatar	120.2	0.1%
35	Bangladesh	116.2	0.1%
36	Belarus	113.9	0.1%
37	Kuwait	110.2	0.1%
38	Egypt	101.1	0.1%
39	Lebanon	97.9	0.1%
40	Uzbekistan	90.7	0.1%
41	Sudan	82.2	0.0%
42	Tunisia	76.6	0.0%
43	Kenya	59.7	0.0%
44	Bahrain	58.1	0.0%
45	Georgia	57.9	0.0%
46	Paraguay	53.1	0.0%
47	Senegal	44.6	0.0%
48	Iraq	40.8	0.0%
49	Norway	31.3	0.0%
50	Croatia	28.3	0.0%

Iran's Imports from ...

Partner regions	Mio euro	%
ACP	99.2	0.1%
Andean Community	13.7	0.0%
ASEAN	2,435.7	3.4%
BRIC	19,055.5	26.6%
CACM	18.0	0.0%
Candidate Countries	2,982.8	4.2%
CIS	5,162.6	7.2%
EFTA	656.4	0.9%
Latin American Cour	2,937.8	4.1%
MEDA (excl EU and T	249.0	0.3%
Mercosur	2,888.8	4.0%
NAFTA	301.9	0.4%

Iran's Exports to ...

Partner regions	Mio euro	%
ACP	3,056.0	3.2%
Andean Community	5.0	0.0%
ASEAN	1,826.7	1.9%
BRIC	28,911.0	30.3%
CACM	0.4	0.0%
Candidate Countries	8,575.1	9.0%
CIS	939.3	1.0%
EFTA	29.0	0.0%
Latin American Cour	54.3	0.1%
MEDA (excl EU and T	1,053.5	1.1%
Mercosur	39.7	0.0%
NAFTA	28.7	0.0%

Iran's Trade with...

Partner regions	Mio euro	%
ACP	3,155.2	1.9%
Andean Community	18.7	0.0%
ASEAN	4,262.4	2.6%
BRIC	47,966.5	28.7%
CACM	18.4	0.0%
Candidate Countries	11,557.9	6.9%
CIS	6,101.9	3.7%
EFTA	685.4	0.4%
Latin American Cour	2,992.1	1.8%
MEDA (excl EU and T	1,302.5	0.8%
Mercosur	2,928.5	1.8%
NAFTA	330.6	0.2%

Source: "Iran-EU Bilateral Trade and Trade with the World," DG Trade Statistics, May 23, 2013. http://trade.ec.europa.eu/doclib/docs/2006/september/tradoc_113392.pdf

Japan and South Korea

Japan and South Korea are two countries for which sanctions may present problems due to their past dependence on Iranian oil imports as well as both countries energy needs. Japan and South Korea have acceded to US-led unilateral sanctions, but these decisions only came after strong encouragement from the United States. Both countries have issued statements supporting sanctions and upholding the US policy of preventing Iran from obtaining a nuclear weapon.

Both nations have implemented some unilateral sanctions themselves in 2010, mainly against oil and natural gas investment, a ban on transactions with some Iranian banks, and blacklisting companies and people associated with the nuclear program. Japan and South Korea have preferred to abide by US sanctions rather than instituting similar sanctions themselves.

Initially, both nations had substantial commercial and energy ties to Tehran and were hesitant to endanger their economic and energy interests. Japan and South Korea both used Iranian oil as a large part of their energy resources amounting to roughly 10% of their crude oil. Tehran warned in October 2012 that full sanctions implementation by Iran's few remaining energy partners may force the country to stop exporting oil altogether, "If you continue to add to the sanctions we (will) cut our oil exports to the world…We are hopeful that this doesn't happen, because citizens will suffer. We don't want to see European and U.S. citizens suffer."[231]

However, there is no indication that Iran is prepared to cease exporting oil as energy exports make up 70%-80% of Iranian revenue.[232] The head of the Iranian National Security and Foreign Policy Commission warned that, "Joining the sanctions that are beyond the (UN Security Council) resolutions and are imposed under the US pressure will no doubt be a negative point for those states which comply with these illegal decisions […] Certain countries' compliance with the illegal decisions of the arrogant powers will affect the way the Islamic Republic of Iran interacts with them."[233] While these statements sound dire, not exporting oil to Iran's last customers would hurt Iran more than the customers themselves, as other sources of oil can be found.

For Japan, new sanctions meant that Inpex Corp, a partially state-owned oil developer, abandoned a project to develop the Azadegan field in which they'd already invested $150 million.[234] The Koreans endangered billions of dollars' worth of shipbuilding and construction contracts with Iran.[235] A Government Accountability Office (GAO) report in December 2012, confirms that one South Korean firm, Daelim Industrial Co., was involved in the development of the South Pars gas fields as well as a project involving LNG storage tanks.[236]

Both countries have also reduced their oil purchases from Iran and have announced their intensions to reduce their 2013 Iranian oil purchases by 15% in Japan and 20% in South Korea. But Japan and South Korea will not completely stop importing Iranian oil at any point in the near future and will instead continue their gradual drawdown of purchases from Iran as to allow them time to find other sources. In the meantime, Japan passed a bill that establishes a state-backed insurance mechanism that provides $7.6 billion of sovereign insurance guarantees for tankers delivering Iranian oil, sidestepping EU and US sanctions.[237] South Korea has not established a similar mechanism but has instead allowed Iran to ship oil on Iranian tankers under Iranian state insurance.[238]

Senior US counter-proliferation officials successfully lobbied Seoul at the end of 2011 to implement new restrictions on the Iranian nuclear industry that resulted in blacklisting over 100

new firms and individuals.[239] Seoul, however, made clear their intent to continue importing crude oil and petrochemicals from Iran. The Iranian Central Bank maintains accounts in Seoul that it uses to process oil payments but sanctions in FY 2013 NDAA that will take effect in February 2013 will limit Iran's ability to repatriate its oil revenues. The statute states that funds used to pay for Iranian oil can only remain in a bank in the payee country and can only be used for non-sanctioned, bilateral trade between that country and Iran.[240]

South Korea has taken steps to reduce its economic relationship with Iran. In June 2012, the Korea International Trade Association (KITA) imposed limits on Korean exports of steel, consumer goods, and electronics to Iran. The actual limit on goods was not specified, but KITA stated that new export deals with Iran would only be approved if their repayment date was less than 180 days.[241]

Japan and South Korea remained cautious and have not yet committed themselves to anything approaching a total end to Iranian oil imports. While South Korea's purchases of Iranian oil ceased in July and August 2012, it was due to the loss of insurance coverage for oil tankers rather than governmental policy and previously-purchased oil that was in transit continued to its destinations, meaning that some oil did reach the country in July. The loss of insurance prevented South Korea from importing Iranian oil for two months, but the use of Iranian oil tankers that are insured in Iran have allowed the country to resume imports. In September 2012, South Korea imported some 6 million barrels, roughly a drop of 940,000 barrels from a year before.[242] However, some estimates are skewed by the loss of insurance coverage for tankers and the subsequent elimination of South Korean and Japanese oil purchases and the arrival of previously purchased oil in transit.

Despite the inability of Seoul to completely end its oil relationship with Iran, the country has greatly reduced its import of Iranian oil in the first ten months of 2012 to 45.55 million barrels, down from 74.23 million barrels in the same time period in 2011, a 28.6% decrease.[243] This drop has allowed the US to grant South Korea a second 180 day waiver on sanctions related to Iran's oil sector on December 7, 2012.

On December 10, 2012, Seoul announced that it would reduce purchases of Iranian oil by 20% in the first six months of next year. Using 2012 numbers as a baseline, this means South Korea will reduce their import to 147,000 bpd, though the government has not yet released official import numbers.[244] South Korea imported roughly 146,000 bpd of Iranian crude in the first 10 months of 2012, but this includes lower than normal deliveries in July and September and a halt in August due to the loss of insurance coverage. This reduction is aimed at winning a third US sanctions waver in 2013.

Numbers released in January 2013 detail that from 2011 to 2012, South Korea imported only 7.79 million tons of Iranian oil in 2012, a 37% decrease.[245] Additional figures released in March 2013 shows that South Korea imported roughly 141,900 bpd of Iranian crude in February, down 30% from a year earlier and down 25% verses January.[246]

Japan, like South Korea, has reduced its import of Iranian oil since the imposition of sanctions in the summer of 2012 and was granted three sanctions waivers in March and September 2012 and March 2013. Japan achieved these waivers despite the shuttering of 48 of 50 nuclear power plants in the aftermath of the earthquake and tsunami of March 11, 2011, and greatly increasing its reliance on fossil fuels for power generation. Secretary Clinton commended Japan saying,

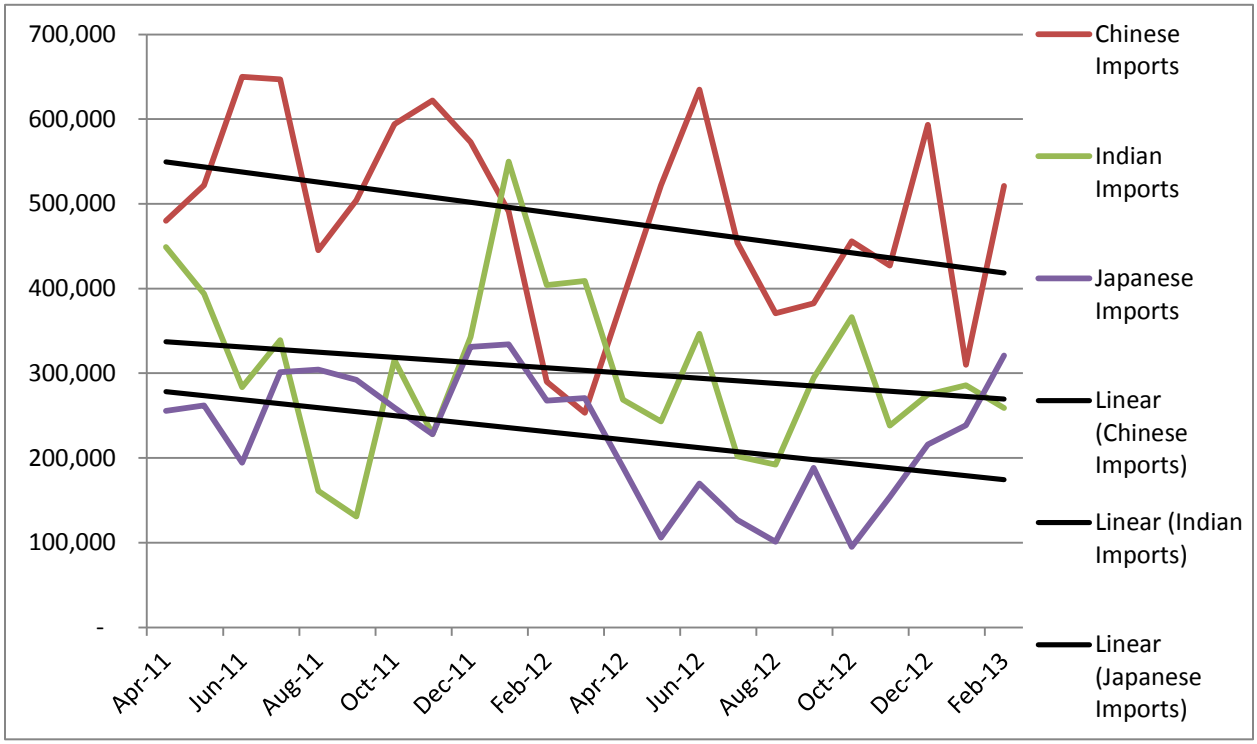
> "Japan's significant reductions in crude oil purchases is also especially noteworthy considering the

> extraordinary energy and other challenges it has faced over the past year. We commend these countries for their actions and urge other nations that import oil from Iran to follow their example."[247]

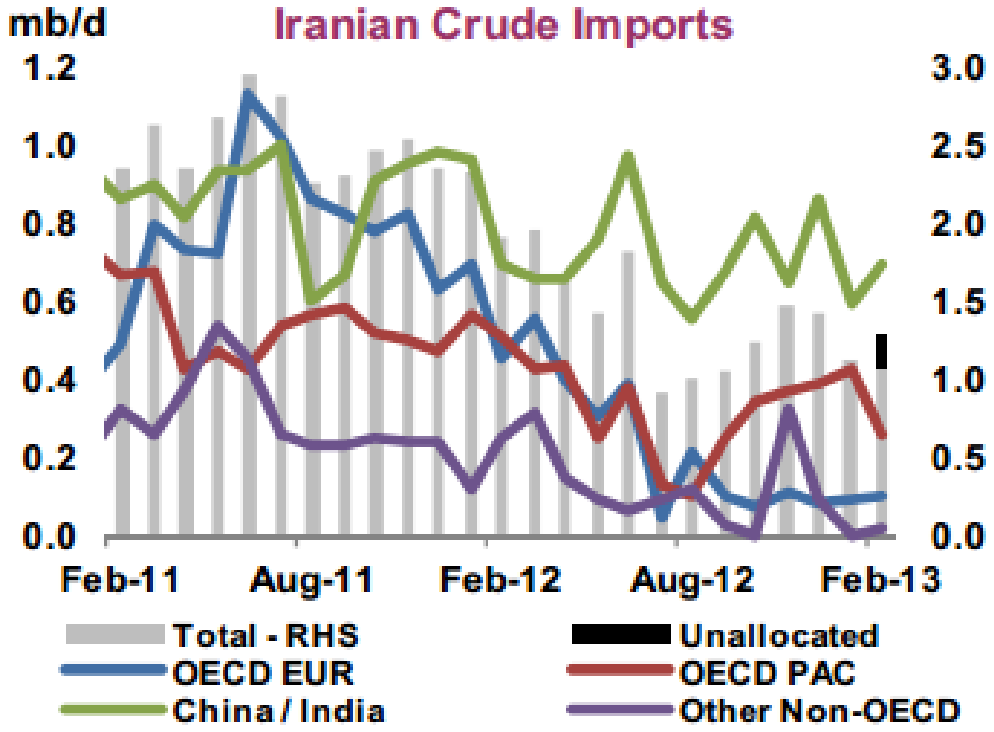
Japan has historically imported roughly 10% of its oil from Iran, but has since largely switched to importing greater amounts of Saudi crude to make up the reduction in Iranian imports. Japan has reduced its imports of Iranian oil by more than 25% each quarter, except for a 6.8% increase in June 2012 and completely halted shipments in July 2012, although some oil purchased in the previous month arrived in Japan.[248]

On December 19, 2012, the Chairman of JX Nippon Oil & Energy Corp and Japan's oil industry group the Petroleum Association of Japan, Yasushi Kimura, stated that Japan's imports of Iranian oil in 2013 will be capped at 160,000 bpd in 2013 and may be cut further.[249] Tokyo imported an average of 190,000 bpd of Iranian oil in the first ten months of 2012, down 41.3% year-on-year.[250] However, Japanese purchases of Iranian oil have dramatically increased from 100,000 bpd in October 2012 to over 300,000 bpd in February 2013 - as seen in **Figure 12** - and are the highest monthly average since January 2012. It is not clear why Japanese refiners are purchasing more Iranian oil, nor is it clear if this will complicate a fourth sanctions waiver.

Figure 12: Chinese, Japanese, and Indian Iranian Oil Imports



Source: Reuters, Bloomberg, Japanese Ministry of Economy, Trade and Industry



Source: International Energy Agency, Oil Market Report, March 13, 2013. http://omrpublic.iea.org/omrarchive/13mar2013fullpub.pdf

India

India has traditionally had close ties to Iran and has been unwilling to impose stringent sanctions. Historically, India has imported roughly 12 million barrels of Iranian crude oil every month that accounted for 10% of all Indian oil imports, making Iran their largest supplier after Saudi Arabia.[251] As Iran's image throughout the Arab world has foundered, however, and international pressure on the regime has increased, India has practiced a more assertive foreign policy with Tehran. Leaked diplomatic cables have revealed India's growing interest in the Iranian sanctions regime and increasing cooperation with the US and EU. Former foreign secretary Nirupama Rao had asked then US ambassador Tim Roemer in February 2010 that, "in the future the GOI be accorded the opportunity to take part in pre-sanction consultations."[252]

India has cut its imports enough to garner two sanctions waivers by the US. In May 2012, junior oil Minister R.P.N. Singh said that India would reduce its purchase of Iranian oil by 11% following pressure from the US.[253] However, India imported some 344,000 barrels per day from January-July 2012, down from roughly 352,000 barrels per day in the same period a year before.[254] Like Japan, the Indian government has offered state-backed insurance to shipping companies transporting Iranian oil to India and has allowed ships with state-backed Iranian insurance to export to India.[255]

But India has shown less enthusiasm for reducing its Iranian oil imports than other countries. In October, Indian Oil Minister S Jaipal Reddy stated at the Indian Petroctech 2012 Conference that, "We are neither trying to reduce nor increase imports from Iran…For India, energy security is a truly central issue. India is likely to emerge as one of the top 3rd or 4th importers in the world, of all energy forms - oil, coal, gas and uranium."[256]

Some experts believe, however, that the fact New Delhi stepped away from Tehran had more to do with managing important Indian relationships with the Arab world. P.R. Kumaraswamy, head of West Asian studies at New Delhi's Jawaharlal Nehru University, observed: "When it comes to Iran, India can ignore pressure from the U.S. and noises from Israel, but it cannot ignore concerns from the Arab countries […] In a very subtle way, India is sending a message that its closeness with Iran will not affect relations with other Middle Eastern countries."[257] India's ties to Iran have made the country hesitant to fully back US, EU, and UN sanctions. Though India has been reducing its reliance on Iranian oil since 2008 and is becoming increasingly concerned with Iran's nuclear program, this has not stopped India from continuing their economic relationship with Iran as well as finding financial avenues to facilitate trade.

However, India seems to be increasingly concerned about the danger of the Iranian nuclear program to Indian interests and has increasingly taken steps to implement further sanctions. In December 2010, the Reserve Bank of India made an unexpected decision to prohibit Indian companies from using the Asian Clearing Union (ACU) to pay Iran for oil imports. The ACU is a Tehran-based regional body that was established by the UN in the 1970s in order to more easily facilitate commerce among Asian nations. However, the ACU effectively allowed companies to facilitate payments to Iran that may have been illegal according to international sanctions.[258] A key US Treasury official heralded the move as "a significant action" to support US sanctions and further isolate Iran from international financial institutions.[259]

But after India declared it would no longer use the ACU to process payments to Iran, the two countries agreed on an Iranian bank, Europaisch-Iranische Handelsbank (EIH) to process the payments. When EU sanctions listed EIH, India and Iran agreed to use Turkey's Halkbank as an

alternative, which then withdrew from the agreement after sanctions under Section 1245 of the FY2012 NDAA were instituted. India used this to pressure Iran into accepting 45% of the oil payment in non-convertible rupees and the rest in Euros, again through Halkbank.[260] However, sources differ as to when Halkbank began facilitating Indian payments to Iran, some sources say December 2010, others say July 2011, and the CRS says January 2012 or possibly March 2012.[261]

Regardless of the exact date of the Turkey-Iran-Halkbank deal, sanctions encompassed in the FY 2013 NDAA that entered into force on February 6, 2013, have cut off India's ability to use Turkey's Halkbank as a facilitator for Iranian oil purchases in Euros. Because of these sanctions, India is paying Iran only in Rupees and withholding the 55% of their payments that would have been in Euros until an alternate payment system can be established.[262] Due to the terms of the NDAA sanctions, Halkbank is prohibited from repatriating that money to Iran and only allows Iran to use Rupees to purchase non-sanctioned items like food or medicine from India.

Like South Korea and Japan, India has both offered state-backed insurance to Indian oil tankers transporting Iranian oil and has allowed Iran to ship oil on Iranian tankers covered by Iranian insurance. Sabyasachi Hajara, chairman of Shipping Corp. of India said that this decision was based off Indian needs, "As far as India is concerned, we are bothered about our sovereign requirements…We took a pragmatic view."[263] Shipping Corp. has also ended its joint shipping venture with the Islamic Republic of Iran Shipping Lines. Insurers such as United India Insurance Co. and General Insurance Corp. of India are offering lower cover for shipping due to sanctions blocking reinsurance.[264]

On January 16, 2013, a report in the *Wall Street Journal* stated that India bought 12% less Iranian crude between April and September 2012 compared to 2011.[265] The same reported indicated that India plans to cut its imports of Iranian oil by as much as 17% in the financial year that ends on March 31, 2013 and that India would aim to cut Iranian imports by 15% every year.[266] Other sources, however, reported that India still got 11% of its oil from Iran in 2011, and senior Indian officials indicated that it would continue to import Iranian oil.

The *Financial Times* and Bloomberg News reported in March 2013 that India might halt all Iranian oil imports which would then be replaced by other nations. India was said to be discussing terms with Saudi Arabia, Kuwait, and Iraq for additional oil purchases; they reported that if India did halt all Iranian imports, Iran stood to lose $11.5 billion in annual oil sales.[267] India's purchase of roughly 330,000 bpd represented a quarter of Iran's current oil exports and is now India's 7th largest supplier slipping from 2nd in 2011/2012.[268]

As reported in the *Financial Times*, the possible loss of the Indian market was due to the threat that local Indian refiners would lose their insurance sometime in April 2013 if they continued to process Iranian crude.[269] However as of May 2013, India had not signed any agreements with other oil exporters to replace Iranian oil and planned to establish a reinsurance pool of up to 20 billion rupees to cover Indian refiners.[270] Normally, reinsurance would be purchased from European markets; however, sanctions have prohibited European agencies from providing insurance to refiners of Iranian crude.

Moreover, State Department sources indicated that Secretary of State Kerry planned to announce another waiver for India during a coming trip to India. The US faced the dilemma that India was too strategically important to rigidly enforce sanctions, and that patient diplomacy offered the

better option, but that – like China – the Indian market offered Iran once of its few ways to limit the impact of sanctions.

China and Russia

Russia and China's positions regarding Iranian sanctions have been an ongoing concern to both the United States and Iran. China is Iran's largest economic and energy partner, and their participation in a truly demanding sanctions regime would put severe pressure on Iran - a situation the Iranians have long sought to avoid. Russia has earned money from low-level trade, arms sales, and large industrial projects, including completing the Bushehr nuclear reactor. So far, Russia and China have acquiesced to numerous UN sanctions. Furthermore, China has largely abided by US and EU sanctions, lowering its imports of Iranian oil enough to be granted two sanctions waivers.

However, neither country has gone so far as to implement any unilateral sanctions of their own, nor it is unlikely that either will implement unilateral sanctions in the future. The formal position of both Russia and China is that they will impose only those sanctions required by applicable UN Security Council resolutions but not impose any sanctions beyond those specifically mandated.[271]

The unique relationship between China, Russia, Iran, and the United States is explored in more detail in US-Iranian Competition: The Impact of Afghanistan, Central Asia, and Pakistan, but it is important to understand that this is a primary field of strategic competition. Both China and Russia are large, ambitious actors whose ties to both Iran and the US are practical rather than ideological. Beijing and Moscow serve their own interests first and view the Iranian-US contest as more of an opportunity than anything else. Their actions and motivations, therefore, need to be viewed through that prism.

China

China plays a key role in determining the success of any sanctions regime on Iran. Whether the US is seeking compliance with existing sanctions or support for extending and deepening the constraints placed on Tehran, Chinese assistance will be vital to their success. Beijing's enormous demand for energy resources has led to long-standing commercial ties to the Islamic Republic. This has resulted in a Chinese attempt to find a balance that best serves their interests: shielding Iranian commerce to the maximum extent possible while avoiding inflaming their Western partners.

Scott Harold of RAND summarizes China's relationship with Iran as follows,

> "Many countries are wary of Iran's nuclear activities and assertive foreign policies but at the same time attracted to its abundant energy resources and economic potential. Yet few have been as bold as China in seizing these latter opportunities. As a result, China is in the paradoxical position of having more leverage than almost any other country vis-à-vis Iran, but also having the most to lose should more broadly punitive sanctions be imposed or war break out, a fact not lost on Chinese analysts and policymakers.
>
> …China's relations with Iran are primarily shaped by its economic interests, particularly its expanding energy needs. Additionally, China's policy toward Iran is deeply influenced by the PRC's perceived rivalry with the United States, based on the suspicions of many Chinese decision makers that the United States seeks to block China's rise to great-power status, balanced against China's dependence on maintaining a stable economic relationship with the United States."[272]

Beijing is keenly aware of its role in the regional competition for influence and views Iran as "a useful hedge against a hostile United States."[273] This has created a situation where the Chinese have supported limited UN sanctions, but denounced the additional measures pushed by the US, and EU. The US, in turn, has exempted Chinese imports of Iranian oil from sanctions twice in 2012. China's Foreign Ministry spokesman, Qin Gang, observed in 2011 that, "China has noticed the unilateral sanctions announced by the US and others over Iran. The Security Council not long ago adopted the 1929 Resolution on the Iranian issue. China believes that the resolution should be earnestly, accurately and fully implemented, instead of being arbitrarily interpreted and expanded."[274]

China's primary concern is avoiding the possibility of expanded UN sanctions on Iran's energy sector that would affect China's imports. In 2012, Iran supplied China with around 9% of its oil, down from nearly 15% in 2009 and is now China's 4th largest supplier, down from 3rd in 2011.[275] Beijing only agreed to support UNSC Resolution 1929 after the provision was altered to include key exemptions for continued foreign investment in Iran's energy sector.[276] In June 2012, Hong Lei a Chinese Foreign Ministry spokesman called Chinese imports of Iranian oil "reasonable and legitimate," saying "China, to meet the needs of its economic development, imports crude oil from Iran through normal channels. Being open and transparent, this does not violate any UN Security Council resolution or undermine the interests of a third party or the international community. Thus it is completely legitimate and justified."[277]

Despite statements in early 2012 that China would not reduce its purchases of Iranian oil below their 2011 level of 550,000 bpd, Beijing, like South Korea, Japan, and India, has in fact reduced the amount of oil it purchases from Iran. In the first four months of 2012, China's imports from Iran dropped 24%, and in late November 2012 it was reported that China's imports from Iran had dropped roughly 23% to 458,000 bpd.[278] However, these sharp decreases can be attributed to a payment and tanker dispute with Iran during the first half of 2012 and not due to a new Chinese policy. While imports spiked back to roughly their levels before the dispute, imports dropped again in July 2012 after EU sanctions went into effect and have remained unsettled since. However, the general trend has been downward; this can be seen in more detail in **Figure 11**.

Due to the loss of Iranian crude as a result of pressure and sanctions, China is looking to Saudi Arabia, Iraq, and other potential sources to fill the reduction of Iranian imports. It is expected that China's imports from Saudi Arabia will increase roughly 11% in 2013, which would equal 120,000 more bpd.[279] In 2012, China imported 1.08 mbpd, up 7% from 2011, a figure that is expected to rise as China buys less Iranian oil and its economy rebounds from the recession.[280]

Beijing sees Saudi Arabia as a stable partner that is able to provide steady supplies of oil to China's expanding economy.[281] China is also increasing its purchases from Iraq - now OPEC's second largest producer behind Saudi Arabia - by 8.2%, 568,000 bpd, in 2013.[282] Sinopec, China's state-run oil company is doubling its purchases of Iraqi oil to 270,000 bpd.[283]

However, while other Chinese oil companies are reducing their purchases of Iranian oil, China's state-run Zhuhai Zhenrong Corp, will maintain its current level of imports of roughly 230,000 bpd in 2013, a volume that has barely changed over the past ten years.[284] Zhuhai Zhenrong has already been sanctioned by the US since January 2012, when it was found to have brokered the delivery of $500 million in gasoline to Iran and is barred from "receiving U.S. export licenses, U.S. Export Import Bank financing, and loans over $10 million from U.S. financial institutions."[285]

Despite Chinese fears of US sanctions, there is speculation that China's growing oil needs (China is now the number one importer of crude oil in the world) may press Beijing to increase its oil imports from Iran in order to feed its growing economy. Reuters and the Wall Street Journal report that a Chinese tanker, the Yuan Yang Hu, owned by state-controlled shipping conglomerate China Ocean Shipping (Group) Co. docked at Kharg Island in late March, and is the first Chinese tanker to dock in Iran since the EU oil embargo in July 2012.[286]

The tanker is insured by the Norwegian marine and energy insurance group Skuld, but will likely lose its insurance due to its transportation of Iranian oil and applicable US and EU sanctions. However, other reports detailed that the tanker's insurance had been arranged in China, reinforcing some speculation that China will or has followed Japan, South Korea, and India in establishing domestic insurance guarantees or plans that allow Chinese tankers to load Iranian oil without being impacted by sanctions.[287] However, it is too early to speculate on such matters.

Despite China's hesitance to speak out against Iran's nascent nuclear program, it is not eager to confront Washington. Chinese investment in Iran totaled $1 billion in 2011; in comparison, Chinese firms have invested $4.6 billion in energy assets in the United States, plus some $460 billion in other investments. The total volume of Chinese trade with the US in 2011 was $503.3 billion, while Chinese trade with Iran was worth an estimated $45 Billion in 2011, according to Iranian sources.[288] China seems unlikely to put such investments and trade with the US at serious risk because of a relatively minor partner as Iran.

Concern for China's relations with the United States has persuaded Beijing to turn down Iranian offers for cut-rate oil. An anonymous source in one Reuters report stated that, "The Iranians have made some offers, but we have turned them down…The economic benefits of filling some discounted Iranian oil into the national oil reserves would be too small a consideration for the state. The key concern for the Chinese government would be China-U.S. relations."[289]

Beijing has also found that it benefits from the fact that China is becoming steadily more important to Iran. As the Iranians have become more isolated from the international community, their financial relationship with China has accelerated and has become increasingly important. China went from trading roughly $14 billion a year with Iran in 2006 to becoming their most significant trading partner in 2009, with bilateral transactions totaling $21.2 billion.[290] Trade between the two countries has since increased to $30-$40 billion in 2012 and is estimated to increase to $100 billion by 2016.[291]

Historically, trade between Iran and China has increased rapidly; in 2007 China replaced the EU as Iran's largest economic partner, and Chinese energy companies were aggressive in replacing departing western companies. In the same year, Sinopec signed a $2 billion deal to develop Iranian oil fields, and in 2009 China's Natural Petroleum Corporation signed a $4.7 billion deal to replace France's Total SA in developing phase 11 of Iran's South Pars gas field.[292]

The two countries have been increasing their economic cooperation, and Iran has become a lucrative market for Chinese goods and services. A report in the *Wall Street Journal* in January 2013 detailed the state-owned China Nonferrous Metal Mining Group's $712 million contract with Tehran to help build a steel mill in Iran.[293] And according to a report by *The Economist*, China is investing in Iran's infrastructure. Attempting to further integrate the country into the regional market, China has even gone so far as to invest $1 billion for transportation improvements in Tehran.[294]

During a goodwill tour in September 2012, the two countries signed further agreements to increase their bilateral trade, and representatives of both countries talked of their desire for increased cooperation in energy, agriculture, and infrastructure projects.[295] Wu Bangguo, China's chief legislator, said during this tour, "Under joint efforts, China and Iran have witnessed smooth development of bilateral friendly cooperation since the two countries established diplomatic ties over 40 years ago…China will continue to work with Iran to keep increasing mutual understanding and trust and expanding friendly exchanges and operation in a bid to lift bilateral ties to a higher level."[296]

At the same time, Iran is much more dependent on China than China is on Iran, creating an unbalanced relationship and forcing Iran to refrain from actions that will draw the ire of the Chinese government. Iran has strong incentives to continue building its relationship with China, since China's international reputation may be damaged by maintaining close relations with Tehran, Iran's reputation cannot be seriously harmed by maintaining close relations to China. While the ethos of self-reliance has been central to Iranian strategy and rhetoric, there is very little downside to accepting Chinese largesse.[297]

While Chinese investment in Iran continues overall, Chinese investment in Iran's oil sector has slowly declined and has been a sore subject between Tehran and Beijing. China National Offshore Oil Corporation (CNOOC) recently pulled out of a $16 billion deal to develop Iran's North Pars natural gas field, Iran has frozen a $4.7 billion contract with China National Petroleum Corporation to develop the Phase 11 of the South Pars field because of the failure to start work, and Sinopec is behind schedule in developing the Yadavaran oil field.[298] According to sources, China backed out of the South Pars development plan due to onerous contract clauses and a tight schedule.[299] Despite the reductions in Chinese investment into Iran's oil sector, Chinese energy firms are still operating within the country, according to a recently released GAO report.[300]

China imported some 11% of its oil from Iran in 2011, but by early 2012 China had both serious concerns about the cost of continuing such imports in terms of US sanctions, and new incentives for turning to other suppliers in the Gulf.[301] China has realized that it represented the "trader of last resort" for Iran and would have to turn to China for arms, investment, and imports. However, as China has gained the upper hand in the economic relationship, Iran's behavior has begun to harden Chinese views towards its nuclear program. As further UN sanctions have been enacted, Beijing has reduced its arms exports to Iran drastically, and those arms that it does export are low-technology versions of its current weapons systems. As arms flows to Iran have slowed to a trickle due to sanctions, China is increasingly able to take a harder stance in oil negotiations, resulting in lower imports and lower prices.

China has been reaching out to Saudi Arabia and other Southern Gulf states to secure new trade, arms, and energy deals to compensate for any losses in dealing with Iran. China has increasingly come to view Saudi Arabia as a more reliable energy partner than Iran, who can offer Beijing a less opaque bidding system and fewer contract conflicts. In January 2012, Chinese Premier Wen Jiabao visited Saudi Arabia, Qatar and the United Arab Emirates, on a six-day tour of key Southern Gulf states. This was the first visit to Saudi Arabia by a Chinese Premier in two decades, and the first to Qatar and the United Arab Emirates.

China took this opportunity to strengthen its energy relationship with those countries by inking a number of business contracts and joint-venture proposals. Sinopec will work with Saudi Aramco

on the construction of a new joint oil facility and signed an $8.5 billion deal to build a new refinery in Yanbu, Saudi Arabia.[302] Sinopec also signed a deal with Royal Dutch Shell and Qatar Petroleum International to build a new refinery in Taizhou, a city on China's eastern coast.[303]

However, news that a Chinese tanker, sailing under Chinese insurance, took on Iranian oil in March 2013 coupled with increasing Chinese economic output and higher energy demands, raise new questions about how much China will cut back on Iranian imports.[304] As China's energy needs increase, and possibly outstrip the production capabilities of Iraq and Saudi Arabia, they may look to Iran to as an energy source of last resort. An increase in Chinese purchases of Iranian oil would put a third US sanctions waiver in jeopardy and set up a conflict with the US.

Regardless of this recent news, reports indicate that Chinese investment in Iran, some of the last remaining major outside investment in the country has shrunk in 2012, from almost $3 billion in 2011, to only $400 million last year.[305] Iran and China are still at loggerheads over Iranian charges that China was delaying development of oil and gas fields and in March 2012, the Industrial and Commercial Bank of China pulled out of a deal to finance the Iranian-Pakistan pipeline project because of sanctions.[306]

While Chinese investment may have slowed in Iran over the past year, China continues to trade oil for consumer goods in Iran. According to a report by The Guardian, 70 Chinese businesses are active in the country, including Zhejiang Geely Holding Group, which sells Chinese cars produced on Iranian assembly lines.[307] According to the report, the struggling Iranian manufacturing sector, was under pressure from sanctions and supply problems, and was being undercut by cheaper Chinese goods. Furthermore, while Chinese investment in Iran may be down, Chinese firms are still investing in the country, with China Nonferrous Metal Mining Group signing a $712 million deal to help build a steel plant and China's State Council approved plans for China to take part in a $1 billion project to build a high-speed rail line.[308]

Russia

Unlike China, South Korea, India, or Japan, Russia is a major energy exporter, and is far less dependent on US trade and economic relations. It also is more willing to openly confront or challenge the US, both for foreign policy purposes and for domestic political reasons. As a result, the US and Iran still compete for Russian support on an issue by issue basis and much depends on the broader state of US and Russian relations.

Russia's relationship with Iran offers it the opportunity to consolidate and expand its energy network, export goods to a sizable market, as well as be able to support a counter-weight to US regional influence in the Middle East and Caspian Sea. However, policy planners in Moscow also value their growing trade relationship with Israel, the benefits of economic integration with the West, and their relations with the Arab states, and are apprehensive about the prospect of a nuclear-armed Iran. Iran's relationship with Russia allows Tehran to support Russia's goal of creating a counterbalance to US dominance and, until recently, was a source of arms and munitions. These realities have led to their unpredictable and inconsistent support of the Iranian sanction regime.[309]

While Russia has cast its Security Council vote in favor of each of UN sanction resolutions, it has done so hesitantly and after extracting concessions.[310] Moscow's interest in diluting the sanction resolutions, however, should not be misunderstood as a strong power attempting to protect a client state. Instead, Russia has used these opportunities strategically in order to

advance its own national interests. Crucial exemptions were secured in 2006 that allowed Russia to maintain key contracts with Iran and continue developing the Bushehr nuclear reactor. After securing his concessions from the Security Council, Russian Foreign Minister Sergey Lavrov said that, "The resolution fully reflects economic interests of Russia and other partners of Iran."[311]

Similarly, Russian officials took a hard line against expanding sanctions in 2007 until disagreements over the Bushehr contract brought the two countries into conflict. In the face of soaring construction costs, the Iranians fell behind in their scheduled payments to Moscow.[312] Russian technicians and engineers were called back home, fuel shipments were canceled, and the Russians began to make back-channel ultimatums involving sanctions.[313]

A senior White House official then commented that "we're not sure what mix of commercial and political motives are at play here, but clearly the Russians and Iranians are getting on each other's nerves."[314] When the Russians cast their vote for expanded sanctions in March of 2007 they were criticized by the Iranians as having given in to Western pressure. It appears clear, though, that Russia's decision was meant to provide leverage in their commercial dispute with Iran. This type of strategic positioning has come to define the Russian approach to Iranian sanctions.

The Russian and Iranian commercial relationship has grown steadily during the last decade despite international sanctions. Iran has become a substantial market for Russian arms, technology, and agriculture - with annual exports exceeding $3 billion by 2008 (See **Figure 13)**.[315] A separate estimate indicates that Russian exports to Iran totaled $3.2 billion in 2010 and imports were $265.8 million.[316]

The two governments maintain an interest in expanding economic ties to $10 billion annually, but neither side has taken concrete steps to promote further trade. Further, there is no quantifiable energy trade between the two states and previous Russian contracts in Iran were cancelled due to sanctions and their desire to protect other Russian energy investments in the US.[317] While Russia's future policies are unclear, Moscow's past acceptance of sanctions serves as a warning to Tehran that Russian support is far from assured and instead highly contingent upon their immediate priorities.

For Tehran, "relations with Russia reflect expediency - when Iran couldn't get technology or weaponry elsewhere, Russia became an option."[318] Historically however, Russia and Iran have been competitors, marked with rivalry and occasional cooperation. There are no true economic interests between either state, nor does either state want the other to increase their influence in their respective regions: the Levant for Iran and the Caucasus for Russia. It seems that both states tolerate each other and use each other when it is appropriate.

Iranian leaders recognize that fostering more reliable ties to Russia would effectively limit America's regional hegemony in the Middle East, in addition to reducing the likelihood of a military attack by the US or Israel. The opportunism of their alliance, however, continues to make the Iranians uneasy.

Figure 13: Russian Trade with Iran 1995-2008

Year	Exports	Imports
1995	$249 Million	$27 Million
2000	$633 Million	$57.6 Million
2005	$1.9 Billion	$125 Million
2008	$3.3 Billion	$401 Million

Source: Mark N. Katz, "Russia and Iran," The Iran Primer, USIP, December, 2010. http://iranprimer.usip.org/resource/iran-and-russia

A further cooling of Russian-Iranian relations took place in 2009, when President Obama sought a diplomatic "reset" and Moscow was confronted with opportunities to achieve major national security goals vis-à-vis the US. The Russians were intent on securing a "grand bargain" that would limit NATO expansion, end the development of the Phased Adaptive Approach Ballistic Missile Defense in Eastern Europe, secure commitments of non-interference, and work toward nuclear parity via a new arms treaty.[319]

The United States intentionally linked its approaches to Iran and Russia, seeking Russian support for sanctions and non-proliferation as a key part of its efforts to "reset" US and Russian relations.[320] Revelations about Iran's secret uranium enrichment facility at Qom helped solidified the rift between Tehran and Moscow; in 2010, Russia voted in favor of the most recent round of UN sanctions and in order to fully comply, President Medvedev issued a decree canceling all sophisticated arms sales to Iran, including the S-300 air defense system.[321]

However, Russia's support of sanctions remained sporadic and determined by Russia's economic and political interests. By early 2011, top Russian officials began to openly question the need for ongoing sanctions and started to challenge western intelligence assessments of Iranian nuclear capacity.[322] This has continued as the US and its allies attempt to further isolate Iran from the international community and international financial system. It is not clear how much this reflects pragmatic policy concerns, a search to gain advantage by supporting Iran, and/or a deterioration of US and Russian relations. In practice, it probably reflected a combination of all three - although US and Russian relations continued to deteriorate on a broad level in 2012.

In August 2011, Moscow led a seemingly successful effort to lure Iran back into the P5+1 negotiations, offering to broker a deal that would gradually ease sanctions in exchange for the Islamic Republic meeting transparency targets.[323] Iran's chief nuclear negotiator, Saeed Jalili, declared that the Russian proposal would be the "basis to start negotiations for regional and international co-operation, specifically in the field of peaceful nuclear activities."[324] However, the negotiations have not borne fruit and may have collapsed.

Russia did not support the US and EU expansion of sanctions in late 2011. It not only stated that such sanctions would be counterproductive, but also warned that they were increasing the prospect of conflict. Russian Foreign Minister Sergey Lavrov stated on January 18, 2012, that the new sanctions had, "…nothing to do with a desire to strengthen the nuclear non-proliferation…It's aimed at stifling the Iranian economy and the population in an apparent hope to provoke discontent."[325] He also warned that the situation risked leading to attacks on Iran, and

that, "The consequences will be extremely grave. It's not going to be an easy walk. It will trigger a chain reaction and I don't know where it will stop." [326]

Russia is likely to continue to use its relationship with Iran in ways designed both to seek its own advantage and to influence US policy toward Russia and shape US power in the region. Russia, like the US, does not want Iran to acquire nuclear weapons. Russia would prefer use Iran as a counterweight against US interests in the region, a market for goods, and a gateway to the region, rather than see Iran improve its power in the region by acquiring a nuclear weapon.

Planners in Moscow have become adept at modulating the extent of their Iranian involvement. Accordingly, the US should not be surprised that tension in one area of their relationship is offset by rapprochement in another. While Iran will continue to compete with the United States for a more dependable alliance, the Russians seem content to keep one foot in each camp and play the two countries off of each other. They will extract concessions in exchange for their support of future UN sanctions resolutions, but will continue to avoid imposing unilateral sanctions or actions. Their policies will reflect a desire to maintain maximum flexibility in expanding their commercial relationship with Iran while avoiding endangering their increasingly valuable ties to the West.

Turkey

Turkey's relationship with Iran is complex and marked by periods of both collaboration and conflict. Turkey was one of the first countries to recognize the Islamic Republic's revolutionary government, and has attempted to cultivate relations between the states through economic and energy ties, as well as billions of dollars in FDI ($3.6 billion as of 2010), primarily in oil and natural gas.[327] Turkey continued to invest in Iran's energy sector throughout the 1980s and 1990s even though Turkey frequently accused Iran of supporting the PKK and Iranian leaders disapproved of Turkey's warming relations with Israel.[328]

The victory of Turkey's Justice and Development Party (AKP) in 2002 ushered in a new era of more constructive engagement between the two countries. Turkish commercial ties to Iran have strengthened under Turkish Prime Minister Erdogan. Tehran now supplies a significant amount of Turkey's oil imports and total bilateral trade has grown to over $16 billion dollars in 2011, and is expected to reach $35 billion before 2015.[329] In addition, the two countries have previously cooperated over efforts to dismantle the Kurdish terrorist groups based along the Iraqi/Iranian border.

As Turkish Prime Minister Erdogan increasingly sought to establish Turkey as a regional power through its "zero problems with neighbors" policy, relations continued to improve. While the AKP felt more affinity towards Iran's Islamist government than the previous governments of the Kemalist, secular, and western elite, their relationship has been driven primarily by economics, rather than by ideology. From 2002 to 2011, Turkey and Iran forged closer ties, worked together to combat the PKK, and joined in mutual energy deals. The most visible aspect of this relationship has been the sharp increase in high-level diplomatic visits between the two states. From 1979 to June 2002, there were only three head of state visits between the two countries, while from July 2002 and August 2012 the combined leadership had 11 cross-border visits.

Like Russia and China, Turkey seeks to preserve policy autonomy on Iran. Mehmet Simsek, the finance minister, told the Financial Times that while Turkey supported UN sanctions, they would not shy away from promoting closer trade links with Iran, saying, "We will fully implement UN

resolutions but when it comes to individual countries' demands for extra sanctions we do not have to [obey]."[330]

This dual game has allowed Turkey to sometimes play the role of mediator. When Iran announced their willingness to return to nuclear talks in January 2012, Turkey volunteered to host - an offer that was quickly accepted by the Iranians. Prime Minister Erdogan also articulated the limits of Turkish support for the US, the EU, France, Germany, and Britain when he accused the West of treating Iran unfairly over its nuclear program.[331] Erdogan had tried to downplay the significance of Iran's nuclear program, dismissing international allegations as merely "gossip."[332]

While Turkey's relations with Iran have improved since the election of the AKP party, the Arab Spring, the Civil War in Syria, and subsequent Iranian support for the Assad regime have reversed the warming trend in their relations. With the outbreak in violence that has engulfed Syria since 2011, Turkey and Iran's bilateral relations have significantly cooled. The conflict in Syria, says one Turkish interlocutor, brought the implicit divide between Iran and Turkey to the forefront and forced Turkey to take "a more realistic view of the region."[333]

Turkey views the unrest as not only a matter of international affairs, but also as a domestic security issue, as the lack of central state control in Syria may give the PKK a staging ground from which to attack interests in Turkey and achieve limited regional autonomy. A messy transition or extended civil war may allow the PKK to gain a renewed foothold in northeast Syria and promote their effort towards building a Kurdish state.

Turkey's position on Iran's nuclear program has also hardened, and while Turkey's offer to play mediator between the West and Iran may have originated from a sincere hope of solving the problem, it was also a calculated political move intended to consolidate Turkey's position as strong, independent power in the region. Turkey is concerned that if Iran's nuclear program achieves its end goals, there will be widespread proliferation in the Middle East, greatly destabilizing the region.[334] Furthermore, Turkey is split between their acceptance of an Iranian capability to generate nuclear power and the demand that Iran be more forthcoming about its program.

So far, Turkey has indicated that it is considering the new round of US and European sanctions, but may not adopt them. Turkey has reason to be cautious: Ankara has obtained a third of its crude oil from Iran during recent years - Iran supplied 51% of Turkey's oil imports during the first half of 2011. This helps explain why the Turkish Foreign Ministry spokesman, Selcuk Unal, told a news conference on January 12, 2012 that Turkey would not abide by any unilateral or multilateral sanctions against Iran in spite of efforts by Vice President Biden and US Deputy Secretary of State William Burns.[335]

It also helps explain why Turkey's energy minister, Taner Yildiz, gave a press conference that same day in which he said that Turkey was not bound by the new US or EU efforts to reduce Iranian oil exports: "UN sanctions are binding for us…Other decisions are not…At the moment our imports continue and as of today there is no change in our road map."[336]

However, it is not clear that such statements truly reflect Turkey's intentions or future policy. Turkish banks have already distanced themselves from Iranian banks as a result of past US sanctions. Tupras, Turkey's main oil refiner, and a company owned by the Koch Holding conglomerate, had renewed its annual contract to buy Iranian crude in December 2012, but

Tupras had already stopped selling refined oil to Tehran after the passage of new US sanctions in 2010. Halkbank, a state-controlled bank, has facilitated Tupras' transactions with Iran using a Turkish Lira-denominated account for the transactions. However, Halkbank had already declined to do business with Iran on behalf of a refiner in India, despite previously supporting Iranian trade with India. [337]

Turkey has also agreed to US requests that it host a radar system integral to Phase 1 of the European Phased Adaptive Approach aimed at protecting Europe from Iranian missiles. This decision elicited predictable recriminations for Iran, and spurred a top Western official to assert that "Turkey is back in the club."[338] The Obama Administration has overtly described the missile shield as being designed to deter Tehran, and a top White House official highlighted the importance of Ankara's move by announcing that, "This is probably the biggest strategic decision between the United States and Turkey in the past 15 or 20 years."[339]

Turkey is also evidently reducing its reliance on Iranian crude. Recently released data show that Turkey has reduced its Iranian oil purchases by 15% from around 180,000 bpd in 2011 to roughly 151,000 bpd in 2012, and Iranian oil now represents 39% of Turkey's crude imports.[340] However, Tupras will extend its oil contract with Iran when it expires in August 2013. But, in a statement, Energy Minister Taner Yildiz said that Turkey will keep the level of imports at or below their current level and a decision on import levels will be decided at that time.[341] Turkey is looking to diversify their oil imports, mainly by purchasing increased levels of oil from Libya.

However, as reports in late 2012 indicate, Iran is possibly using its trade with Turkey to circumvent sanctions. Turkey, through the state-owned Halkbank, is paying for Iranian natural gas in Turkish Liras, which is of limited value for Iran in the international market due to its inconvertibility, but is being used to buy gold in Turkey.[342] This gold is then possibly transferred or sold in the UAE and then shipped to Iran providing Tehran with the hard currency needed to pay for imports and governmental expenses.[343]

Turkish gold exports to Iran rose to $6.5 billion in 2012, 10 times the level in 2011, and exports to the UAE rose from $280 million to $4.6 billion.[344] The US, in new sanctions codified in the FY2013 NDAA and implemented February 6, 2013, tightened controls on precious metal sales to Iran and prevented Halkbank from processing other countries' oil payments, cutting off a valuable route for hard currency and preventing India from paying Iran through Turkey in Euros.

As a result, Turkish gold sales to Iran ceased in January 2013 but restarted at lower levels in February 2013 with Turkey selling $117 million worth of gold to Iran.[345] How much this trade will increase, if it will increase, or additional actions or future US sanctions will be taken to block future gold sales is unknown. If, however, the additional sanctions do manage to stem the flow of gold to Iran, it will represent a major blow to Iran's ability to acquire hard currency with which to prop up the Rial, support the government, and fund imports.

The BRICS

The BRICS states - comprised of Brazil, Russia, India, China and South Africa - have individually and collectively responded to the tightening of sanctions by the US and EU in 2011 and 2012. As stated above, China and India have responded by reducing their oil purchases from Iran and have curtailed some forms of trade, but have not completely instituted the various sanctions regimes. As a bloc, the group remains divided over the effectiveness of sanctions to curtail Iranian actions and refuse to endorse either the Western or Iranian position.

In a previous meeting in March 2012, the BRICS stated that they will not impose unilateral sanctions but will abide by UN-authorized sanctions, [346]

> "…we all broadly agree with the proposal, the terminology that was made, that if there are U.N. Security Council sanctions then we are all bound by that, but if there are sanctions that are imposed by other countries unilaterally, they shouldn't have to apply to us…But I think the problem is that we've also got the power relations to contend with, and that whether we like it or not the decision will impact on us in the form of higher oil prices and possibly even shortages of supply. So those are all going to be big challenges that we're going to face."

At the same meeting, leaders of the five developing nations announced their commitment to Iran's right to "peaceful uses of nuclear energy," but they also stressed that the situation "cannot be allowed to escalate into conflict."[347] India in particular, in a statement in April 2012 after the 11th meeting of the foreign ministers of Russia, China, and India, "…recognized Iran's right to peaceful uses of nuclear energy consistent with its international obligations, and support resolution of the issues involved through political and diplomatic means and dialogue, including between the IAEA and Iran, and urged Iran to comply with the provisions of the relevant UN Security Council Resolutions and extend its full cooperation to the IAEA."[348]

At the 2013 BRICS summit in South Africa, the group released the eThekwini Declaration that said in part,[349]

> We believe there is no alternative to a negotiated solution to the Iranian nuclear issue. We recognise Iran´s right to peaceful uses of nuclear energy consistent with its international obligations, and support resolution of the issues involved through political and diplomatic means and dialogue, including between the International Atomic Energy Agency (IAEA) and Iran and in accordance with the provisions of the relevant UN Security Council Resolutions and consistent with Iran's obligations under the Treaty on the Non-Proliferation of Nuclear Weapons (NPT). We are concerned about threats of military action as well as unilateral sanctions. We note the recent talks held in Almaty and hope that all outstanding issues relating to Iran's nuclear programme will be resolved through discussions and diplomatic means.

How Deeply Can Sanctions Bite?

Despite Iranian rhetoric to the contrary, sanctions are already severely impacting the Iranian economy, and effect that will increase steadily over time as they are widened and applied with consistency. However, there is no way to be certain how bad the economic effects will be in the future or how they will affect the political climate in Iran. Nor is there any way to be certain about how they will contribute to what is an escalating process of confrontation between Iran and the US, Europe, Arab Gulf states and other countries, and if this confrontation will lead Iran to new forms of political and asymmetric warfare, serious clashes, or conflict.

Sanctions can also increase the leverage that those countries who continue to import have over Iran. As customers are pressured out of the Iranian oil market, the remaining customers and the amount they buy will become increasingly important to Iran, leaving Tehran open to strong-arm tactics, lowering the price offered to Tehran, or offering payments in non-convertible currency, similar to those that were employed by China or India after sanctions were imposed in the summer.

Iran's Problem Economy: Outside Causes versus Self-Inflicted Wound

Evaluating the true effect of sanctions on a macroeconomic level is difficult because of the previously-existing structural deficiencies of Iran's underlying economy, one that is based almost totally on oil exports and domestic subsidies. While it is clear that sanctions have had a major

impact by reducing exports, making financial transactions more difficult, and reducing government revenue, in many cases they have exacerbated an already structurally weak and largely single commodity export market. Many of Iran's economic problems remain a self-inflicted wound and act to inflate the impact of sanctions to a larger degree than might otherwise be the case in a more structurally stable economy.

Many of the economic problems in Iran today became apparent long before the increase in sanctions in 2010, and may be traced back to former President Ahmadinejad's economic policies. Ahmadinejad was elected on a platform of "bringing the oil money to the people's tables" by embarking on welfare-oriented economic reforms in order to boost the spending power of the rural and urban poor. High oil prices allowed Tehran to "spread the wealth" by injecting billions of dollars into the economy through handouts and cheap loans. However, as the money supply expanded, so did inflation and in 2009, The Economist had already accused Ahmadinejad of economic incompetence, citing a 25% inflation rate and increasing food and housing costs during his presidential tenure.[350]

After Ahmadinejad's election in 2005, he embarked on the Targeted Subsidies Reform plan, which abolished subsidies on basic staples and energy products, which cost Iran roughly $70 billion in 2010 according to the IMF, and $100 billion according to the Iranian government, representing 20-25% of Iran's economy. The aim of this plan was to wean the country off expensive subsidies and to reduce the amount of energy consumed. By 2010, Iran was, by some counts, the most energy intensive country in the world, "it used about 1.65 times as much energy per dollar of GDP as the United States, 2.42 times as much as Switzerland, and 2.5 times as much as nearby Turkey…Heavy demand led Iran to become an importer of gasoline during the late 2000s."[351]

The effect of the plan was immediate. In April 2012, the Financial Times reported that official Iranian data showed the price of dairy products increased about 42%, meat 47.5%, rice 29%, beans 45.7%, vegetables 92%, sugar 33% and vegetable oil 30%.[352] The prices of gasoline, diesel, natural gas, and electricity have risen dramatically. A three-tiered system for gasoline was established where subsidized gas continued to be priced at 1000 Rials/liter, semi-subsidized at 4000 Rials/liter, and a free market price of 7000 Rials/liter.[353] Diesel prices also increased from 165 Rials/liter to a semi-subsidized price of 1500 Rials/liter and a free market price of 3500 Rials/liter that can be seen in **Figure 14**.[354]

To soften the impact on the poor, subsidies were replaced by cash handouts worth roughly $45 dollars. The implementation of the program stipulated that 50% of the revenues would be allotted for cash handouts, 30% for industry, and 20% retained by the government. However, the amount of money used for cash handouts and inflation have largely erased the net revenue gains of the reform laws. In the first year of the program, from December 2010 to December 2011, the government gained 30 trillion Rials but spent 45 trillion Rials on cash handouts for 73 million people.[355] In order to cover the deficit, the government instead used 80% of the revenue generated for handouts, allotted 20% for industry, and forfeited the 20% allotted to itself; this formula has been codified into law in the 2012-2013 Budget Act.[356]

The now suspended second phase of the plan was to be implemented by the end of the Iranian fiscal year, March 20, 2012. The second phase was to further increase energy prices 30%, increase the monthly handout to 735,000 Rials per person, and restrict the qualifications for handouts, eliminating 10 million Iranians.[357] However in November 2012, the Majlis voted to

"suspend" the second phase of the sanctions plan; it appears that the cost of the program, the massive devaluation of the Rial, increased sanctions, and lower oil sales, prevented its implementation.[358]

While the cash handouts were helpful to the poor, the energy price increases undercut the industrial sector and deprived it of cheap energy that allowed many factories to continue in the face of sanctions, inflation, and unemployment, making it difficult to compete. "As a result, there was no increase in domestic production to offset the impact of sanctions; instead, supply chains of intermediary goods and raw material were squeezed, further disrupting industrial productivity."[359]

There was criticism from economists and ministers during Ahmadinejad's first term, with a group of 50 Iranian economists writing an open letter to the president saying,[360]

> … [the economic policies of the government are] lacking scientific and expertise basis, with such haste as to cause persistent inflation
>
> …[the government] has been adopting an expansive monetary policy against the state macro policies…This, combined with political instability, international threats, and decreasing interest rates can wake up the sleeping inflation beast…Bottom line, we understand that the economic problems have not been caused overnight, but it should be said that if your government's policies continue, they can only worsen the situation and lessen people's trust in the government after all those promises to improve the people's welfare.

In his first term the president also fired both the Economy and Finance Minister Davoud Danesh-Jafari and the CBI governor Tahmasb Mazaheri, both of whom criticized Ahmadinejad's economic policies and warned of inflation. Tahmasb Mazaheri, quoted by Iranian newspapers warned, "Creating employment by injecting money into (the economy) is a mirage. We must seek the water and not a mirage…The sharp growth of money supply and a surge in cash injection to the economy has been the main cause of inflation…Despite policies adopted to control inflation there are still decisions being taken and legislation in place which fuel inflation."[361]

Davoud Danesh-Jafari voiced similar warnings against the government's economic policies, "During my time, there was no positive attitude towards previous experiences or experienced people and there was no plan for the future…Peripheral issues which were not of dire importance to the nation were given priority…Inflation is the definite result of this policy and one can not run away from reality."[362]

President Ahmadinejad also eliminated economic planning organizations, disempowered government technocrats, expanded credit and spending, reduced subsidies, and injected cash into the economy.[363] He also privatized many state companies, to the benefit of those associated with the Revolutionary Guard. Increased sanctions and the beginning of the exodus of foreign firms from Iran also opened up opportunities for the IRGC, former members, and affiliated companies that have become the largest economic force in Iran.

Many economists and analysts agree that even the threat posed by the possibility of new sanctions caused Iranian costs to rise and made it increasingly difficult for Iranian companies to work internationally.[364] By late December 2010, Iran's currency was already becoming far more unstable - dropping in value to record lows - and was leading to increased government intervention.

Epitomizing some Iranians' feelings towards the economic track record of the Ahmadinejad administration, one Iranian official admitted to the International Crisis Group that,[365]

> "Between Mahmoud Bahmani [the CBI's governor] and David Cohen [U.S. treasury undersecretary for terrorism and financial intelligence], I have a hard time deciding which one has been more harmful to Iran's economy."

While some experts tend to exaggerate this aspect of Iran's problems, the World Bank provided what seems to be an objective view of the strengths and weakness in Iran's economy from 2010 through the spring of 2012 - estimates made months before the full impact of sanctions began to appear:[366]

> Iran is the second largest economy in the Middle East and North Africa (MENA) region in terms of GDP - US$484 billion in 2012 (after Saudi Arabia) and in terms of population - 78 million people (after Egypt). It is characterized by a large hydrocarbon sector, small scale private agriculture and services, and a noticeable state presence in manufacturing and finance. In 2010, the service sector (including Government) contributed 55 percent to GDP, followed by manufacturing with 22 percent, agriculture with 14 percent, and oil and gas with 9 percent. Iran ranks second in the world in natural gas reserves and third in oil reserves. It is the second largest OPEC oil producer; output averaged about 4 million barrels per day in recent years. Revenues from oil and gas exports accounted for about 60 percent of government revenues in 2011/12 and are Iran's chief source of foreign exchange. Thus, aggregate GDP and Government revenues are intrinsically volatile, fluctuating with international prices of these commodities despite the Oil Stabilization Fund and the newly established national development fund (in 2011/12).
>
> Iranian authorities have adopted a comprehensive strategy envisioning market-based reforms as reflected in the Government's 20-year Vision document and Iran's fifth Five-Year Development Plan (FYDP, 2011–15). However, the Iranian state still plays a key role in the economy, owning large public and quasi-public enterprises which partly dominate the manufacturing and commercial sectors. The Government envisioned a large privatization program in its 2010-15 five-year plan aiming to privatize some 20 percent of state-owned enterprises (SOEs) each year. However, the Iranian Revolutionary Guards Corps and other semi-Governmental enterprises have reportedly purchased controlling shares in numerous SOEs that were offered to private investors in the stock market through the Government's privatization program. The financial sector is also dominated by public banks. Moreover, Iran's 2012 Doing Business ranking at 144 is in the bottom tiers of the MENA region. Only Algeria, Iraq, and Djibouti rank lower among MENA countries. However, the authorities have adopted a comprehensive strategy as reflected in their 20-year vision plan and the 5th Five-Year Development Plan to ensure the implementation of market-based reforms.
>
> The Government has launched a major reform of its indirect subsidy system, which, if successful would markedly improve the efficiency of expenditures and economic activities. The overall subsidies were estimated to cost 27 percent of GDP in 2007/2008 (approximately US$77.2 billion). The Government has opted for a direct cash transfer program while substantially increasing the prices of petroleum products, water, electricity, bread and a number of other products. However, political wrangling between the current administration and the parliament as well as economic hardship due to sanctions has postponed the implementation of the second phase of the reform program.
>
> Economic growth increased by 4 percent in 2009/10 while prudent macroeconomic policies reduced inflation to about 10 percent and ensured a fiscal surplus. The initial impact of the removal of the substantial energy and food subsidies in December 2010 did not suppress Iran's economic performance in part also due to prudent initial macroeconomic policies and the Government's substantial cash transfers program to households. However, stricter international economic sanctions, in particular the European Union's embargo on Iranian crude oil since July, led to a sharp decline in oil exports. The impact of recent sanctions has pushed the economy to contract in 2012. The increase in prices for (imported) inputs due to higher energy prices and the sharp depreciation of the (black market) exchange rate for the Rial also started to suppress the performance of Iran's non-hydrocarbon industrial sector. The currency has lost an estimated 80 percent in value against the US dollar between March 2012 and March 2013 and is likely to further depreciate. For instance, Iran's sizeable pharmaceutical industry is reportedly struggling to import essential

raw materials. Moreover, the number of bankruptcies appears to be on the rise while factories are reported to be working at only half their capacity.

The medium-term outlook for economic growth is negative due to the impact of stricter recent economic sanctions which are expected to reduce revenues from oil exports and to impede corporate restructurings. The speed of economic adjustment to higher energy prices after the subsidy reform will depend crucially on the corporate sector's ability to offset increased input costs. In principle, the subsidy reform can lead to more labor-intensive economic growth, reducing unemployment in the long term. However, the stricter economic sanctions are expected to delay corporate restructurings as they reduce firms' access to foreign markets, inputs, and more energy-efficient technologies. Moreover, the increase in inflation since 2011, in particular the recent increase in import inflation due to the devaluation of the Rial, started to offset the potential medium-term efficiency gains of the subsidy reform. Rampant inflation would result in rapid erosion of domestic energy prices, thereby eroding the benefits of reform. Controlling inflation requires tightly coordinated monetary and fiscal policies. While such policies had been prudent in recent years, the devaluation of Iran's currency since the announcement of tighter international sanctions might trigger an upward adjustment of rapidly self-fulfilling inflation expectations. The official inflation rate is estimated at 28.7 percent in 2012. Official data, however, is widely thought to understate actual inflation.

The country's social indicators are relatively high by regional standards. Most human development indicators have improved noticeably based on the Government's efforts to increase access to education and health. Virtually all children of the relevant age group were enrolled in primary schools in 2009 and enrollment in secondary schools increased from 66 percent in 1995 to 84 percent in 2009. As a result, youth literacy rates increased from 77 percent to 99 percent over the same period, rising significantly for girls. Consequently, Iran is well placed to achieve the MDG target with regard to eliminating gender disparities. Over the years, Iranian women have been playing an increasingly important role in the economy, though their market participation and employment rates remain limited. Iran's health outcomes have also improved considerably over the past twenty years. The mortality rate for children under five steadily declined from 65 (per 1,000) in 1990 to 27 in 2009. Similarly, the maternal mortality ratio per 100,000 live births declined from 150 to 30 during the same period. Consequently, health indicators are usually above regional averages. This success is based on the effective delivery of primary health care which almost balanced health care outcomes in rural and urban areas. Iran's new 5th five-year development plan from 2011 to 2015 continues to focus on social policies.

The CIA provided what seems to have been a similarly objective critique of some of the key issues in Iran's economy,[367]

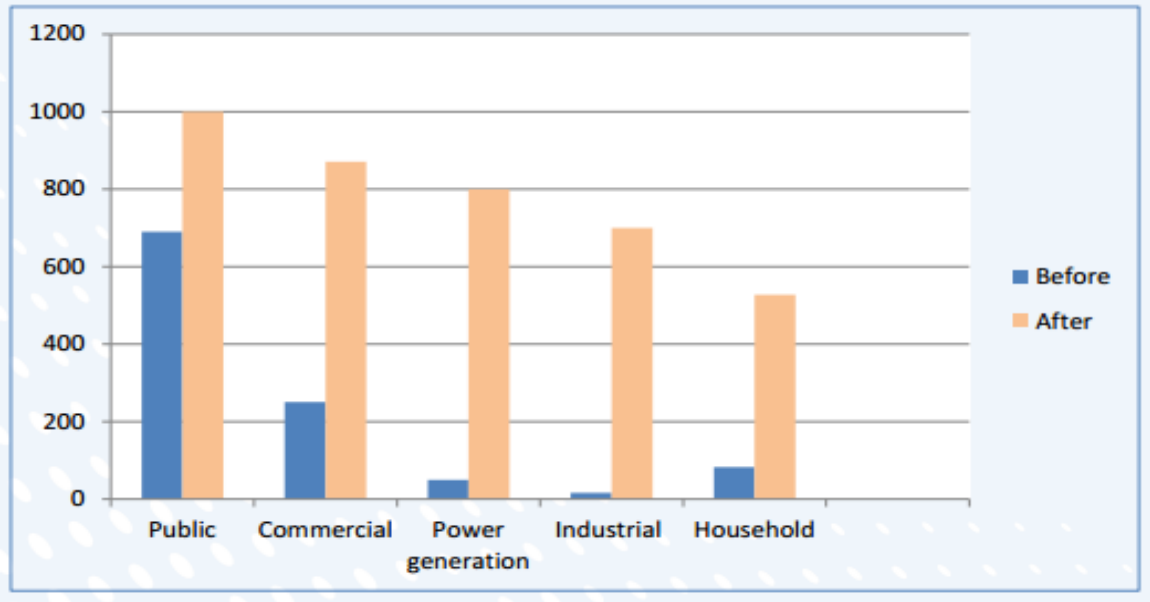
Iran's economy is marked by statist policies and an inefficient state sector, which create major distortions throughout the system, and reliance on oil, which provides a large share of government revenues. Price controls, subsidies, and other rigidities weigh down the economy, undermining the potential for private-sector-led growth. Private sector activity is typically limited to small-scale workshops, farming, some manufacturing, and services. Significant informal market activity flourishes and corruption is widespread. Tehran since the early 1990s has recognized the need to reduce these inefficiencies, and in December 2010 the Majles passed President Mahmud AHMADI-NEJAD's Targeted Subsidies Law (TSL) to reduce state subsidies on food and energy. This was the most extensive economic reform since the government implemented gasoline rationing in 2007. Over a five-year period the legislation sought to phase out subsidies that previously cost Tehran $60-$100 billion annually and mostly benefited Iran's upper and middle classes. Cash payouts of $45 per person to more than 90% of Iranian households mitigated initial widespread resistance to the TSL program. However, inflation in 2012 reached its highest level in four years, eroding the value of these cash payouts and motivating the Majles to halt planned price increases for the second half of 2012 through at least March 2013. New fiscal and monetary constraints on Tehran, following international sanctions in January against Iran's Central Bank and oil exports, significantly reduced Iran's oil revenue, forced government spending cuts, and fueled a 50% currency depreciation. Economic growth turned negative for the first time in two decades. Iran also continues to suffer from double-digit unemployment and underemployment. Underemployment among Iran's educated youth has convinced many to seek jobs overseas, resulting in a significant "brain drain."

Figure 14: The Targeted Subsidies Reform and Energy Prices

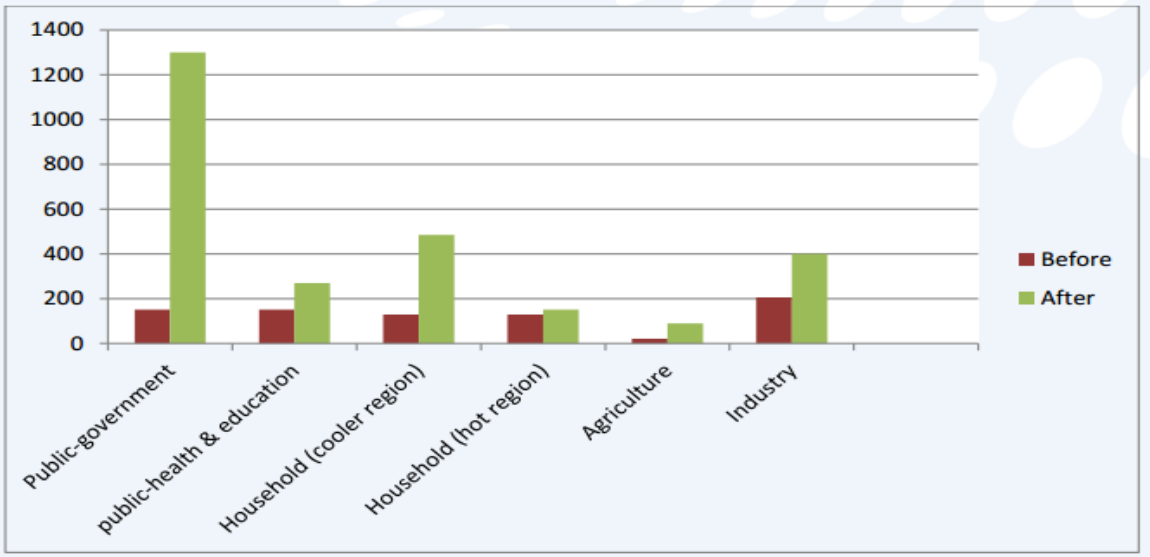
Gasoline and Diesel

FUEL PRODUCT		PRE-REFORM PRICE (IRR/LITRE)	POST-REFORM PRICE (IRR/ LITRE)		
			SUBSIDIZED	SEMI-SUBSIDIZED	FREE MARKET
Petrol	Regular	1000	1000	4000	7000
	Premium	1500	-	-	8000
Diesel		165	-	1500	3500

Natural Gas



Electricity



Source: Elham Hassanzadeh, "Recent Developments in Iran's Energy Subsidy Reforms," The International Institute for Sustainable Development, October, 2012, p 3. http://www.iisd.org/gsi/sites/default/files/pb14_iran.pdf

Measuring the Impact of Sanctions

The basic economic data on Iran are notoriously uncertain:

- Economic indicators and information are notoriously difficult to come by and are at a high risk of being politicalized by Iran or too inaccurate to reliably make assumptions and produce analysis.
- There is no reliable way to measure the GDP in purchasing power parity terms, income distribution, per capita income in real terms, inflation, poverty levels, real and disguised unemployment, and the impact of corruption.
- There is no reliable way to measure the impact of a corrupt state sector whose spending is distorted by unreported shifts in spending to the military and Islamic Revolutionary Guards Corps, a corrupt religious establishment and its "charitable" Bunyods, spending on "civil" nuclear programs, and the real world allocation of the money the state has spent of subsidies and income supplements.

Yet, uncertain as most such data are, it is possible to make broad estimates of the long-term trends based on the patterns in year-to-year and quarter-to-quarter data. The bottom line has been that trends since 2011 indicate that sanctions have had a serious effect on the Iranian economy.

Looking at a Range of Indicators

Unemployment, inflation, and Iranian Rial-USD exchange rate figures are significantly higher than they were even a year ago before sanctions were instituted and before Iran was cut off from the international banking system, SWIFT. All signs point to an economy under siege: production is down, industry has been hampered, currency exchange rate shifts destabilize the business community, and there is a massive brain drain.[368]

There have also been sporadic reports of workers striking due to unpaid wages, 40-50% inflation on consumer goods, and the Iranian government being unable to pay employee wages.[369] Reporting by the International Crisis Group corroborates these figures, "between October 2011 and October 2012, production fell 40 per cent and unemployment grew 36 per cent, while the price of consumer and primary goods rose by 87 and 112 per cent, respectively."[370] In July 2013, President Rowhani expressed concern that, "according to our statistics, we will have 450 million unemployed university graduates four years from now."[371]

Previous reports in November and December 2012 detail Iran's plans to ration diesel sales, mix gasoline with methanol, and only accept cash from domestic airlines for jet fuel.[372] A report by the Associated Press in the Washington Post detailed that Seyyed Abdolreza Mousavi, head of the Iranian Airlines Association, stated that most flights from Tehran, Mashhad, and other airports were canceled due to the failure of domestic airlines to pay their debts to the government. He also said that fuel would only be given to airlines on a cash only basis.[373]

Figure 16 shows other aspects of the interaction between sanctions and Iran's self-inflicted economic problems. Furthermore, anecdotal and press reports suggested that many Iranians, particularly in the middle class, were blaming the regime for economic difficulties brought about by the sanctions as well as the economic missteps the regime had taken in early 2011.

According to CRS's February 2012 report on Iran Sanctions, "The payments process has become so difficult that Iran has begun to use gold and oil to pay for wheat and other imports."[374] The updated September 2012 version includes this as well, "Compounding the loss of sales by volume is that many of its oil transactions reportedly are now conducted on a barter basis—or in exchange for gold, which is hard currency but harder to use than cash."[375]

Since February 2012, the accumulated effects of strengthened international sanctions have damaged Iran's economy in numerous ways. As broader sanctions increase in size and scope, Iran is losing business from both countries imposing sanctions, as well as companies afraid of doing business with Iran. The loss of oil purchases from the EU, China, Japan, and South Korea accounts for 1.1-1.3 million of the 2.5 million barrels sold by Iran each day.[376] The sales losses account for roughly $50 billion in lost revenue in one year at current oil prices.[377] Additionally, decreasing trade and increasing inflation are leading to increased frustration among the Iranian public. Recent economic troubles have led business to downsize or close all together, and there have been reports of numerous strikes, layoffs, and the non-payment of wages.

Figure 17 shows that inflation has become a major issue in the Iranian economy, and at times it has appeared that Iran might enter into hyperinflation or an inflationary spiral. It appears, however, that the current round of inflation in Iran was not instigated by sanctions but rather sanctions exacerbated the previous economic condition, as discussed in the previous section. In 2012, inflation was above 31%, a 17 year high according to Iranian sources.[378] Non-Iranian sources use similar numbers even though experts believe the true figure is higher, possibly twice the official number, with one analyst saying Iran's true inflation rate is 82.5%.[379] Another report that used field studies within Iran shows a 63% inflation rate between May and July 2012.[380] In July 2013, President Rowhani told the Iranian Parliament that the inflation rate was 42%, a full 10% higher than the official figure.[381] However it is impossible to determine the exact inflation rate in Iran due to the impossibility of obtaining non-doctored figures from the CBI. Most likely the true figure is higher than the official figure quoted to the press.

Sanctions have also affected small and large merchants, making obtaining trade financing, insurance, and shipping availability difficult and driving up their costs by an estimated 40%, if merchants could complete transactions at all.[382] Iranian merchants are increasingly using the *hawala* system to complete transactions due the difficulty of using banking systems.

The inability to import raw materials has also hit the Iranian manufacturing sector: Iran has relied on the import of some 10 million metric tons of steel in recent years, but in the first nine months of 2012, steel imports were just 4 million metric tons.[383] This suggests that EU sanctions on sales of steel, aluminum, and other key materials on October 15, 2012, have had an effect. Furthermore, the new tiered exchange rate system and import category list for exchange rates introduced in July 2012, have impacted raw material imports. However, it is not clear what exchange rate industrial inputs now belong to: according to various reports they are traded at either a 15,000 Rial to dollar rate, a "non-reference rate" that is 2% lower than the open market rate, or a managed floating exchange rate of 25,000 Rial to dollar rate.[384] Regardless of the actual amount industrial imports are pegged at, it has become more expensive to import raw materials.

The combination of the reduction of energy subsidies, banking sanctions, and the lack of raw materials has resulted in the erosion of domestic Iranian manufacturing. Iran's car industry production declined 60-80% in 2012, leading to hundreds of thousands of layoffs, and manufacturers of spare parts are running at 40% capacity because of a lack of money and raw materials.[385]

One Iranian that runs a major Tehran building firm told Reuters, "Sanctions have completely crippled all civil projects. Now even the strongest contractors have stopped works."[386] Another Iranian factory owner told the International Crisis Group, "at times, an entire production line has

to be shut down because of a missing screw that we can no longer procure because of sanctions."[387]

Possibly due to the impact of lower oil exports, Iran is planning to increase its oil storage facilities by adding nearly 8.1 million barrels of capacity, and has raised the ticket prices of national flag carrier Iran Air - double for some international destinations, and between 70-90% for domestic destinations because of fuel prices.[388] Ali Larijani, Majlis Speaker said, "We are facing financial drought this year (starting March 21, 2012) and next year…It is unlikely that a miracle will take place in this respect"[389]

The EIA estimated in December 2012 that the growing impact of sanctions was impacting Iran's ability to produce oil and that Iran has no chance for the foreseeable future of meeting its stated goal of some 5.3 m/bpd of production capacity. The EIA estimated that, [390]

> "Iran's crude oil production is estimated at 2.6 million bbl/d in November 2012, indicating at least a temporary bottoming out of Iranian production declines. Iranian production had been falling since at least the last quarter of 2011. The latest round of U.S. and EU sanctions contributed to declines in Iranian production during the second and third quarters of 2012. However, preliminary trade numbers show that exports rose to 1.3 million bbl/d in October, at least temporarily slowing down the production declines. The export numbers are based on commercial data on tanker liftings from Iran, press reports, and other relevant information. However, this tentative interpretation of a very fluid situation could change as EIA revises data, industry sources issue independent estimates of Iranian production, and more details about Iranian storage levels, refinery utilization, and domestic consumption emerge."

In July 2012, the EIA released a report that found that "US financial sanctions and EU insurance provisions have also impeded other countries' ability to finance and pay for transactions in Iranian oil, leading to reports that Iran's ability to produce oil has outstripped its ability to sell it."[391] Furthermore, Reuters reported in October 2012 that only 980 vessels docked in Iranian ports in the first nine months of 2012, this was down from 2,740 in 2011, and 3,407 in 2010.[392] Exports were down as well according to Iranian sources; in the first nine months of 2012, exports were $31.7 billion and imports were $40 billion, a 10.5% decline compared to the year before.[393]

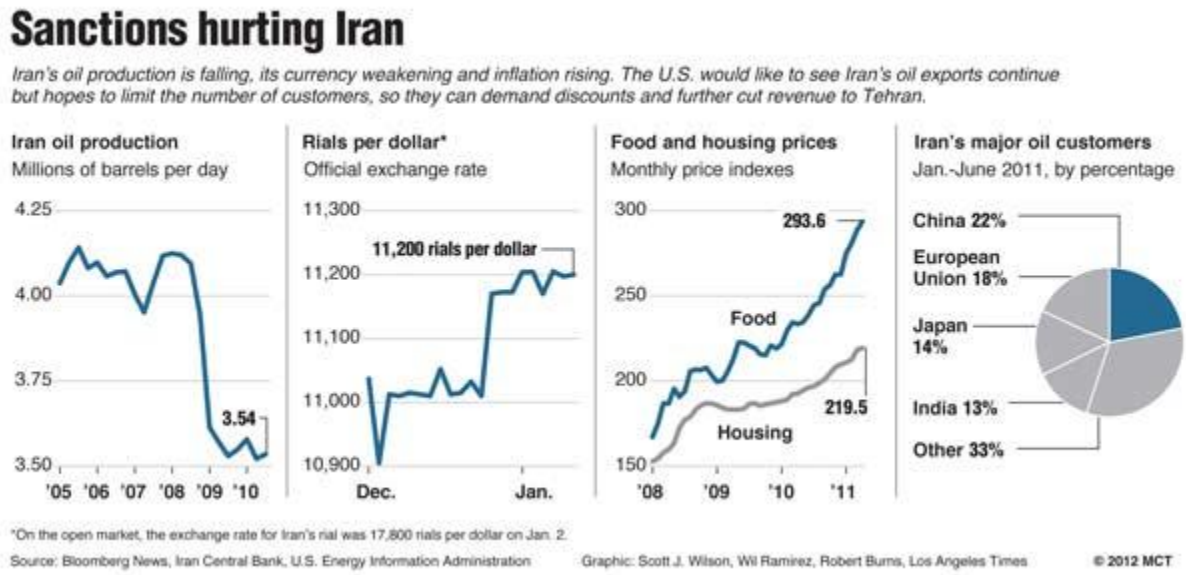
The US Treasury announced in September 2012 that it estimated that Iranian oil exports had dropped by 1 million barrels of oil from 2.4 million barrels a day in 2011 – signifying a drop of $80 billion in revenue compared to 2011.[394] The Undersecretary of the Treasury, David Cohen, stated that, "This decrease in exports is costing Iran about $5 billion a month, forcing the Iranian government to cut its budget because of a lack of revenue…Sanctions have effectively terminated international access for most Iranian banks…Today, the Iranian government is relegated to the backwaters of the international financial system, and they know it."[395]

Other indicators such as the level of foreign currency reserves and Iran's budget deficit show similar effects. Currently, Iran's budget deficit for the 2013-2014 fiscal year (Iran runs on a March 20-March 20 fiscal year) is estimated at almost 40%.[396] The IMF estimate that the budget deficit will be 2.9% of GDP in 2012 and grow to 3.9% in 2013.[397] Foreign currency reserves, of major importance to Iran due to their ability to prop up the Rial, are estimated to be anywhere from $69 billion (according to the CIA) to $106 billion (according to the IMF). Numbers also vary according to news outlets. Bloomberg and The Wall Street Journal estimate slightly over $100 billion at the end of 2011, whereas the Economist estimates $80 billion.[398] Regardless of the exact value of Iran's foreign reserves, the reports make clear that they will decrease over time as Iran loses oil export revenue and its ability to repatriate export earnings. Again, these numbers

should be viewed skeptically because they are just estimates and official numbers provided by the Iranian government are too skewed to analyze.

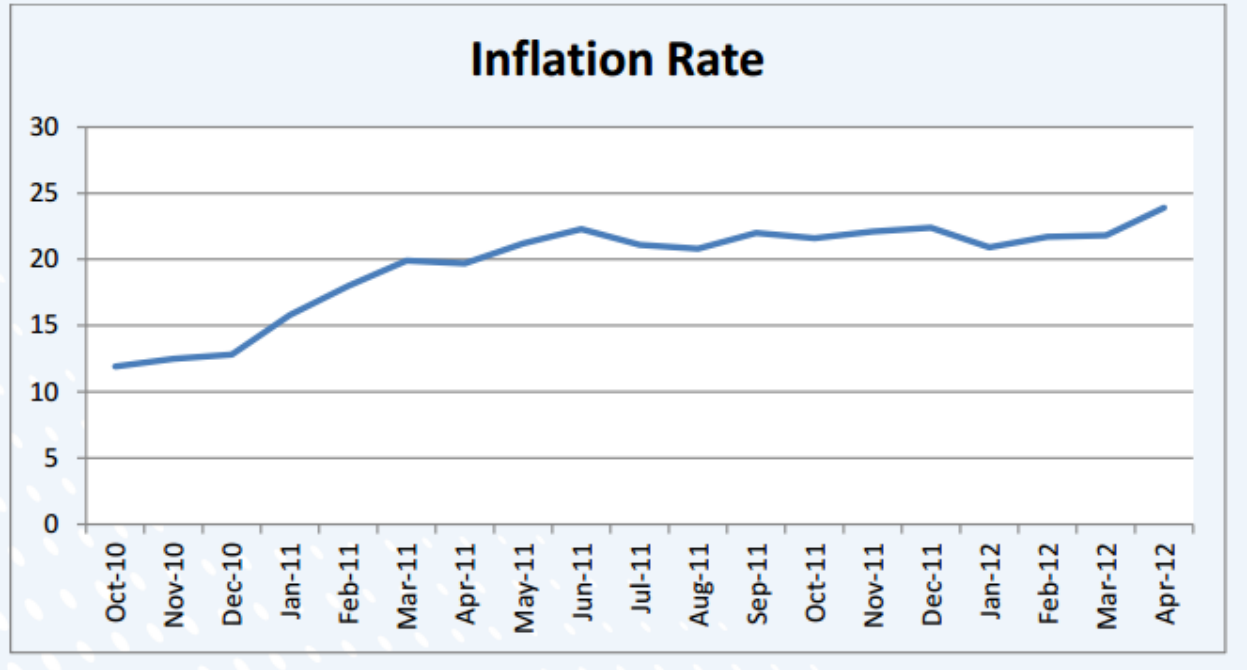
According to Iranian reporting, the budget deficit for the 2012/2013 Iranian fiscal year is estimated to reach $54 billion, a figure which totals 12% of government spending, and oil revenues have forced the government to lower spending on a wide range of programs.[399] Funds earmarked for government investment have declined 70% in the first eight months of the Iranian year starting in March 2012; as an example, infrastructure spending was cut by 30% but the head of the Majlis said that of the $35 billion set aside, no more than $12.2 billion would be available.[400] To increase government revenues, some attention has been paid to fixing the Iranian taxation system, in which government taxes account for only 6-7% of the GDP, 40% of the population exempt from taxes, and 21% of the national GDP part of the informal economy and therefore untaxable.[401]

Figure 16: The Growing Pressure on Iran



Source: Chicago Tribune, "Graphic: Sanctions Hurting Iran", http://www.chicagotribune.com/news/nationworld/sns-graphics-sanctions-hurting-iran-gx,0,3011693.graphic.

Figure 17: Inflation Data in Iran 2010-2012 from the Central Bank of Iran



Source: Elham Hassanzadeh, "Recent Developments in Iran's Energy Subsidy Reforms," The International Institute for Sustainable Development, October, 2012, p 6. http://www.iisd.org/gsi/sites/default/files/pb14_iran.pdf

Currency and Food Price Impacts

Iran's currency, long been kept artificially high by a regime that could afford to subsidize it, has suffered sharply from the implementation of more stringent sanctions. It lost more than 50% of its value between September 2011 and September 2012, and was trading at around 28,000 Rials to one dollar, down from 13,000 in September 2011.[402] According to some reports, this raised the real rate of annual inflation from the government publicized claim of 29% to almost 70%.[403] Moreover, the Rial lost nearly 40% more of its value during the first week of October 2012.[404] The two declines, in January and October 2012, decreased the value of the Rial by 80%.[405]

The devaluation of the Rial and reduction in oil income have affected access to food in a country that previously garnered some 70% of its finances from oil exports, and that the World Trade Organization estimated imported $8.2 billion worth of food and $9.4 billion worth of agricultural products in 2010.[406] These problems have reduced meat consumption, led to the buying and hoarding of gold and dollars, sharply reduced foreign and domestic investment, strained government revenues, and forced Iran into massive new efforts to use third parties and other nations to disguise its economic activities.

By October 2012, food prices were rising so quickly that major changes were taking place by the day, and key foods like chicken had become unaffordable for many Iranians. Reporting later in 2012 indicated sanctions were continuing to take a very heavy toll on food prices and imports of essential commodities such as wheat and sugar.[407] From May to June 2012, the Institute for Sustainable Development conducted a field study that found, "The average price increase for some staple foods, comparing to the same period in the last years, was 52 per cent increase for meat, 65 per cent for chicken, 81 per cent for dairy products, 83 per cent for vegetables and 67 per cent for eggs."[408] These numbers are similar to official numbers comparing April 2012 to a year before, prices for, "dairy products rose about 42 per cent, red meat 47.5 per cent, rice about 29 per cent, beans 45.7 per cent, vegetables 92 per cent, sugar 33 per cent and vegetable oil 30 per cent."[409] Prices for pistachios, traditionally served over the Persian New Year festivities, are being priced at between 540,000 and 780,000 Rials - in 2012, the same nuts went for 200,000 Rials.[410]

The Iranian food distribution network has been affected by the current banking sanctions, even though they contain exemptions for food and medical sales to Iran, by pushing international banks out of the Iranian market, making it increasingly difficult to complete or finance transactions for food.[411]

This resulted in a 5-10% increase in prices for traders looking to buy commodities on the international market, further squeezing Iran's economy. Iran is estimated to consume 15.5 million tons of wheat and 2.6 million tons of sugar and Iran's state run Government Trading Company that is responsible for imports of essential food items is reportedly paying in cash to import 60,000 tons of food a month.[412] The weak Rial also makes food imports increasingly expensive and the food that is imported is difficult for Iranians to afford: anecdotal evidence suggests that milk and meat purchases have decreased since the Rial lost its value and inflation continued.[413]

There are many similar reports and indicators. Rising food prices, the fall of the Rial, and the general state of the economy resulted in demonstrations for the first time in Tehran on October 3, 2012.[414] The Economist Intelligence Unit estimated that Iran's economy would contract by 3% in the 2012/2013 Iranian fiscal year and further contract 1.2% in the 2013/2014 fiscal year, but

assumes that oil exports will increase as major purchasers adjust to sanctions.[415] More recent reporting by the Institute for International Finance has estimated that Iran's economy will shrink by 3.5% this year compared with 1.2% growth in 2011. Inflation is also expected to have increased from 26.5% in 2011 to nearly 50% in 2012. Government revenues from oil exportation, if the current price of $110 a barrel holds, could be 40% less than in 2011.[416]

In order to stem the outflow of currency, Iran ended imports of non-essential goods by dividing imports into 10 categories where importers of essential goods will receive dollars at a subsidized rate.[417] Imports of food and medicine were part of categories one and two, and were exchanged at the official rate of 12,600 Rials per dollar. Industrial inputs and all other products besides luxury goods were part of the other categories and were based on a managed floating exchange rate of 25,000 Rials per dollar according to the International Crisis Group.[418] Imports of other, non-essential goods will have to obtain dollars on the open market, which was recently trading at roughly 37,000-35,000 Rials to the dollar.

Virtually every transaction affecting imports and exports was affected by either the decline of the Rial or the uncertainties surrounding the willingness of non-US banks and firms to deal with Iran, given the threat of sanctions or pressure from Europe, the US, or the Arab Southern Gulf states.

These developments had a compounding influence because of the sanctions impact on Iranian monetary policy. One of the roles of the Iranian Central Bank is to use hard currency to regulate the value of the Rial, but if the Central Bank cannot buy or acquire enough hard currency to regulate the Rial, the currency then becomes unstable. US sanctions on Iranian banks altered the availability of foreign currency and the exchange rate of the Iranian Rial has suffered in turn.

A CRS report on Iran Sanctions goes into further detail:

> The collapse appeared to reflect a perception that Iran's hard currency reserves are being depleted by the sharp fall in Iran's oil sales. Oil sales account for about 80% of Iran's foreign currency earnings, and the proceeds are controlled by the government (Central Bank), not the private sector. The collapse indicated that the government was trying to conserve its supply of dollars by refusing to make them available to the unofficial currency exchangers that operate in Tehran and the large cities – leaving hard currency available for needed imports of food and medicine. The collapse rendered less credible Supreme Leader Ali Khamene'i's assertion on July 11, 2012, that decades of sanctions had "vaccinated" Iran from the effects of sanctions because Iran has developed self-sufficiency.[419]

The costs of trading with Iran also rose substantially as a result of US, UN, and EU sanctions. Costs associated with Iranian trade increased by an estimated 40% to 60% and EU exports to Iran have fallen 32%, according to outside figures.[420] Official numbers from Iran's Trade Commission painted a less dramatic rise but indicated that sanctions have slowed the pace of trade and increased trade costs for Iran between 5% and 10% in 2010.[421]

In his January 2012 Worldwide Threat Assessment, US Director of National Intelligence James Clapper stated that: [422]

> Iran's economy is weighed down by international sanctions. The new US sanctions will have a greater impact on Iran than previous US designations because the Central Bank of Iran (CBI) is more important to Iran's international trade than any of the previously designated Iranian banks. The CBI has handled a greater volume of foreign bank transactions than other designated banks and receives the revenue for the roughly 70 percent of Iranian oil sold by the National Iranian Oil Company…
>
> Despite this, Iran's economic difficulties probably will not jeopardize the regime, absent a sudden and sustained fall in oil prices or a sudden domestic crisis that disrupts oil exports. In a rare public indication of

the sanctions' impact, Ahmadinejad said in a speech to the legislature in early November that Iran is facing the "heaviest economic onslaught" in history, a sentiment echoed by the head of the CBI."

Steady Increases in the Nature and Scope of Sanctions

Iran seems likely to continue to face tightening sanctions as the US Congress is continually looking at new ways to reduce Iran's oil production, revenue, and nuclear capabilities. On February 27, 2013, H.R. 850, the "Nuclear Iran Prevention Act of 2013" was introduced with bipartisan support to Congress. The legislation would increase the list of blacklisted Iranian companies, potentially block Iranian assets held in Euros, designate the IRGC as a terrorist entity, continue to restrict business dealing with Iran. The bill has been referred to committee.[423]

The new rounds of US and EU sanctions and enforcement efforts that occurred between late 2012 and June 2013 placed further pressure on Iran's oil sector and Tehran's ability to repatriate its foreign oil sale earnings. In October 2012 the EU instituted sanctions that impacted Iran's oil and gas sector, banking and financial sector, and oil transportation sector. The US also introduced new sanctions within the FY2013 NDAA that took effect February 6, 2013, which prohibit Iran from repatriating earnings from oil sales and only allow Iran to use its earnings on non-sanctioned trade originating from where the earnings are held.[424]

Additional US sanctions were introduced into the FY2013 NDAA that blacklisted Iran's energy, port, shipping, and shipbuilding sectors while restricting Iran from obtaining insurance on those industries.[425] This amendment was inserted and passed as part of Subtitle E and is called "The Iran Freedom and Counter-Proliferation Act of 2012." These provisions use the same sanction implementation methods currently used under the CISADA sanctions act. A separate section blocks the sale, transfer, or supply of precious metals to Iran.

However, the Obama Administration opposed the new round of sanctions saying that they were not needed, would complicate current actions, and would impose a new burden on the Intelligence Community, specifically Section 1252, that mandates the President submit a list of vessels docked at Iranian ports and airports that have been used by Iranian air carriers.[426] While these new sanctions have continued to squeeze the Iranian economy, they also perpetuate the cat and mouse game between the US, EU, and Iran.

Iran's View of the Impact of Sanctions

As noted earlier, The official Iranian message to the world regarding both sanctions and its nuclear programs has been that Iran is a developing nation being bullied by a country that feels its post-Cold War hegemony waning. Iran has accused the United States and its allies of using globalization as an instrument of Western power to impose their will on non-Western states - what former President Ahmadinejad called "forced globalization."[427] Iran has cultivated an image as the voice of all Muslims in confronting an imperialist United States - "very helpful to Ahmadinejad's desire for greatness in the Arab world."[428]

Shifting From Denial Towards Reality

The degree to which sanctions and other external economic pressures have affected the Iranian economy has been a central - if changing - theme in Iran's rhetoric. Until the fall of 2012, key members of the Iranian leadership repeatedly stated that sanctions have had no effect on the country's economy and many statements still make this claim. On October 1, 2012, Speaker of the Iranian Parliament, Ali Larijani, said "The westerners make much hue and cry about

sanctions sometimes…but the reality is that a little part of our economic problems is related to the sanctions…"[429]

In late November 2010, a close confidant and adviser to President Ahmadinejad stated that increased financial restrictions and sanctions had had "no noticeable effect on Iran's economy."[430] Shakour Akbarnejad of the Iranian Parliament's Economic Commission stated that, "history has shown that sanctions have left no negative impact on the Iranian nation's movement and we have, in a word, become accustomed to them."[431]

Other Iranian officials went so far as to claim that sanctions have benefitted Iran by engendering technological innovation and self-reliance. The Vice President for Science and Technology downplayed the effectiveness of sanctions, saying:

> "The sanctions imposed by the US and Europe have not posed any threat and restrictions to the Iranian researchers; rather all threats have been turned into opportunities to growingly increase the speed of Iran's growth and flourishing in scientific arenas."[432]

And in a statement the Islamic Revolutionary Guards Corps said that sanctions had not affected growth of Iranian defense industries,

> "Despite the full scale enmity of the oppression front and the global oppression system against the Iranian nation and the chain of sanctions during the past 33 years (since the victory of the Islamic Revolution in 1979), the field of defense industries has taken advantage of the existing potentials and cradles, as well as the capabilities of its own creative forces, providing the basic requirements and defense needs of the country."[433]

In July 2012, Supreme Leader Khamenei described how sanctions had "vaccinated" the country allowing Iran to make achievements in science and technology,

> "These days, the westerners are making hues and cries about sanctions but they do not understand that they themselves have vaccinated the Iranian nation against any sanction with the embargos (that they have imposed) in the last 30 years…In the last three decades, the Iranian nation has stood against all plots and sanctions…and made progress in a way that today we are 100 times stronger than 30 years ago."[434]

On March 6, 2011, Ahmadinejad made similar allusions to the alleged positive effects of sanctions on Iran's scientific and industrial development, stating that, "the Iranian nation learned to rely on their (own) resources and capabilities [...] and as a result, made great scientific achievements" as a result of sanctions.[435]

The debate on the effects and causes of the economic difficulties also played out in the editorial sections of Iranian newspapers, with some blaming the government and some blaming outside powers:[436]

> In the past few years, economic decisions have been based on short-term solutions…Despite dramatic changes that altered the economic system, the Central Bank has not yet been able to understand the economic situation…These systems and work methods need to keep up with the changing times before it is too late. - Shargh (A reformist newspaper)
>
> Some government officials try to make up excuses to avoid being accountable for the country's situation…Government should pay attention to reality and refrain from making vague statements that the public does not believe. It is a blunder on the part of the government if it believes that it can do whatever it likes. - Mardom Salari (A centrist newspaper)
>
> Although the economic trends are deteriorating short-term, the government's new economic policies will lead to long-term economic growth over time and with the ability to adapt to the present situation. - Quds (A hardline conservative newspaper)
>
> Our economic problems create empathy, cooperation and coordination between various government

> branches that are trying to remedy the country's current economic challenges. Although the sanctions cause problems, the opportunity to develop relationships in international banking and investment…can be a substantial part of neutralizing problems from sanctions. - Iran (A centrist conservative newspaper)

The Iranian government also attempted to manipulate economic data relating to sanctions, and to make charges about the economic policies of other countries as the cause of Iran's economic problems. For example, Dr. Seyed Shamseddin Hosseini, the Minister of Economic Affairs and Finance of the Islamic Republic of Iran and the Governor of the Bank for the Islamic Republic of Iran, attacked both the policies of the West and World Bank in a statement on the "Necessity to Rethink the World Bank Behavior" at the annual meeting of the IMF on September 23, 2011, and attempted to describe Iran's economy as a "success":

> These meetings are held at a juncture that we still see the negative consequences of the global crisis on the economic and financial environment. The debt of the United States Government has exceeded 14 trillion dollars and the impacts of downgrading US credit rating, as well as low economic growth and its negative prospect, has resulted in severe fluctuations in the money, commodities and capital markets.
>
> The Euro Zone, too, faces three contradictory policy challenges, namely implementation of austerity economic measures, low growth rate, and incapability in repaying its debts and honoring financial obligations.
>
> These problems root from the following:
>
> 1. The current architecture of the world's economy, due to inconsistency between the financial and the real sectors, creates unavoidable periodical instabilities. Settling this issue requires amending the current financial and monetary models, and shifting toward new models, such as Islamic finance, which are based on the balance between the financial and real sectors of the economy.
>
> 2. Political instability influences the economic performance. What is now happening in the MENA region, though appears to be political, doubtlessly deepens the global economic crisis, if the political and military interventions are not avoided.
>
> 3. The management of the international monetary and financial institutions has been deviated from its original functions and pursues the political will of some certain shareholders.
>
> Unfair sanctions imposed on countries, such as the Islamic Republic of Iran, and following the will of some certain countries by the World Bank, in drawing up its relations with Iran, is a proof to this point. That the World Bank management, contrary to its Articles of Agreements, avoids approving the Country Assistance Strategy for Iran, and refrains from offering technical assistance to Iran, is another evidence of its deviation.
>
> As the representative of a country that is a founding member of the World Bank, I would like to emphasize on the loyalty of the management of the World Bank to its Articles of Agreement as well as good and corporate governance, instead of biased governance.
>
> Let me briefly inform you of our economic structural and institutional reforms and achievements in recent years: Revising one of the Articles of Constitution improved the role of the private sector, the situation for non-governmental sector and doing business environment. Implementing the economic transformation plan, including targeting subsidies, amending customs, taxation and banking systems, goods and services distribution system as well as currency denomination reform and enhancing productivity are in our agenda.
>
> The achievements of these plans are as per followings:
>
> 1. The Targeting Subsidy Plan, focusing on amending the energy carrier prices resulted in a 6 percent reduction in energy consumption. This policy reduced electricity consumption by 2 percent, while prior to implementation of the plan, there was an annual rate of growth of 8 percent.
> 2. Amending the flour price, reduced its consumption by 30 percent and prevented smuggling to neighboring countries. The savings strengthened the food security and also listed Iran among the

exporters of wheat.

3. The revenues of targeting subsidies are redistributed. A cash payment of one and a half dollars a day to 73 million plus Iranian, who have applied for it, led to a sharp fall of Gini Coefficient in Iran.
4. The capital market is developed, and privatizing state-owned firms and issuing Sukuk Bond are done through the stock exchange and OTC. These efforts led to 146 percent growth of stock exchange index and 100 percent growth in market value of Tehran Stock Exchange in December 2010, comparing to the end of 2007
5. Foreign direct investment to the country during 2009 and 2010 experienced 120 percent growth.
6. The growth of non-oil exports in 2009 and 2010 was 24 and 31 percent respectively.[437]

Shifts in Iranian Statements: 2010-2013

Iran's leaders have gradually become more frank about the impact of sanctions. Toward the end of 2011, there was a change in rhetoric coming out of Tehran. In a speech before Parliament, President Ahmadinejad characterized the most recent international efforts as "the most extensive sanctions ever" and that "this is the heaviest economic onslaught on a nation in history…every day, all our banking and trade activities and our agreements are being monitored and blocked."[438] The true effects of sanctions are always opaque, but his rhetorical departure suggests that the renewed international pressure has at least succeeded in forcing a strategic shift by Tehran.

Other individuals within the Iranian government cautioned their colleagues about the dangers of economic sanctions and criticizing the regime's economic policies. Veteran Iranian politician, Akbar Hashemi Rafsanjani, said the Islamic Republic was under unprecedented global pressure and that the government was wrong to dismiss the sanctions as no threat to the economy.[439]

Mojtaba Vahidi, a former top-level manager who served in Iran's finance and industry ministries for more than 20 years, observed that, "the economic crisis [that Iran is] witnessing today is a direct result of the sanctions—and Iranian officials who say otherwise are fooling themselves."[440]

Addressing the Iranian Parliament in July 2013, President Rowhani remarked that:

> The country faces very difficult conditions, and some of these complexities are the result of domestic performance and some are the result of unjust foreign pressures…This is the first time that the country faces very high inflation - the highest in the region and perhaps in the world - coupled with negative economic growth.[441]

However, the Minister of the Economy, Dr. Shamseddin Hosseini, countered that,

> …in the shadow of the Leader's enlightenment and the President's courage, the country progressed. We in the government considered the economic and psychological war to be reactions to the country's progress, and we believed that the foundations for a modern economy are advanced sciences such as aeronautics, nano- and biotechnology, and peaceful nuclear science. Resistance, tolerance, and hard work are the paths that must be taken to counter sanctions and reach justice and progress.[442]

The following chronology provides other examples of how Iran has mixed denials with a growing degree of realism:

- "Unfortunately, the increase in liquidity has had a bad effect on the increase in prices. The pressure of sanctions increased little by little. The effect of the sanctions on Iran's economic affairs was 20%-30%, and the rest was due to decision-making problems… In total, we were not successful in materializing last year's motto: the Year of National Production…Although they tried hard and in certain respects their performance was good and they were able to circumvent sanctions, on issues that should have been foreseen and when

they should have acted much earlier, they didn't, and it looks like they didn't do enough." - Mohammad Reza Bahonar, First Deputy Speaker of the Majlis, April 1, 2013. http://www.irandailybrief.com/2013/04/01/sanctions-against-iran-have-affected-the-irans-economy-about-20-30-government-failed-to-manage-irans-economic-crisis/

- "The government is well aware of its weak economic performance, though it tries to ascribe that weakness to sanctions…When the price of foreign currencies went up, we expected more emphasis on exports but instead, there was so much emphasis on imports that domestic manufacturers were brought to their knees…The government was responsible for the rise in the price of vehicles and air travel, and lack of medicine in the market…" - Mehrdad Lahuti, a member of the Majlis Development Committee, March 28, 2013. http://www.irandailybrief.com/2013/03/28/government-is-to-be-blamed-for-poor-economy-not-sanctions/
- "Specific policies by some banks and the National Iranian Oil Company (NIOC) have resulted in the stoppage of oil exports by the private sector…Self-imposed sanctions have brought oil exports by the private sector to a halt…The private sector has had absolutely no oil exports since two months ago and is facing managerial barriers from NIOC." - Hasan Khosrojerdi, head of the Iranian Oil, Gas and Petrochemical Products Exporters' Association, March 6, 2013. http://www.irandailybrief.com/2013/03/06/private-sector-oil-exports-stopped-completely/
- "We are engaged in economic war and need to think of arrangements that can overcome these hurdles…Like any other war, economic wars also have casualties." - Mahmoud Bahmani, Governor of the Central Bank of Iran on the subject that inflation will surpass 31% by the end of March, February 28, 2013. http://www.irandailybrief.com/2013/02/28/cbi-irans-inflation-rate-will-rise-to-31-by-the-end-of-march/
- "[this year] was a very difficult year for our economy," – former President Ahmadinejad, February 23, 2013. http://articles.washingtonpost.com/2013-02-23/world/37253822_1_sadeq-larijani-world-powers-nuclear-activities
- "On the basis of the report, oil sales are down 40 percent and income has dropped 45 percent in the last nine months." - Head of the parliament's budget committee, Gholam Reza Kateb, January 8, 2013. http://www.irandailybrief.com/2013/01/08/oil-exports-have-fallen-40-in-the-past-nine-months/
- All people who believed that the sanctions were nothing, but a worthless piece of paper and did not make the necessary arrangements to handle them will be required to account for their actions since the country is now suffering from the problem." - Chief of the General Inspection Office, Mostafa Pourmohammadi, December 31, 2012. http://www.irandailybrief.com/2012/12/31/anyone-who-has-failed-to-prepare-to-cope-with-the-sanctions-will-be-required-to-account-for-their-actions/
- "Liquidity disproportional to national production, (western) sanctions, the trend of fluctuations combined with the incompetency of the government's monetary and economic affairs officials have been the key factors behind the rising currency exchange rate." – Majlis Member Ahmad Tavakkoli, December 21, 2012. http://www.irandailybrief.com/2012/12/21/governments-mismanagement-sanctions-behind-rise-in-currency-exchange-rate/
- "We can't say that sanctions have not hurt us. They have, but we devised plans to control the damage and have been able to avoid serious damage to our economy…It's a temporary high rate of inflation in Iran, and we are trying our best to control it and bring it down to where it should be in the near future." – Central Bank of Iran Governor, Mahmoud Bahmani, November 22, 2012. http://www.irandailybrief.com/2012/11/22/cbi-governor-iran-has-avoided-a-serious-dent-to-its-economy-from-western-sanctions-thanks-to-large-gold-reserves-high-oil-prices-and-reduced-foreign-imports/
- "There is no precedence in the world for a central bank to be sanctioned. But they have done this and they may even expand the sanctions further to include logistics issues. Today we are in a serious and dangerous confrontation. We must realize that confronting the enemy requires serious thought and intelligence." - Minister of Industries and Business, Mehdi Ghazanfari, July 17, 2012. http://iranprimer.usip.org/blog/all/Helia%20Ighani

- "With God's grace, as was the case in other issues which the enemies were not able to do anything, they can do no damn thing in their economic confrontation with our people…This is a war against a nation…But the Iranian nation will defeat them." Supreme Leader Ali Khameni, October 15, 2012. http://www.google.com/hostednews/afp/article/ALeqM5iM-IjGUz6UP3aoMlfrKdjxG2lq4A?docId=CNG.c36ac90c578becd9b22b3b70fe27a38e.741
- "One factor is from outside, and one factor is from inside. The enemy has stated that it will impose (more) sanctions, and part of the oil purchases from Iran has decreased, and a considerable segment of our foreign currency revenues was generated through oil sales…What is worse than the oil sanction is the sanctions on banking transactions. If oil is sold, the payment cannot be transferred, and a massive and great secret war (against Iran) is actually underway in the world." "Are these currency fluctuations because of economic problems? The answer is no…Is this because of government policies? Never…It's due to psychological pressure. It's a psychological battle." – former President Mahmoud Ahmadinejad, October 2, 2012. http://www.guardian.co.uk/world/2012/oct/02/ahmadinejad-iran-currency-psychological-war?newsfeed=true
- "[Sanctions constituted an]…all-out, hidden, heavy war" and that sanctions were impeding the economy, "there are barriers in transferring money, there are barriers in selling oil, but we are removing the barriers." – former President Mahmoud Ahmadinejad, September 5, 2012. http://english.farsnews.com/newstext.php?nn=9106061782
- On dialogue with the West, "[t]his is good talk and shows and exit from delusion …But the U.S. president continued saying that he wants to make the Iranian people kneel through sanctions. This part of this speech shows the continuation of illusion in this issue." - Supreme Leader Ali Khameni, March 8, 2012. http://www.npr.org/blogs/thetwo-way/2012/03/08/148231349/irans-ayatollah-khamenei-gives-rare-if-brief-praise-for-u-s
- The current sanctions regime was "the heaviest economic onslaught on a nation in history." – former President Mahmoud Ahmadinejad, February 2, 2012. http://www.guardian.co.uk/world/2012/feb/02/western-sanctions-iran-economy
- "Losing the European oil market will have an impact on Iran's economy which needs rational planning by the authorities. Selling oil at sub-market level prices is not a good way to counter the oil embargo." - Former Iranian Oil Ministry deputy, Mehdi Hosseini, January 26, 2012. http://www.criticalthreats.org/iran-news-roundup/iran-news-round-january-26-2012
- "Iran can readily find new customers for its oil. We have no problem in selling oil." - National Iranian Oil Company director for international affairs, Mohsen Qamsari, January 24, 2012. http://www.mehrnews.com/en/newsdetail.aspx?NewsID=1516783

Impact on Popular Attitudes and Regime Security

Over the past few years, it has become apparent that the sanctions, while successful at harming Iran's economy, have not lead to the people turning against the nuclear program or their government. Recent polling in February 2013 by Gallup shows that Iranians still support the nuclear program (63%) and blame the US over the EU or Iranian government (47%, 7%, and 10%, respectively) for sanctions.[443]

Other polls seem to indicate that Iranians still have faith in their economy before the new round of sanctions in late 2011. Tehran's stock market had seen a huge increase in trade, and there was no clear sign of a significant capital flight.[444] Also, Iran had sizable hard-currency reserves to absorb shocks, and the isolation of its banking sector helped to protect the country from the worst of the global financial crisis.[445] But in the same poll stated above, 56% of survey participants agreed that sanctions had hurt Iranians' livelihoods and 48% sanctions have personally hurt their livelihoods.[446] Previous polls, conducted before tougher sanctions were

implemented in 2012 and 2011, show Iranians believing the sanctions have not had much effect on their economy. In December 2010, the International Peace Institute conducted a poll that showed 47% of Iranians believed that sanctions have had a lot/some impact, whereas 45% believed they have had little/no impact.[447] A 2009 poll conducted by the Rand Corporation showed that "29 percent of respondents rated the economy as poor…9 percent rated the economy as somewhat poor…47 percent of respondents rated the economy as average, 9 percent rated it as very good, and 5 percent rated it as excellent."[448]

Some believed at the time that Iran's people would tolerate economic effects of international sanctions as long as world oil prices remained high (nearly $100 per barrel in June 2011) and the regime could benefit from the fact that sanctions would have less impact.[449] Reza Marashi, a former Iran Desk Officer at the US Department of State, argued in the summer of 2011 that the negative effects of existing sanctions had become serious, but had not affected the regime as much as might be expected:

> Sanctions exacerbate this dependence on the government. By raising the costs of doing business in Iran, sanctions slow economic development and decrease employment options for the middle class. When fewer companies invest in Iran, there are fewer jobs for skilled middle-class workers; fewer opportunities to develop professional skills; and less socially conscious investments while the government prioritizes differently to combat foreign pressure. Alternative options for Iran's middle class are increasingly narrow: unemployment, emigration, or becoming state employees. As a result, many middle-class Iranians not employed by the government live on unsustainable sources of income such as second jobs and remittances from family abroad. Survival for the middle class is at best unstable, and the conservative factions in power prefer to keep it that way - a struggling middle class focused on making ends meet is easier to control.
>
> Sanctions have in fact strengthened the hand of conservative factions that increasingly disregard economic reforms from the 1990's and early 2000's. Instead, they have favored economic populism and tighter government control of resources. This allows Iranian hardliners to kill two birds with one stone: reallocating resources to lower-class Iranians in an effort to expand their political base, while squeezing middle-class Iranians that are the backbone of Iran's pro-democracy movement. Together, these policies increase the percentage of the population beholden to the state for its livelihood. With no compelling alternative in sight, Iranians are less likely to revolt and bite the proverbial hand that feeds them.[450]

At the same time, there have since been popular protests against government mismanagement of the economy and the dwindling value of the Rial. Protests erupted on October 3, 2012 at the Grand Bazaar in Tehran when police attempted to shut down black-market money changers.[451] Protesters were reportedly shouting anti-government slogans and joined by merchants who then marched towards the Iranian Central Bank.[452] However, this seems to be an isolated incident.

The pressure of sanctions and the regime's concern over popular opinion may have been a factor in Iran's willingness to offer a new plan to end the nuclear confrontation in early October 2012 – although this seems doubtful.[453] The new plan was largely a rehash of past negotiating proposals that called for early dismantling of the sanctions, and a slow dismantling of the key enrichment sites like Fordow in ways that could allow Iran to move its enriched stocks and send them to other concealed centrifuge facilities or store them for a future breakout attempt.

Similar uncertainties arise over indicators that the Supreme Leader was using Iran's president as a scapegoat for the country's economic problems in the wake of the March 2012 Iranian parliamentary elections. Prior to the end of his presidential term, there had been increasing tensions between President Ahmadinejad and Supreme Leader Khamenei. The Supreme Leader's allies in the judiciary and legislature were attacking the President, accusing him of "the most severe corruption since the 1979 revolution" and blaming him for economic mismanagement,

"which has resulted in rising inflation and unemployment and an unprecedented collapse of the Iranian currency…"[454] These actions, however, were likely a reflection of internal power struggles than a reaction to sanctions and popular discontent.

Iran's Limited Oil Export Income and Export Vulnerability

Iran's economic vulnerabilities are compounded by the fact that its oil revenues have propped up much of the Iranian economy in the past, but have always been too limited or mismanaged to meet Iran's requirements for national development or provide its people with a high per capita income.

Figure 18 provides additional data that show that Iran's oil revenues are not high in per capita terms, and are only a fraction of the per capita oil earnings of Qatar, Kuwait, and the UAE. To put such data in context, even before the new rounds of sanctions in late 2011, the CIA estimated that Iran's per capita income ranked only 101st in the world, while a neighbor like Qatar ranked 1st and the UAE ranked 10th.[455]

This mix of economic weaknesses and vulnerabilities present problems for Iran in acting on the threats it made to "close the Strait" in 2011 and 2012. Any actions that shut off the flow of oil through the Gulf would be more damaging to Iran than to any of the Southern Gulf exporting states. Iran's currency reserves are far smaller and it economy is not sufficiently diversified to withstand a complete loss of oil revenue that would go along with a complete halt of oil traffic through the Strait since Iran's economy has long been marginal in meeting the needs of its people even when oil moves freely through the shipping lanes.

The Iranian government cannot support its people without imports of food, fuel, gasoline, and spare parts, a large portion of which it obtains through sea transportation due to its limited overland connections to its neighbors. Iran cannot maintain or expand its energy exports if it is at war or outside states refuse to deal with it, and the situation is becoming steadily more difficult for Iran even without a crisis in the Gulf or Strait of Hormuz that would cause a major cut in oil traffic.

Figure 18: Comparative Iranian and Other OPEC Oil Income

OPEC Net Oil Export Revenues

	Nominal (Billion $)				Real (Billion $)			
Country	2011	2012	2013	Jan-Nov 2012	2011	2012	2013	Jan-Nov 2012
Algeria	$64	--	--	$57	$55	--	--	$49
Angola	$68	--	--	$63	$59	--	--	$53
Ecuador	$10	--	--	$9	$9	--	--	$8
Iran	$95	--	--	$64	$83	--	--	$55
Iraq	$71	--	--	$75	$62	--	--	$64
Kuwait	$85	--	--	$81	$73	--	--	$69
Libya	$14	--	--	$46	$12	--	--	$39
Nigeria	$90	--	--	$84	$78	--	--	$71
Qatar	$57	--	--	$48	$50	--	--	$41
Saudi Arabia	$310	--	--	$291	$269	--	--	$248
UAE	$101	--	--	$94	$88	--	--	$80
Venezuela	$61	--	--	$54	$53	--	--	$46
OPEC	$1,027	$1,052	$955	$967	$891	$895	$799	$823

OPEC Per Capita Net Oil Export Revenues

	Nominal (Billion $)				Real (Billion $)			
Country	2011	2012	2013	Jan-Nov 2012	2011	2012	2013	Jan-Nov 2012
Algeria	$1,821	--	--	$1,614	$1,581	--	--	$1,373
Angola	$5,108	--	--	$4,609	$4,434	--	--	$3,920
Ecuador	$702	--	--	$620	$609	--	--	$528
Iran	$1,409	--	--	$938	$1,223	--	--	$798
Iraq	$2,341	--	--	$2,415	$2,032	--	--	$2,054
Kuwait	$29,291	--	--	$27,199	$25,427	--	--	$23,134
Libya	$2,184	--	--	$6,910	$1,896	--	--	$5,877
Nigeria	$607	--	--	$551	$527	--	--	$469
Qatar	$57,634	--	--	$48,094	$50,031	--	--	$40,906
Saudi Arabia	$10,435	--	--	$9,645	$9,059	--	--	$8,204
UAE	$19,614	--	--	$17,733	$17,027	--	--	$15,083
Venezuela	$2,197	--	--	$1,942	$1,907	--	--	$1,652
OPEC	$2,685	$2,702	$2,406	$2,486	$2,331	$2,298	$2,015	$2,114

Source: US Energy Information Agency, "OPEC Revenues Factsheet," December 12, 2012. http://www.eia.gov/countries/regions-topics.cfm?fips=OPEC

Figure 19: Iran's Top Energy Importers and Current Reductions

Country/Bloc	2011	End of 2012 (est.)
European Union (particularly Italy, Spain, and Greece)	600,000	Negligible
China	550,000	400,000
Japan	325,000	200,000
India	320,000	280,000
South Korea	230,000	200,000
Turkey	200,000	150,000
South Africa	80,000	0
Malaysia	55,000	30,000
Sri Lanka	35,000	20,000
Taiwan	35,000	20,000
Singapore	20,000	15,000
Other	55,000	25,000
Total	**2.5 mbd**	**1.34 mbd**

Source: Kenneth Katzman, *Iran Sanctions*, Congressional Research Service, January 10, 2013, Page 41.

Sanctions and Future Iran's Energy Sector

There are indications that existing sanctions had caused substantial injury to the energy sector even before the US and EU imposed far stronger sanctions starting in 2010. State Department Special Advisor Robert Einhorn testified on July 29, 2010, that about $50 billion of investment in Iran's energy sector had been deterred by sanctions and other forms of pressure.[456] Some US officials have put the figure closer to $60 billion in lost investment.[457]

IHS Global Insight has estimated that Iran requires approximately $25 billion per year to maintain its current rate of oil production and considerably more to develop and deploy advanced recovery techniques needed to maintain or increase its daily output.[458] Other sources indicate that Iran needs $130 billion in investment from 2011 to 2020, and the Iranian Oil Minister said in November 2011 that Iran needed $300 billion in order to stem or reverse the steep decline in production rates in Iran's old fields.[459] Iran's oil fields need more investment due to high natural decline rate of 8-13% and a low recovery rate of 20-30%.[460] With additional sanctions now in place, Iran will most likely not have the resources or hard currency necessary to make these investments itself and will be hard pressed to find foreign companies willing to risk being sanctioned by the EU and US if it does invest in Iran's oil industry.

As a result of these sanctions, many major energy, transportation, and associated firms have pulled out of Iranian projects, declined to make further commitments, or resold their investments to other companies. A partial list is shown in **Figure 24**. Observers have reported little new investment in Iranian energy fields, with the absence of development particularly damaging at the massive South Pars gas field.[461]

Iran's oil production fell to about 3.8 million barrels per day (mbpd) from about 4.1 mbpd in the mid-2000s, and was projected to fall to about 3.3 mbpd by 2015 before the new sanctions were imposed.[462] Depending on the source, Iranian gas production has continued to drop, now totaling between 3.2 mbpd and 2.6 mbpd according to outside sources and roughly 3.7 mbpd according to Iranian sources

As previous figures have shown, sanctions and depressed economic activity in Asia and the rest of the world helped lead average Iranian oil sales to a decrease of 36% in 2012, from 2.4 mbpd to 1.5 mbpd; currently IEA estimates peg Iranian oil exports at roughly 1 mbpd in March 2013, less than half of Iran's pre-sanctions average.[463] **Figure 5** has shown a rapid decrease in Iranian crude exports since the beginning of 2012. It is clear that sanctions have had a major impact on Iranian crude exports and therefore a major impact on Iranian government revenues and hard currency reserves. In 2011, Iran received $95 billion in oil export revenues, however, due to sanctions, that was cut to $69 billion in 2012.[464]

Although Iran remains a relatively minor natural gas exporter, it has the second largest proven natural gas reserves, as shown earlier in **Figure 1**, and some maintain that Iran's gas sector can more than compensate for declining oil exports.[465] However, given the level of sanctions now imposed on all aspects of Iran's energy sector, it is highly unlikely that it will be able to attract the $145 billion in new investment by 2018 that Tehran's deputy Oil Minister has said Iran needs in order to develop its gas sector.[466]

There have been concerns that sanctions will allow Asian firms to "backfill" vacated Iranian energy investments, and there has been some level of "backfill" by Chinese firms. However, the investment from China, who has four projects in Iran - the Masjed-i-Suleiman project, the North

and South Azadegan oil fields, and Phase 11 of the South Pars offshore gas field - is miniscule compared to current Iranian investment needs.[467] And, this backfill may not happen at all: Iran has frozen a $4.7 billion contract with China National Petroleum Corporation to develop the Phase 11 of the South Pars field because of the failure to start work, and Sinopec is behind schedule in developing the Yadavaran oil field.[468]

According to sources, China backed out of the South Pars development plan due to onerous contract clauses and a tight schedule.[469] According to Iranian sources, Iran will cancel its South Pars contract with China over delays. Oil Ministry Spokesman Alireza Nikzad-Rahbar said that given the [lack of] inclination on the part of the Chinese [company], the contract for [South Pars] Phase 11 is likely to be called off," the South Pars project will be given to an Iranian company, and another field with "lower risk" may be given to China as an exchange.[470]

Chinese investment in Iran, some of the last remaining major outside investment in the country, has shrunk from almost $3 billion in 2011 to only $400 million last year.[471] Iran and China are still at loggerheads over Iranian charges that China was delaying development of oil and gas fields and, in March 2012, the Industrial and Commercial Bank of China pulled out of a deal to finance the Iranian-Pakistan pipeline project because of sanctions.[472]

Some Iranian officials have acknowledged the vulnerability to vacating energy firms. In recent years, record oil prices insulated Iran from international sanctions and allowed the government to pursue populist policies intended to raise living standards of ordinary Iranians. From 2005, when Ahmadinejad came to power, until 2010, Iran took in nearly $500 billion in total oil revenue, more than the combined earnings of all previous Iranian governments since the 1979 revolution.[473]

The problem now is that lower oil prices and reduced sales could cut government revenue from petroleum by 40% according to the Institute for International Finance; this corresponds to roughly $110 million less each day and roughly $3 billion per month.[474] According to Economic Minister Shamseddin Hosseini, Iran's revenues have been cut in half, but by managing the budget, "there will be no problem in paying salaries until the end of this year."[475]

According to reports, Iran's government budget for the next year will assume the sale of only 1 mbpd, half of what Iran exported in 2011. Due to the difficulty in lowering production by capping wells, Iran is preparing to store more oil and add 8 million barrels of storage capacity in the coming year in preparation for continuing lower sales.[476]

Some of Iran's actions also speak as loudly as any statistics. When additional sanctions were implemented during the summer, Iran initially stored its unsold oil on part of its fleet of oil tankers. But, as sanctions caused many shippers to lose their private insurance, Iran was forced to use its own tankers to transport oil, reducing its storage capacity.

According to the IEA, Iran has a total onshore storage capacity of 25 million barrels and is estimated to be filled to capacity.[477] The same report says that Iran has taken delivery of five crude tankers that had been ordered from Chinese shipyards and have returned to service overhauled tankers rescued from the scrapyard; some of these that will be used for floating storage. IEA's December 2012 Monthly Oil Report details 13 million barrels in floating storage in either the Arabian Gulf or off Malaysia.

Iran also faces counter pressure from the Arab Gulf states. The United States and Saudi Arabia have worked together both to lower oil prices and reduce the need for Iranian oil by increasing

output. In June 2011, the Obama administration, in conjunction with 27 other nations, released 60 million barrels of oil from their strategic reserves. Simultaneously, Saudi Arabia announced that it would increase its production to 10 mbpd from 9.3 mbpd to offset any increase in prices that resulted from a reduced supply. This has allowed countries to convert some of their oil purchases from Iran to Saudi Arabia. In the words of Reza Zandi, an independent oil and gas expert based in Iran, "The Americans and Saudis are using oil as a weapon against us."[478]

Figure 20: Energy Firms Ending Business with Iran 2009-2012

Country	Company	Action
France	Total	Ended investments in Iran
Germany	Linde	Stopped all business
	Schlumberger	Will exit Iran 2013
India	Reliance Industries	Stopped sales of refined products; will not import crude oil from Iran
	Ashok Leyland Project Services	Ended investments in Iran
Italy	Eni spA	Ended investments in Iran
	Edison	Ended investments in Iran
	Tecnimont	Ended investments in Iran
Belarus	Belneftekhim/ Belarusneft	Ended investments in Iran
Japan	Inpex Corp.	Exited from the Azadegan oil field
Kuwait	Independent Petroleum Group	Stopped sales of refined products
Malaysia	Petronas	Stopped sales of refined products
Netherl-ands	Royal Dutch Shell	Ended investments in Iran
Austria	OMV	Ended investments in Iran
Poland	PGNiG	Ended investments in Iran
Norway	Statoil	Ended investments in Iran
South Korea	GS Engineering & Construction	Cancelled a $1.2 billion gas processing project in Iran
	Daewoo Shipbuilding & Marine Engineering	Ended investments in Iran
Spain	Repsol	Abandoned negotiations over development of phases 13 and 14 of the South Pars gas field.
Switzer-land	Vitol	Committed to not supply refined petroleum products to Iran
	Glencore	Committed to not supply refined petroleum products to Iran
	Trafigura	Committed to not supply refined petroleum products to Iran
	Litasco	Stopped sales of refined products
Singapo-re	Hin Leong Trading	Stopped sales of refined products
Russia	Gazprom	Ended investments in Iran
Turkey	Tupras	Cancelled contracts to supply gasoline to Iran

United Kingdom	BP	Stopped supplying jet fuel to Iran Air at Germany's Hamburg airport; halted a BP-NIOC (National Iranian Oil Company) joint venture in the Rhum gas field
	Costain Oil, Gas & Process Ltd	Ended investments in Iran
United Arab Emirates	Emirates National Oil Company	Stopped sales of refined products
Kuwait	Independent Petroleum Group	Stopped sales of refined products
International	Trans-Adriatic Pipeline	The pipeline will not be used to transport Iranian gas to Europe

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Other Foreign Companies Exiting the Iran Market

The current sanctions regime also creates strong penalties that act to push foreign companies and investors out of the Iranian economy. While none of the existing sanctions ban all trade with Iran (US and EU sanctions allow for exemptions for food, medical products, or subsidiaries of US companies that has no operational relationship to the parent company), sanctions have made it exceedingly difficult to do business in the country has led to an exodus of foreign companies from Iran. **Figures 21 to 24** show these trends in more detail.

According to Treasury and State Department officials, at least 80 major banks had committed not to finance exports to Iran or to process dollar transactions for Iranian banks even before the newer and more stringent US and EU sanctions were passed.[479] Among those that pulled out of Iran were Credit Suisse and UBS (Switzerland), HSBC and Barclays (Britain), Commerzbank, Dresdner Bank, BNP Paribas, and Deutsche Bank (Germany), Société Générale and Le Crédit Lyonnais (France) and even the National Bank of Fujairah, based in Dubai.[480]

This is only some of the evidence that sanctions are having a significant impact on Iran's economy, although not necessarily on its nuclear program. Given this exodus, Iran has had to scramble to find alternative ways to import food, refine gasoline, and obtain other critical supplies - precisely the effect that US officials have been hoping for.[481]

However, some Japanese and European companies walked away from lucrative contracts and projects in Iran also made it clear at the time that they feared losing out to their competitors who may be anxious to step in.[482] US politicians and outside experts have expressed concern that Asian firms, from China in particular, as well as from Malaysia, Vietnam, and countries in Eastern Europe, were "backfilling", or moving in to fill the void left by vacating European firms.

There is some reason for such concern. Some foreign firms have been picking up the slack left by exiting European nations, and are using it to create a foothold in the Iranian marketplace. In May 2011, China and Iran signed a $20 billion mining and industrial investment agreement. [483] China is also a major player in Iran's petroleum sector. In July 2012, China signed a $20 billion deal to develop the Azadegan and Yadavaran fields with an end goal of 700,000 bpd, and has shown an interest in developing Iran's heavy oil fields.[484] China however, has reportedly "gone slow" with new contracts or has not yet implemented agreements. It is not clear whether this is official policy stemming from Beijing or if Chinese companies are trying to reduce their risk in light of increased sanctions and tensions.[485]

However, reports indicate that Chinese investment in Iran, some of the last remaining major outside investment in the country have shrunk from almost $3 billion in 2011 to only $400 million in 2012.[486] Iran and China are still at loggerheads over Iranian charges that China was delaying development of oil and gas fields and in March 2012, the Industrial and Commercial Bank of China pulled out of a deal to finance the Iranian-Pakistan pipeline project because of sanctions.[487] In 2007 Sinopec signed a $2 billion deal to develop Iranian oil fields, and in 2009 China's Natural Petroleum Corporation signed a $4.7 billion deal to replace France's Total SA in developing phase 11 of Iran's South Pars gas field.[488]

So far, however, such "backfilling" has had its limits. A report the GAO issued in December 2012 identified 42 foreign firms involved in Iran's energy sector between 2005 and 2012. However, by June 2011, 19 of those companies had withdrawn from Iran and between that period and September 2012, only 7 firms were reported to be engaged in the energy sector.[489] According to the report, there was not enough open source information to positively determine the Iranian activities between June 2011 and September 2012 for the last 8 firms. Between January 2012 and September 2012, the only firm that was reported to have sold refined gasoline to Iran was Syria's state-owned oil corporation Sytrol.

Moreover, most of the actual and potential backfilling companies were not as technically capable as those that withdrew from Iran.[490] In fact, many experts believe that, over time, the efficiency and output of Iran's economy will decline as foreign expertise departs and Iran is forced to work with less capable foreign companies.[491] The impact of new and much stricter sanctions will almost certainly make this worse.

Figure 21: Major Non-Petrol Related Foreign Companies Halting Business in Iran, 2010-2011

Country	Company	Field
China (Hong Kong)	NYK	Shipping
	CSCL	Shipping
	COSCO	Shipping
Denmark	Maersk	Shipping
Germany	Siemens	Telecommunications
	Thyssen-Krupp	Steel
	Daimler	Automotive
	Munich Re	Insurance
	Allianz	Insurance
	Hannover Re	Insurance
	Hapag-Lloyd	Shipping
Italy	Finemeccanica	Defense/Transportation
Ireland	Ingersoll-Rand Plc	Manufacturing
Japan	Toyota	Automotive
South Korea	Kia	Automotive
	Hyundai	Automotive
Switzerland	ABB	Engineering
United Kingdom	Lloyds	Insurance
United States	Caterpillar	Construction/Mining
	Huntsman Corp	Chemical Manufacturing
	KPMG	Accounting
	PricewaterhouseCoopers	Accounting
	Ernst & Young	Accounting
France	Peugeot	Automotive
	BNP Paribas[492]	Banking/Financial Management
Finland	Nokia	Telecommunications
India	Tata Group	Communications/Steel/ Services

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Figure 22: Foreign Firms Selling Refined Petroleum Products to Iran between June 2011 and September 2012- Insufficient Information Available

Firm	Country[a]	Status in GAO's January 2012 report	Status in current GAO report
1. China Oil	China	Active	Insufficient information available
2. Petróleos de Venezuela S.A.	Venezuela	Active	Insufficient information available
3. Unipec	China	Active	Insufficient information available
4. Zhuhai Zhenrong	China	Active	Insufficient information available

Source: Government Accountability Office, "Firms Reported to Have Sold Iran Refined Petroleum Products or Engaged in Commercial Activities in Iran's Energy Sector," December 7, 2012.

Figure 23: Foreign Firms Engaged in Iran's Energy Sector between June 2011 and September 2012- Confirmed

Firm	Country[a]	Status in GAO's August 2011 report	Status in current GAO report
1. China National Petroleum Corporation	China	Active	Active
2. Daelim	South Korea	Active	Active
3. Indian Oil Corporation Ltd.	India	Active	Active[b]
4. Oil India Ltd.	India	Active	Active[c]
5. ONGC Videsh Ltd.	India	Active	Active[d]
6. Sasol	South Africa	Active	Active[e]
7. Sinopec	China	Active	Active

Source: Government Accountability Office, "Firms Reported to Have Sold Iran Refined Petroleum Products or Engaged in Commercial Activities in Iran's Energy Sector," December 7, 2012.

Figure 24: Foreign Firms Engaged in Iran's Energy Sector between June 2011 and September 2012- Insufficient Information Available

Firm	Country[a]	Status in GAO's August 2011 report	Status in current GAO report
1. Amona	Malaysia	Insufficient information available	Insufficient information available
2. China National Offshore Oil Corporation	China	Active	Insufficient information available
3. INA	Croatia	Active	Insufficient information available
4. Oil and Natural Gas Corporation (ONGC)	India	Active	Insufficient information available
5. Petrofield	Malaysia	Insufficient information available	Insufficient information available
6. Petróleos de Venezuela S.A.	Venezuela	Active	Insufficient information available
7. Petronet LNG	India	Insufficient information available	Insufficient information available
8. SKS Ventures	Malaysia	Insufficient information available	Insufficient information available

Source: Government Accountability Office, "Firms Reported to Have Sold Iran Refined Petroleum Products or Engaged in Commercial Activities in Iran's Energy Sector," December 7, 2012.

Adding Banking Sanctions to Energy Sanctions

Petroleum is only part of the story. Even before the EU instructed SWIFT to halt transactions with Iranian banks and financial institutions, Iran encountered serious and growing problems in finding financial institutions willing to handle Iranian payments to energy companies as well as processing foreign payments for its exported oil.

Traders and oil company officials report that European and Middle Eastern banks all but stopped issuing letters of credit to Iranian financial institutions, making it very difficult to transact payments for oil sales. It has become so difficult to complete oil sales though regular banks that India and Turkey have resorted to paying for oil and gas purchases through local currencies, gold, or other commodities.

Reports indicate that in 2010 shipping companies refused to send tankers to Iranian oil terminals, and insurers became steadily more reluctant to cover cargoes even before additional sanctions on marine insurance were instituted.[493] This indicated that the US strategy is having an effect, and Peter Pham of the Atlantic Council predicts that, "At some point or another, Iran's shrinking pool of partners will conclude that the cost of doing business with it is too high."[494]

Tehran confronted a dwindling number of financial institutions willing to facilitate its commerce, and faced a situation where few banks were willing to do business with Iran, and those that did exacted a premium for doing any business with the country.[495]

The pressures are also rising as a result of the new sanctions. While Asian importers such as South Korea, China, India, and Japan maintain Iranian Central Bank accounts in certain banks, they are restricted to only processing those transactions related to oil purchases and are denominated in the local currency. Expanded sanctions in the FY2013 NDAA alter the sanctions implemented in the FY2012 NDAA to prevent Iran from repatriating revenue gained from oil transactions unless those funds are used to purchase non-sanctioned goods from that country.

Even those foreign banks still doing business with Iran had growing trouble in financing energy deals. Reports showed even before the new sanctions that some Iranian officials were growing increasingly angry about the inability of Iran's largest oil customers to pay in US dollars or Euros, a problem that has now contributed to a shortage of hard currency and complicated the central bank's attempts to bolster the Iranian Rial.[496] Some analysts believe that Iran's foreign currency reserves, estimated at $106 billion on January 1st 2012, have begun to shrink, with one analyst estimating that Iran currently has $50-70 billion of reserves left.[497]

Banking sanctions have hit third-party refiners of Iranian oil. Indian refiners faced crude supply disruptions from Iran because they could no longer process payments: since December 2010, the Reserve Bank of India barred trade-related payments to the Asian Clearing Union.[498] By March 2012, India had resumed payments to Iran by using a barter system in which non-convertible Rupees will make up 45% of the total oil sales.[499] However, with new sanctions preventing Iran from repatriating its earnings from oil sales it is unclear how this relationship will have to change going forward.

In addition, US financial sanctions blocked China from paying at least $20bn for oil imports, leading Tehran and Beijing to initiate talks about using a similar barter system to exchange Iranian oil for Chinese goods and services such as wheat and consumer products, in order to circumvent sanctions.[500]

Many of these problems are a result of the EU's decision to bar Iranian banks from using the SWIFT interbank communication system on March 15, 2012. The SWIFT cut-off affects at least 19 Iranian member banks and 25 financial institutions, including Bank Melli, Bank Mellat, Tejarat Bank, Bank Refah, Future Bank, Persia International Bank, Post Bank and Europäisch-Iranische Handelsbank.

Iran has few alternatives to the use of SWIFT, other than tightly regulated South Korean and Indian government controlled and other Asian banks, and it is likely to face even more serious problems during 2013 as further sanctions within the FY 2013 NDAA are implemented or the EU passes additional sanctions on Iran's banks. Both will limit Iran's ability to conduct foreign trade, or transportation industries. The Senate and House of Representatives continue to work on bills that would seek to blacklist essentially every Iranian bank, threaten penalties against European and other overseas companies that deal with any of these banks, and to target communications, software and technology companies that continue doing business with Iranian banks. [501]

Furthermore, on June 3, 2013, President Obama signed an executive order to bar any foreign financial institution from the US financial market should such companies continue to conduct financial transactions denominated in Rials or hold a significant amount of assets denominated in Rials.[502] While the full impact of these newest sanctions remain to be seen, it will likely only further isolate Iran from global financial markets and devalue its currency even more.

Iran may be able to paper over its fundamental economic problems as long as it can move a significant amount of oil into export markets and find a way to repatriate those earnings back to Iran. But due to impending sanctions, this will require illicit means that may be harder to establish, may take longer, and may incur a risk premium, further cutting into Iran's revenues.

Since the initial round of banking sanctions, there have been instances of major financial insitutions conducting sanctioned transactions with Iranian companies or individuals. In December 2012, HSBC payed $1.9 billion to settle charges of illicit financial dealings: a US Senate report indicated that the bank had processed 25,000 transactions over seven years without disclosing their ties to Iran.[503] Also in December, Standard Chartered paid $647 million in fines for covering up nearly a decade of illiegal financial transactions that routed Iranian money through a network of US and European banks before returning back to the Islamic Republic.[504]

The United States also sanctioned China based Kunlun Bank and Iraq based Elaf Islamic Bank by banning them completely from the US financial market. The Under Secretary for Terrorism and Financial Intelligence, David Cohen, stated that, "imposing sanctions on Kunlun and Elaf underscores Treasury's commitment to use all the tools at its disposal to intensify financial pressure against Iran," while at the same time producing a "chilling effect" that would deter other financial instituions from engaging in sanctioned activities with Iran.[505] As sanctions continue to isolate and cut off Iran from the international banking system, high oil prices cannot create a "cushion" if Iran cannot receive the proceeds for oil sales, receive non-convertible currency, goods, or services.

Finally, although many Western companies have fled from Iran, some remain interested in exploring profitable Iranian projects in the future, if possible. Despite European and American sanctions, large multinational firms such as Volvo, Cannon, Samsung, Sony, and others are remaining in the Iranian market.[506] And, 315 foreign companies from 40 countries - including the UK, US, and Germany attended the 17th International Oil, Gas, Refining, and Petrochemical

event in Tehran in April 2012.[507] However, this number was a drastic reduction from the 1,500 firms that attended in April 2011 and the 315 that did show were vastly overshadowed by the 940 Iranian companies that attended the event.[508]

Outside Views of the Economic Impact of Sanctions

If one looks at other indicators, it again becomes clear that there are no reliable data that can, as yet, portray the full impact of the new energy and banking sanctions that the US and EU have implemented over the past years. There are only a series of rough and sometimes conflicting indicators.

The data on Iran in the World Bank web pages are often out dated and many go back to 2001, though some are as recent as 2011.[509] Partly because of this timing, they reflect progress in many human development indicators, including the rather ironic fact that twice as many women now graduate from university in Iran as men. The World Bank does state, however, that:

> Iranian authorities have adopted a comprehensive strategy envisioning market-based reforms as reflected in the Government's 20-year Vision document and Iran's fifth Five-Year Development Plan (FYDP, 2011–15). However, the Iranian state still plays a key role in the economy, owning large public and quasi-public enterprises which partly dominate the manufacturing and commercial sectors. The Government envisioned a large privatization program in its 2010-15 five-year plan aiming to privatize some 20 percent of state-owned enterprises (SOEs) each year. However, the Iranian Revolutionary Guards Corps and other semi-Governmental enterprises have reportedly purchased controlling shares in numerous SOEs that were offered to private investors in the stock market through the Government's privatization program. The financial sector is also dominated by public banks. Moreover, Iran's 2012 Doing Business ranking at 144 is in the bottom tiers of the MENA region. Only Algeria, Iraq, and Djibouti rank lower among MENA countries. However, the authorities have adopted a comprehensive strategy as reflected in their 20-year vision plan and the 5th Five-Year Development Plan to ensure the implementation of market-based reforms.
>
> The Government has launched a major reform of its indirect subsidy system, which, if successful would markedly improve the efficiency of expenditures and economic activities. The overall subsidies were estimated to cost 27 percent of GDP in 2007/2008 (approximately US$77.2 billion). The Government has opted for a direct cash transfer program while substantially increasing the prices of petroleum products, water, electricity, bread and a number of other products. However, political wrangling between the current administration and the parliament as well as economic hardship due to sanctions has postponed the implementation of the second phase of the reform program.
>
> Economic growth increased by 4 percent in 2009/10 while prudent macroeconomic policies reduced inflation to about 10 percent and ensured a fiscal surplus. The initial impact of the removal of the substantial energy and food subsidies in December 2010 did not suppress Iran's economic performance in part also due to prudent initial macroeconomic policies and the Government's substantial cash transfers program to households. However, stricter international economic sanctions, in particular the European Union's embargo on Iranian crude oil since July, led to a sharp decline in oil exports. The impact of recent sanctions has pushed the economy to contract in 2012. The increase in prices for (imported) inputs due to higher energy prices and the sharp depreciation of the (black market) exchange rate for the Rial also started to suppress the performance of Iran's non-hydrocarbon industrial sector. The currency has lost an estimated 80 percent in value against the US dollar between March 2012 and March 2013 and is likely to further depreciate. For instance, Iran's sizeable pharmaceutical industry is reportedly struggling to import essential raw materials. Moreover, the number of bankruptcies appears to be on the rise while factories are reported to be working at only half their capacity.
>
> The medium-term outlook for economic growth is negative due to the impact of stricter recent economic sanctions which are expected to reduce revenues from oil exports and to impede corporate restructurings. The speed of economic adjustment to higher energy prices after the subsidy reform will depend crucially on the corporate sector's ability to offset increased input costs. In principle, the subsidy reform can lead to more labor-intensive economic growth, reducing unemployment in the long term. However, the stricter

> economic sanctions are expected to delay corporate restructurings as they reduce firms' access to foreign markets, inputs, and more energy-efficient technologies. Moreover, the increase in inflation since 2011, in particular the recent increase in import inflation due to the devaluation of the Rial, started to offset the potential medium-term efficiency gains of the subsidy reform. Rampant inflation would result in rapid erosion of domestic energy prices, thereby eroding the benefits of reform. Controlling inflation requires tightly coordinated monetary and fiscal policies. While such policies had been prudent in recent years, the devaluation of Iran's currency since the announcement of tighter international sanctions might trigger an upward adjustment of rapidly self-fulfilling inflation expectations. The official inflation rate is estimated at 28.7 percent in 2012. Official data, however, is widely thought to understate actual inflation. [510]

The *World Bank Economic Outlook* for 2012 also does included details on Iran's economic situation:[511]

- Growth in the MENA region was below trend in 2011, primarily because of country-specific factors. Among oil exporters, strong oil prices contributed to growth of 4 percent in 2011, which was held down by lower outcomes in the Islamic Republic of Iran related to a poor harvest and the effect of the subsidy reform.
- Among oil exporters, negative developments in the Islamic Republic of Iran are projected to be offset by increased oil production in Iraq and Saudi Arabia and a bounce back in Libya.

The data on the IMF web page includes both past estimates and future projections through 2012, 2013, and 2017, according to IMF estimates:[512]

- 2% GDP growth in 2011 slowing to 0.4% in 2012, increasing to 1.3% in 2013, and 2% in 2017. Iran's real GDP growth in 2010 was 3.5%.
- A 21.3% annual rise in consumer prices in 2011 - a near doubling over the 2010 rate and enough to seriously erode the value of incomes' and savings', the ability to pay for imports, and potentially to fund key aspects of life such as marriage, housing, educational expenses, and business expansion and investment.[513] Consumer prices are expected to rise by 25.2% in 2012 and 21.8% in 2013.
- A decline in Iran's positive account balance from 12.5% of GDP in 2011, to 3.4% in 2012 and 1.3%.
- An increase in unemployment from 12.3% in 2011, to 14.1% in 2012 and 15.6% in 2013.
- A decrease in the value of oil exports from $120 billion in 2011 to $70 billion in 2012, $62 billion in 2013, and $47 billion in 2017.

The World Bank estimates an average inflation rate of 22.1% during 1993-2002 and rates ranging from 25.4% to 12.4% during 2003-2010.[514] The CIA *World Factbook* provides additional detail on some of the aspects of the Iranian economy that help reflect the potential impact of steadily tighter sanctions. Iran's population is 79 million, a growth rate of 1.25%, and a median age of only 27.4 (24% of the population is 14 years of age or younger).

At the same time, differences in estimates of Iranian GDP data provide a warning about the uncertainty in almost every aspect of the data available on Iran and a partial explanation of why experts differ. The CIA estimates the GDP to be $990 billion in 2011 in purchasing power parity (PPP) terms but only $474.7 billion in market terms at the official exchange rate – roughly 48% of the PPP total.[515] Whereas the World Bank only has data as recent as 2009 and it states that Iran's GDP at that time was $331 billion.[516] The IMF has data up to 2010 which states Iran's GDP was $419 billion and $950 billion on PPP terms.[517]

As for other indicators, the CIA estimated real growth at only 2% in 2011 and contracting 0.9% in 2012 - roughly equal with IMF and World Bank data and only slightly greater than the population growth rate at 1.247%. It estimates industrial production dropped by 2.7% in 2011, and this number may be larger as economic mismanagement, subsidies reform, and lack of inputs

shutter factories. It estimates a per capita income of $13,100 in 2012 in PPP terms, which tends to sharply exaggerate the actual income of Iranians, which ranks only 101 in the world and is a fraction of the per capita income of the Southern Gulf states.[518] The World Bank has data from 2009 that estimates the Iran's GDP per capita in PPP terms was $11,508; the IMF for that same year estimates $12,102.

The CIA's poverty level data are only as recent as 2007 and they estimate that 18.7% of the population was at or below poverty levels. More meaningfully, the total unemployment estimate for 2012 was 15.5%. It estimates youth unemployment in the 15-24 years of age category was 20.2% - 23% for males and 34% for women, and at least 715,000 more men and 677,000 more women reached the age where they should enter the labor force in 2010.[519] The World Bank doesn't have numbers for poverty levels and only unemployment levels for 2008 - 10.5% total and 23% youth. The IMF estimates the unemployment rate for 2010 was 13%.

As is the case with every nation in the developing world, employment, labor force, and unemployment estimates are extremely uncertain in economies where disguised unemployment (jobs which have no productivity gain) is common. Productivity gain is often negligible and dependent on energy export income. Moreover, the CIA estimated that the services sector accounted for some 45% of the labor force in June 2007 (the World Bank estimated in 2008 that it was 46.5%) and 50.6% of the GDP in a 2012 estimate.[520] Moreover, Iran is heavily dependent on imports ($93 billion in 2011 according to the CIA, $66 billion in 2012) - not only of refined hydrocarbon products but key goods like industrial supplies, capital goods, foodstuffs and other consumer goods, and technical services.[521]

These differences illustrate the need for caution since some data exaggerate the impact of sanctions, while other data depend on official Iranian reports that are altered to make Iran's economy look better than it really is. What is clear at this point is that sanctions are continuing to hit the Iranian economy, Iran continues to export less and less oil, and its economy will increasingly come under extended strain.

Energy Competition

Sanctions are only one reason that Iran's energy resources have become a key area of competition between the US and Iran. Iran's oil and natural gas reserves rank among the largest in the world - third in global proven conventional oil deposits, second in natural gas deposits, and fourth in production of crude oil.[522] Regardless of sanctions, no outside power or energy company can ignore the potential value of energy deals with Iran. At the same time, they cannot ignore the extent to which Iran's politics and sanctions present serious risks in investing in Iran's energy development as well as in importing its petroleum.

Iran Needs Outside Investment But Not As Much as the World Needs Iranian Petroleum and Gas

Iran needs outside investment and technology, but not as much as outside powers need Iranian oil and gas. As has been discussed earlier, Iranian petroleum exports are a key part of Iran's national economy and its government's revenue. Oil export revenues account for more than 20% of their Gross Domestic Product, roughly 70% of Iran's foreign-currency earnings, and more than 60%-70% of its budgetary revenue.[523] Iran's energy sector represents such a large share of the Iranian economy that it is as much a vulnerability as a strength. As a result, US and Iranian

competition in this sector primarily plays out with the United States and its allies attempting to expand their unilateral sanctions while Iran attempts to avoid their enforcement.

However, in the past few years, and since sanctions have begun to affect Iran's oil exports, it is clear that countries that once imported Iranian oil, such as the EU, have been able to find other sources. Asian countries, the only remaining large-scale buyers of Iranian crude, have been reducing their purchases, and India in particular may be looking to end its importation of Iranian oil. Other sources of oil have grown to compete with Iranian crude. At the end of 2012, OPEC data revealed that Iraq has overtaken Iran as OPEC's second largest crude producer behind Saudi Arabia. Libya's production has also almost returned to its pre-revolution levels. These developments mean that while it will be difficult, if not impossible, for countries to stop importing Iranian oil, Iranian oil is not as important as it once was.

Gasoline and Product Imports - Iran's Energy Import Problem

Another critical Iranian vulnerability comes from its lack of refining capability. Iran's refining capability has never been sufficient to produce enough petroleum products to meet its own domestic needs, even before sanctions constrained Iran's gasoline production, refining capacity, and imports.

In 2010 it was estimated that Iranian refineries could only fulfill 58% of local gasoline demand.[524] Exact figures are impossible to come by, but it is estimated that in 2010, Iran was dependent on gasoline imports for about 40% of its consumption, at a cost to the government of between $5 and $7 billion annually.[525]

Of the numerous companies that had provided gasoline to Iran before the imposition of CISADA sanctions in 2010, all European multinational companies have halted their sale of gasoline to Iran. However, some firms situated in China, Singapore, Venezuela, Syria, and the UAE may still be selling gasoline and other refined products to Iran.[526] By some accounts CISADA sanctions have resulted in the reduction of gasoline imports from about 120,000 bpd to about 30,000 thereafter; however, imports may have rebounded to about 80,000 bpd as of September 2011 and have remained at that level since.[527]

But, recent improvements and expansions of refineries have increased the level of domestically-produced gasoline, and the EIA estimates that gasoline imports will end in 2013.[528] Previous analysis by the EIA stated that Iran could become a gasoline exporter by 2015.[529]

Unfortunately, these numbers are just estimates and most data since 2011 remains suspect. Iran's official data is highly optimistic and most likely wrong and outside estimates are similarly doubtful due to Iran's inflated data and Iranian attempts to skirt sanctions. Sanctions have forced Iran to employ gray-market tactics in order to buy oil and gas products, making the amount of imported energy products imported every month increasingly hard to estimate.

Iran has tried for several years to compensate for the increasing difficulties in importing refined oil and gas by attempting to increase domestic production of petroleum products. Tehran has been converting petrochemical plants into refineries and has dedicated $2.2 billion for accelerated renovations and improvements to existing gasoline refineries. However, the majority of Iranian crude is of the heavy type, which requires more energy to refine into useful products. Iranian domestic gasoline contains 10 times more harmful particles than the imported version and may contribute to increased pollution and health problems.[530]

Iran's drive to ramp-up domestic production supposedly culminated in September 2010, when Oil Minister Massoud Mir Kazemi proclaimed that Iran had become self-sufficient and had halted all gasoline imports.[531] In July 2010, Iranian Deputy Oil Minister announced an ambitious new plan to invest $46 billion in upgrading nine existing refineries and constructing nine brand new facilities.[532] However, this data is highly suspicious considering that the Joint Oil Data Initiative shows Iran importing refined products as recently as July 2011.[533]

According to Iranian sources, Iran has improved its domestic production capacity from 43 million liters per day according to the Iranian calendar year (20 March 2010 - 19 March 2011) to 70 million liters per day at the end of this current Iranian calendar year ending in March 2012.[534] Iranian sources also report that the country exported gasoline in 2011, worth roughly $134 million.[535] Iran is most likely continuing to import refined oil products through grey-market tactics while at the same time attempting to boost domestic production.

Recent improvements and expansions of refineries have increased the level of domestically-produced gasoline, and the EIA estimates that gasoline imports will end in 2013:[536]

> In the past, Iran had very limited domestic oil refining capacity and was heavily dependent on imports of refined products, especially gasoline, to meet domestic demand. In response to international sanctions and the resulting difficulty in purchasing refined products, Iran expanded its domestic refining capacity. As of January 2013, its total refining capacity was nearly 1.5 million bbl/d, with all nine of its refineries operated by the National Iranian Oil Refining and Distribution Company (NIORDC), a NIOC subsidiary.
>
> Iran plans to increase refining capacity to become self-sufficient in gasoline production. Over the last several years, Iran's gasoline import dependence has decreased significantly as a result of increased domestic refining capacity and lower demand. According to FGE, Iran's gasoline imports will cease sometime in 2013 as some upgrades to refineries take place.

This reporting may have been corroborated by recent EIA analysis, which states that in 2011 Iran's total oil consumption was 1.7 mbpd but in January 2013, Iran's total refining capability was 1.5 mbpd and had increased over the last several years.[537] This report underscores one of the current questions over sanctions in the past few years: notwithstanding the questionable accuracy of the data, have the sanctions pressed Iran into moving towards self-sufficiency in gasoline production. In March 2013, Iran opened the biggest gasoline production line in Shazand that will produce 16 million liters per day, and further improvements will increase production of premium gasoline from the current 1.2 million liters to 3.2 million liters per day.[538]

In addition to boosting production, Iran has also made reforms in an effort to reduce domestic demand for gasoline, diesel, electricity, and natural gas, and lower wasteful consumption. The Targeted Subsidies Reform discussed earlier made Iran the first major energy producing country to make dramatic cuts to subsidies on energy products and replace them with across the board "energy dividend transfers" (cash handouts) to the population.[539]

A 2011 report by the IMF observes that the phase-out of gasoline subsidies had reduced demand:

> The increases in prices of energy products, public transport, wheat, and bread adopted on December 19, 2010, are estimated to have removed close to US$60 billion (about 15 percent of GDP) in annual implicit subsidies to products. At the same time, the redistribution of the revenues arising from the price increases to households as cash transfers has been effective in reducing inequalities, improving living standards, and supporting domestic demand in the economy. The energy price increases are already leading to a decline in excessive domestic energy consumption and related energy waste. While the subsidy reform is expected to result in a transitory slowdown in economic growth and temporary increase in the inflation rate, it should considerably improve Iran's medium term outlook by rationalizing domestic energy use, increasing export

> revenues, strengthening overall competitiveness, and bringing economic activity in Iran closer to its full potential.[540]

This reform package has been controversial within Iran, and is blamed for substantial increases in energy and basic staple prices. Some reports have estimated that a person living in a 90 square meter apartment who paid $3-4 a month for gas will now pay around $97 for the same level of consumption.[541] Gasoline, which was $.36 cents a gallon before the reform, quadrupled to $1.44 a gallon, and now runs on a tiered system - $1.60 until an unidentified amount, and $2.60 after this set amount.[542]

For a country whose GDP per capital (PPP) is only estimated at $13,200, and ranks only 101 in the world, the removal of these subsidies is a major blow to the middle and lower classes. This is especially true because Iran's income distribution puts so much of its income in the hands of a small elite. Coupled with cash handouts that are decreasing in value due to high levels of inflation, the Iranian economy, and the devaluation of the Rial, people are finding it difficult to buy even the most modest staples and are transferring their Rials into safer investments such as gold, US dollars, or real estate.

However, the Majlis voted to "suspend" the second phase of the sanctions plan in November 2012, even though the government had not shown any intention to begin the second phase, and the massive devaluation of the Rial, increased sanctions, and lower oil sales prevented its implementation.[543] Iranian MP Mohammad Reza Bahonar has said that the issues stemming from the first phase must be solved before the second phase in instituted. However, in January 2913, former President Ahmadinejad urged the Majlis to institute the second phase saying, "One of the best development measures to ensure sustainable growth and circumvent the sanctions and neutralize the enemy's pressures has been the targeted subsidies plan."[544]

The subsidy removal and the increase in prices, coupled with inflation, has led some to speculate that the increased economic pressure on the middle class could lead to widespread protests against the government.[545] This has not appeared to be the case, and the only recent unrest occurred on October 3, 2012 when police attempted to shut down black-market money changers, though no further protests occurred[546]

There still are limits to the combined impact of the old and new sanctions regimes, driven in part by the world's steadily growing need for oil imports. The UN sanctions - partly as a concession to Russia and China - do not place limitations on oil or natural gas transactions. However, US and EU sanctions have removed Europe as a source of earnings for Iran and are slowly lowering Iranian oil revenues by threatening sanctions against Asian importers.

The increasing pressure from sanctions has evolved into a cat and mouse game between Iran and the US and EU. New sanctions force Iran to find new ways to bypass them, which it has done, but that results in limited returns. Iran has attempted to avoid sanctions through offering state-backed insurance mechanisms, reflagging its tankers, trading oil for local currency that is then used to buy gold, surreptitiously transferring oil to other ships through ship-to-ship transfers, turning off its transponders, and transmitting false communication signals.

Prior to the imposition of the EU oil embargo, Iran reflagged its ships in Tuvalu and Tanzania to avoid sanctions, and was successful until both countries de-registered all Iranian vessels in August 2012. Furthermore, Iran has used, and may continue to use, the port of Labuan in East Malaysia to avoid Western sanctions by using middle-of-the-night ship-to-ship oil transfers to floating storage ships.[547] Then, in a complex set of inter-company transfers, the oil is sold

through multiple companies, one of which is reportedly an affiliate of the National Iranian Oil Company.[548]

As detailed in a late September 2012 Reuters report, Vitol, the world's largest oil trading firm admitted to trading at least one large cargo of Iranian crude last year. According to the report, one of Vitol's Bahraini subsidiaries bought 2 million barrels of oil in a ship-to-ship transfer off the Malaysian port of Tanjung Pelepas from a company that has subsequently been stripped of its maritime insurance.[549] A statement from Vitol confirmed the purchase and said that the company was in compliance with all applicable international sanctions.

In mid-March, 2013, the US Government identified and instituted sanctions against Dimitris Cambis, the Greek shipping owner of Impire Shipping Company based in Greece. According to the State Department announcement, Cambis had purchased at least eight oil tankers on Iran's behalf, took on Iranian oil through ship-to-ship transfers, and sold the oil to international customers who were unaware of the oil's origin.[550]

Iranian oil traders have also used false documents in order to bypass sanctions by faking Iraqi documents to make it look that Iranian oil is Iraqi and then selling it the world market.[551] This method is used in conjunction with ship-to-ship transfers, where Iranian oil is transferred to foreign ships without docking in port.

China is also playing a role in helping Iran circumvent Western energy sanctions. Firms such as Zhuhai Zhenrong, Unipec, and China Oil of China are reportedly continuing to supply gasoline to Iran even though one company Zhuhai Zhenrong was sanctioned for this activity in January 2012.[552] China's enormous energy needs have led it to invest in countries where US sanctions forbid American and European companies from doing business, such as the Sudan and Iran.[553] As a result, Iran has become one of the largest suppliers of China's foreign oil, providing 11% of its oil imports in 2011.[554] Iran reportedly exports half of its production to China. In the face of US sanctions, China has reduced its imports of Iranian oil by 23% from January-November 2012 and may reduce its 2013 purchases by 5-10%. But it was reported that Zhuhai Zhenrong will maintain its current rate of Iranian oil imports at roughly 230,000 barrels a day.[555] And, 2012's drop in Chinese imports was caused largely by a pricing and contract dispute between Iran and China earlier this year.[556]

Iran is possibly using its trade with Turkey in its attempt to circumvent sanctions. Recent news reports detail that Turkey, through the state-owned Halkbank, is paying for Iranian natural gas in Turkish Liras, which is of limited value for Iran in the international market due to its inconvertibility, but is being used to buy gold in Turkey.[557] This gold is then possibly transferred or sold in the U.A.E. and then shipped to Iran.[558]

Turkey's method of paying for Iranian oil was not strictly illegal under EU sanctions or previous US sanctions, but new sanctions in the FY 2013 NDAA prohibit the transfer or sale of gold or other precious metals to Iran.[559] As was said previously, Turkish gold exports were a valuable way for Iran to sidestep sanctions and allowed Iran to gain $6.5 billion in hard currency in 2012, 10 times the level in 2011.[560]

New sanctions caused this trade to stop in January 2013, but subsequently restarted at lower levels in February 2013, with Turkey selling $117 million to Iran.[561] How much this trade will increase, if it will increase, or if additional actions or future US sanctions will be enacted to further block gold sales is unknown. If, however, the additional sanctions do manage to stem the

flow of gold to Iran, it will represent a major blow to Iran's ability to acquire hard currency with which to prop up the Rial, support the government, and fund imports.

However, what is far less clear is how Iran can avoid the impact of the growing sanctions on its banking industry and ability to carry out foreign currency transactions and trade. The combined actions of EU sanctions and the SWIFT cut-off, coupled with US banking sanctions have largely isolated Iran from the world finance and banking industries. This has almost eliminated Iran's access to world markets and has hampered its ability to both pay for and receive the proceeds of trade. This may have played a part in the destabilization of Iran's currency, increased inflation, reduced foreign-exchange reserves, and limited financing options.

The Energy Risks in a "Long Game"

So far, Iran seems to have backed away from any military confrontation, but it is far less clear what will happen if sanctions result in a prolonged confrontation or a "long game". Iran has at least as much to lose as any other Gulf state if it closes the Strait of Hormuz to oil traffic. It also cannot hope to win any serious long-term conflict with the US and its regional allies, and would take devastating losses if the US and Iranian forces were directly involved in a conflict.

However, Iran can attempt to put a wide range of less serious pressures on the follow of oil. As **Figure 25** shows, Iran's threats and exercises helped raised crude oil prices during December 2011 and January 2012, but scarcely to new levels or ones that had a major practical impact on the US and other developed economies.[562] Low level attacks, floating mines, new exercises, and other measures could put prolong pressures of shipping costs.

Saudi Arabia, Libya, Iraq, and other oil exporting states may be able to compensate for cuts in Iranian oil exports if a conflict were to completely eliminate them. All three states have increased their production capacities in the past few years, allowing Asian and European oil buyers to reduce and eliminate their purchases of Iranian oil. The threat of far more serious Iranian escalation could be used to put pressure on oil prices without actual Iranian attacks, but Iran runs the risk of desensitizing the world to its threats and making them less effective over time. However, a desperate Iranian regime might escalate a conflict that disrupted world oil prices for at least several weeks.

A period of confrontation and/or sanctions that lasted for several years could give Iran time to steadily improve its options and tactics for asymmetric attacks, as well as their domestic refining capabilities. But, additional sanctions and a prolonged cat and mouse game would continue and Iran would find loopholes and methods to both export oil and repatriate their earnings through the black market or other means.

However, Iran would take risks of its own, and has no inherent advantages in playing the "long game." Continued Iranian antagonism and confrontation would inevitably strengthen US, European, and Southern Gulf resolve and support for sanctions. Iran would therefore pay a steadily higher cumulative cost as a result of sanctions over time, and popular support for the regime may erode.

Furthermore, Iran's options for retaliating against sanctions and pressure are limited. On one hand, overt action will inevitably provoke US escalation and possible military strikes. On the other hand, covert action works slowly, and Iran has not proved that it can engage in covert activities effectively outside Syria, Lebanon, or Iraq. The bungled attacks on Israeli diplomats in the summer of 2012 do not show the IRGC or Quds Force is an effective covert unit. Yet the July

2012 bus bombing in Bulgaria contradicts this, leaving the question open as to the IRGC's or Quds Force's asymmetric ability outside Iran. Regardless of their effectiveness or ability, Iran cannot be certain it can continue to use lower level asymmetric tactics without provoking the US or other states to escalate to a much higher level of conflict. Nor can Iran be certain it can control the course of events.

However, as a "long game" continues, Israel may find it increasingly difficult to conduct a preventive strike or strikes as Iran disperses and hardens its facilities. Israel has far more options in the near and mid-term to improve its nuclear forces and nuclear delivery options. Iran has already pushed Israel towards extending the range-payload of its missiles and options such as submarine delivered nuclear weapons.

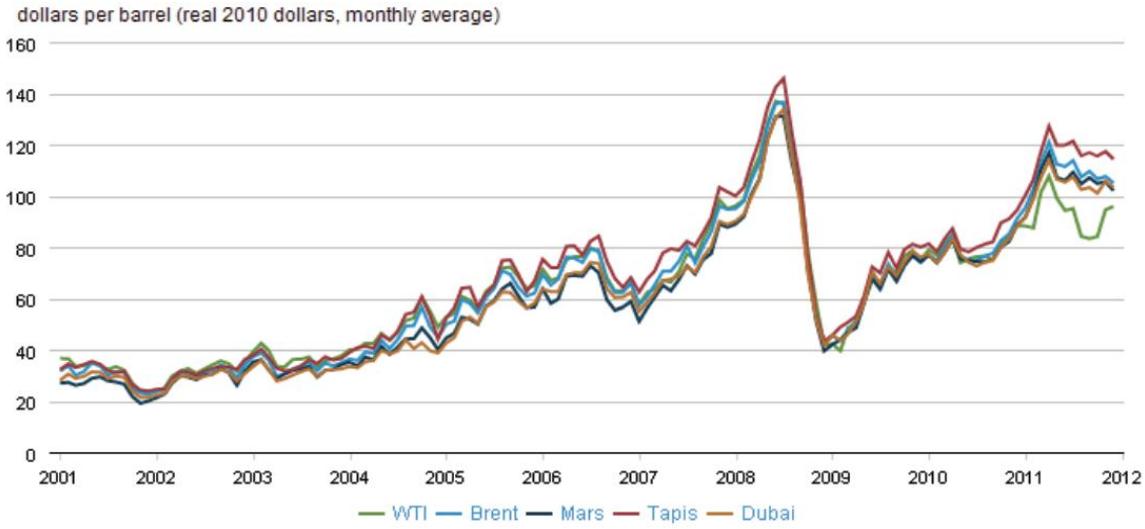
While Iran can improve its asymmetric forces and develop a nascent nuclear force, nations like Saudi Arabia and the UAE have already begun to build up their conventional capabilities at far faster rates than Iran. Iran cannot dismiss the possibility that its actions will provoke the US into offering regional nations "extended deterrence" or push Saudi Arabia towards developing its own nuclear option. Iran would also risk Israeli or US preventive military strikes if sanctions fail to end Iran's nuclear weapons program, an option which has growing support from Iran's neighbors.

On an economic level, Iran would risk long-term shifts in investment and energy developments to other exporters, ranging from oil and gas development to pipelines and export facilities. A period of heightened sanctions and tensions between Iran and the West would continue to scare off investors such as China, who see the stability of Gulf nations as a better bet for their money and source of energy. In the short to mid-term, Iran would see its oil and gas export capacity decline because of a lack of technology, capital, and parts. In the long run, Iran's impact in creating sustained high oil prices may increase gas fracturing and the development of alternative liquids in the US and Europe.

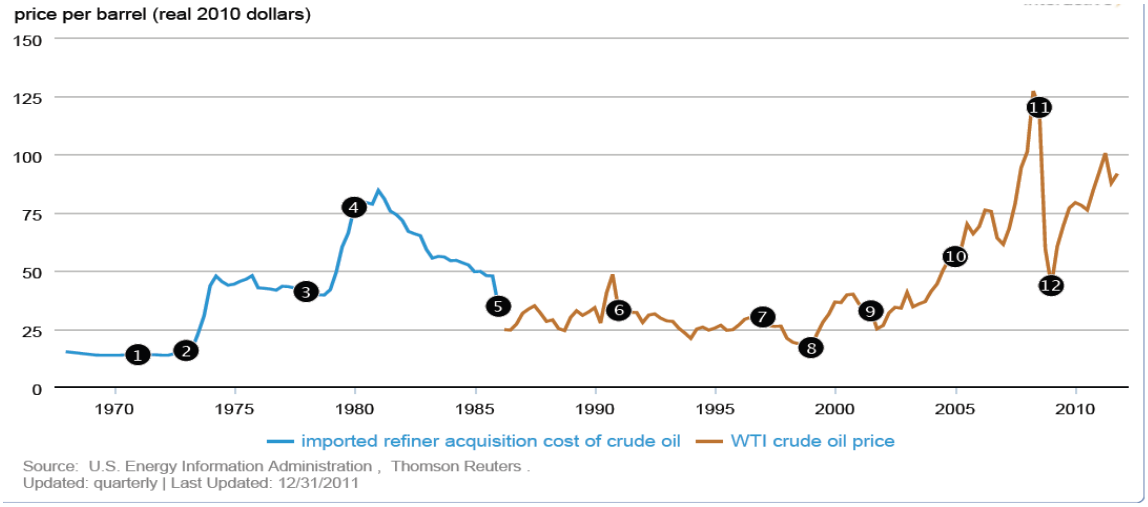
The other side of the coin is what happens if - and after – Iran is confirmed to have a nuclear device via intelligence collection or is confirmed to test a nuclear device. Pakistan, North Korea, and India are all cases where major political efforts to halt their nuclear programs faded quickly after their nuclear capability became a fact and there was de facto acceptance. This may not be the case for Iran, but Iran is certainly aware that other states have not only won the "long game," but eventually benefited from it in terms of regional power, influence, and the ability to use a nuclear capability as leverage in international politics. In contrast, Libya, whose regime gave up weapons of mass destruction, is an example of exactly the opposite kind of outcome.

Figure 25: Trends in Oil Prices

World Prices Did Rise as a Result of Iran's Recent Threats



But Crises, Weather, Speculation, and Economic Pressures Have Also Led to Massive Swings in the Past



1: US spare capacity exhausted
2: Arab Oil Embargo
3: Iranian Revolution
4: Iran-Iraq War
5: Saudis abandon swing producer role
6: Iraq invades Kuwait
7: Asian financial crisis
8: OPEC cuts production targets 1.7 mmbpd
9: 9-11 attacks
10: Low spare capacity
11: Global financial collapse
12: OPEC cuts production targets 4.2 mmbpd

Source: EIA, "What Drives Oil Prices," January 21, 2012, ttp://www.eia.gov/finance/markets/spot_prices.cfm

Sanctions and Arms Deals

As has been touched upon in The Gulf Military Balance: The Conventional and Asymmetric Dimensions, arms sales are another way in which Iran and the US are competing in the Middle East. The US and its allies make use of the Nuclear Non-Proliferation Treaty (NPT), the inspection and reporting role of the International Atomic Energy Agency (IAEA), arms control treaties such as the Chemical Weapons Convention (CWC), and the Missile Technology Control Regime (MTCR) to try and halt Iran's efforts to produce long range nuclear-capable missiles and other weapons of mass destruction.

The United States has pursued a two-pronged approach to controlling the balance of military power in the region. First, the US has relied on unilateral, multilateral, and UN sanctions to block arms sales to Iran. UN Resolution 1929 prohibits the sale to Iran of, "any battle tanks, armored combat vehicles, large caliber artillery systems, combat aircraft, attack helicopters, warships, missiles or missile systems or related materiel, including spare parts."[563]

In addition to banning Iran's acquisition of nearly all major conventional weapons systems, the US has transferred major weapons and technology to its Gulf allies. Between 2005 and 2009, the United States sold nearly $37 billion worth of weapons and military equipment to Gulf nations, including Saudi Arabia, the United Arab Emirates (UAE), Bahrain, Qatar, Oman, and Kuwait.[564] In 2010, the United States negotiated a $20 billion arms package with a number of Gulf States as part of the Gulf Security Dialogue. Later that year, Saudi Arabia alone finalized an enormous arms deal with the United States that will total more than $60 billion over 10 years.[565] In 2011, US worldwide arms sales jumped to $66.3 billion, with Saudi Arabia and other Middle East nations making up more than half of that figure.

The Southern Gulf States have upgraded most of their Patriot systems to the PAC 3 version that has far better missile defense capabilities. The UAE and Qatar are seeking to purchase wide area Ballistic Missile Defense (BMD) systems like Terminal High Altitude Area Defense (THAAD), and the GCC is studying the creation of a broader wide area BMD system.

In late 2012, Qatar and the UAE requested permission from the United States to buy the THAAD system. Qatar has asked to purchase two fire units, 12 launchers, 150 interceptors, and associated radar units, spare parts, and training. The UAE requested 48 interceptors, nine launchers, and associated spare parts and training. The requested systems were worth over $7.6 billion, with the bills totaling $6.5 billion for Qatar and $1.135 billion for the UAE.[566]

The US has begun to deploy Aegis-equipped destroyers in the Gulf and will upgrade to the Standard SM-6 beginning in 2015. The new US strategy announced in October 2011 calls for four advanced guided missile defense destroyers - with wide area ballistic missile defense coverage - to be based in Rota, Spain that can be used to defend Europe and Israel.[567]

Other key missile defense assets in the region include US Navy Aegis anti-ballistic missile cruisers stationed in the Gulf, and advanced versions of the MIM-104 Patriot surface-to-air missile system that Bahrain, Egypt, Israel, Jordan, Kuwait, and Saudi Arabia have acquired from the US.

Lastly, in September 2011, the US and Turkey reached an agreement whereby a missile defense radar site will be constructed only 435 miles from the Turkey-Iran border.[568] This system is part of Phase 1 of the European Phased Adaptive Approach system. While Iran's missiles have not

been stated as the exclusive target of the system, it will greatly enable the US's ability to detect and intercept an Iranian missile.

Iran has responded by turning to Russia and China in order to purchase military hardware. Since 1992, Russia has sold Iran hundreds of major weapons systems, including T-72 tanks, Tor-M1 missile systems, and a handful of combat aircraft like the MiG-29 and SU-24.[569] Moscow and Tehran signed a nearly $1 billion deal in 2007 to supply Iran with five batteries of long-range S-300 air-defense missiles, which are similar to the US Patriot system.[570] The S-300 system was a high priority for Tehran as it would have improved their ability to defend nuclear installations from attack.

However, Russia delayed its delivery of the S-300 system in 2009 amid the "diplomatic reset" with the United States. After Russia voted in favor of the latest round of UN sanctions in 2010, Russia officially canceled the project and barred all future sales of sophisticated weapons to Iran.[571] Russian Foreign Minister Sergei Lavrov said, "There are fundamental principles linked to the sale that we never, in accordance with our legislation, and according to our international obligations, take any actions that will lead to the destabilization of certain regions."[572]

Supplying weapons to Iran was also beginning to hinder Russia's ability to upgrade its domestic military capability and purchase top-of-the-line arms from Western countries. Russia closed a deal in 2009 to purchase unmanned aerial vehicles from Israel and reached a $1.52 billion deal in 2011 with France to supply them with two Mistral class helicopter carriers.[573] These were Moscow's first major foreign arms purchases in the two decades since the fall of the Soviet Union.[574]

Moscow may currently value its relationship with Western arms and technology suppliers more than its weapons trade with Iran. The Russian Ministry of Defense is also hoping that displaying restraint with Tehran will convince Israel not to resume weapon sales to Georgia, which it discontinued at Moscow's request after the outbreak of the 2008 South Ossetia War.[575] In any case, the estimated value of new arms transfer agreements between Iran and Russia has dropped from $1.6 billion from 2004-2007 to $100 million from 2008-2011[576]

China, like Russia, was a consistent arms supplier to Iran. Dr. Bates Gill wrote in 1998 that, "with the exception of Pakistan and possibly North Korea, China's arms trade with Iran has been more quantitatively and qualitatively comprehensive and sustained than that with any other country."[577] China has been responsible for resupplying Iran during their war with Iraq, supplied Iran with cruise missile technology, and reportedly helped with the development of Iran's indigenous military-industrial sector.[578]

However, also like Russia, Beijing has reduced its weapons sales to Iran in recent years, and has largely complied with the Missile Technology Control Regime and limits regarding the exportation of nuclear-related technology. China made over $3 billion in arms transfer agreements with Iran from 1980-1987, supplied $400 million worth of weapons from 1993-1996, $600 million from 1997-2000, and $300 million between 2004 and 2007.[579] In the period from 2008 to 2011, China did not enter into any arms transfer agreements with Iran.

As talks stalled with Russia over delivery of the S-300 missile system, Iran reportedly looked to China, which had recently put a replica of the S-300 on the export market.[580] The US, however, has consistently opposed Chinese military sales to Iran. Speaking with CNN in 2007, Under Secretary of State for Political Affairs Nicolas Burns pointedly stated that the US has "irrefutable

evidence" that the Iranians were transferring arms to militants in "Lebanon, in Gaza, in Afghanistan, and in Iraq" in direct contravention of UN Security Council Resolution 1747, which bans Iranian arms exports.[581] John McConnell, the former Director of National Intelligence, testified to Congress that the PRC's arms sales in the Middle East were "destabilizing" and "a threat" to US forces.[582]

Faced with sanctions tightening its arms procurement abilities, Iran has begun investing in a nascent domestic defense industry. When the S-300 sale fell though, the Iranian military announced that it would upgrade existing S-200 systems to exceed the specifications of the S-300 system. [583]

General Seyed Reza Taheri boasted in July 2011 that:

> "The air defense systems' operational speed and range have been promoted thanks to the attempts made by our country's experts. We are witnessing a jump in this field when considering the previous models."[584]

Iran may be able to develop a more robust arms development capability in the medium to long term, but their domestic capability in the near future is fairly limited. Iranian weapons developers focus primarily on modifying older technology, and are therefore still heavily reliant on weapons imports.[585]

However, Iran has made some progress in producing domestic arms. Theodore Karasik, a regional affairs expert at the Dubai-based Institute for Near East and Gulf Military Analysis, has said, "…compared with five or 10 years ago, Iran seems to have made significant strides. They probably aren't fully self-sufficient for defense needs, but they are moving in that direction."[586] Iran has shown a technical aptitude in the past by improving their arsenal, and in September 2012 the Iranians seemed to have displayed an optimized version of the S-200 air defense system with a range of 50km and a ceiling of 75,000 feet. If this system is comparable to the export version of the S-300 is unknown.

As the Gulf Military Balances, the Missile and Nuclear Dimensions and the Conventional and Asymmetric Dimensions have shown, however, Iran has a long way to go, and the new sanctions have had a major impact on the extent to which Iran can fund critical imports of arms, munitions, spare parts, military production equipment, and other technology. There are no reliable figures on the size of Iran's total military-related imports due to smuggling dual use technology and the use of false names or licenses. There are also no meaningful public estimates of Iran's current military spending because the reporting of the state sector expenditures on almost every aspect of security is distorted and cloaked. US experts tentatively put the 2011 level at "well over" $10 billion a year, but state this is little more than a guesstimate.[587]

Similarly, work by Richard F. Grimmett of the US Congressional Research Service estimated Iranian arms imports at $700 million in current dollars from 2007-2010, as opposed to $800 million in 2003-2006. He also estimated Iran's new arms agreements at a cripplingly low $700 million in 2007-2010, compared with $2.7 billion in 2003-2006. The updated 2012 report revised these figures, estimating that Iran imported $900 million worth of arms in 2004-2007 and only $200 million in 2008-2011. These totals do not include major amounts of nuclear, dual use, military production-related, and "black" hidden imports. But they show that Iran's arms transfer agreements and black market imports can only give it a fraction of the amount that Gulf States are importing. It is clear that Iran is importing far too few weapons to modernize and sustain its forces.[588]

Arms Control: Iran, Israel, and the WMD Free Zone

The US and other members of the P5+1 have long sought to use both sanctions and arms control agreements to limit Iran's nuclear programs. Iran has attempted to combat this by championing a WMD Free Zone in the Middle East as a way of putting pressure on the US and Israel, gaining Arab support, and limiting Arab pressure on Iran over Iran's nuclear programs.

Efforts to Negotiate with Iran

While the US has stated in different ways that Iran must not be allowed to have nuclear weapons, Washington has not announced fixed "red lines" that would trigger preventive attacks. However, during the UN General Assembly in late September, Israeli Prime Minister Benjamin Netanyahu appeared to suggest that if Iran were to produce enough 20% enriched Uranium it would have crossed a "red line" and could face military action. But "unacceptable" has been a distinctly relative term that has evolved over time. Any limits that Iran agrees to as a result of negotiations must be tied to some form of arms control protocol and verification arrangement based on the capabilities Iran has at the time of the actual agreement and what it can acquire in the future.

The history of past negotiations is complex, but the Arms Control Association has developed an excellent summary history that shows the pattern of negotiations to date. This history is shown in

Figure 26: Arms Control Association History of Official Proposals on the Iranian Nuclear Issue

Spring 2003 Proposal

According to Tim Guldimann, former Swiss ambassador to Tehran, Iran issued a proposal to the United States in May 2003 calling for negotiations on a variety of contentious issues between the two countries. The document listed a number of agenda items that the two countries would negotiate and proposed the creation of three parallel working groups to carry out negotiations on disarmament, regional security, and economic cooperation. Key among the agenda items were:

- Relief of all U.S. sanctions on Iran
- Cooperation to stabilize Iraq
- Full transparency over Iran's nuclear program, including the Additional Protocol
- Cooperation against terrorist organizations, particularly the Mujahedin-e Khalq and al-Qaeda
- Iran's acceptance of the Arab League's 2002 "land for peace" declaration on Israel/Palestine
- Iran's full access to peaceful nuclear technology, as well as chemical and bio-technology

The Bush administration dismissed the proposal in favor of placing additional pressure on Iran.

EU3-Iran Proposals

Several months later, France, Germany, and the United Kingdom agreed to discuss with Iran a range of nuclear, security, and economic issues as long as Tehran suspended work on its uranium enrichment program and cooperated fully with an investigation by the International Atomic Energy Agency (IAEA). However, that agreement unraveled the following year when Tehran continued work on uranium conversion, the precursor to enrichment. Iran then agreed with the EU3 in November 2004 to implement a more stringent suspension. Negotiations between the two sides began shortly afterward.

Iran presented four proposals during the course of these negotiations. In addition to Iran's nuclear program, the proposals covered subjects such as Tehran's support for terrorist organizations, regional security issues, and economic cooperation.

The Iranian proposals were as follows:

January 17, 2005

This Iranian proposal to the EU3/Iran Political and Security Working Group outlined commitments on both sides in general terms, including:

- An Iranian commitment not to pursue weapons of mass destruction
- A rejection of any attacks, threats of attack, or sabotage of Iran's nuclear facilities
- Cooperation on combating terrorism, including intensifying the exchange of information and the denial of safe havens
- Regional security cooperation, including on Iraq and Afghanistan
- Cooperation on strategic trade controls and the EU removal of restrictions on transfers of conventional arms and dual use goods to Iran

March 23, 2005

The Iranian proposal to the EU3/Iran steering committee in March provided greater detail into the "objective guarantees" Iran was willing to discuss regarding its nuclear program, including:

- Iran's adoption of the IAEA Additional Protocol and continuous on-site inspections at key facilities
- Limiting the expansion of Iran's enrichment program and a policy declaration of no reprocessing
- Immediately converting all enriched uranium to fuel rods
- An EU declaration recognizing Iran as a major source of energy for Europe
- Iran's guaranteed access to advanced nuclear technology along with contracts for the construction of nuclear plants in Iran by the EU
- Normalizing Iran's status under G8 export controls

April 29, 2005
In April Iran's proposal repeated some of the items in the March proposal, but focused more on short-term confidence-building measures than long term resolutions. Its key terms included:

- •Iran's adoption of the IAEA Additional Protocol
- •A policy declaration of no reprocessing by Iran
- •Continued enrichment suspension for six months
- •Establishment of joint task forces on counter-terrorism and export control
- •An EU declaration recognizing Iran as a major source of energy for Europe

July 18, 2005
Iranian Message from Hassan Rowhani, then-Secretary of Iran's Supreme National Security Council, to France, Germany, and the United Kingdom. In his statement Rohani proposes:

- •An agreement on initial limitations on uranium enrichment at Natanz
- •Negotiations for the full-scale operation of Natanz
- •Arrangements to import material for uranium conversion and the export of UF6
- •Negotiation of an "optimized" IAEA monitoring mechanism for Natanz

In **August 2005** the three European countries presented their own comprehensive proposal for a long-term agreement, outlining the following:

- •Arrangements for the assured supply of low enriched uranium for any light water reactors constructed in Iran
- •Establishing a buffer store of nuclear fuel located in a third country
- •A commitment by Iran not to pursue fuel cycle technologies, reviewable after 10 years
- •A legally binding commitment by Iran not to withdraw from the NPT and Iran's adoption of the Additional Protocol
- •Arrangements for Iran to return spent nuclear fuel to supplier countries
- •EU recognition of Iran as a long-term source of fossil fuel energy
- •EU-Iran cooperation in a variety of political-security areas, including Iraq and Afghanistan, terrorism, and drug trafficking

Iran rejected that proposal days later, claiming that it did not recognize Iran's right to enrichment. Tehran proceeded with uranium conversion, breaking the suspension agreement with the EU3 and ending negotiations.
In order to support Iran's talks with the EU, Russia proposed to Iran in October 2005 that Tehran share ownership of a uranium-enrichment plant located in Russia. Following months of discussions on that proposal, Iran ultimately rejected it in March 2006.

P5+1 Proposals
China, Russia, and the United States joined the three EU3 countries in June 2006 to offer another proposal for comprehensive negotiations with Iran. The proposal mirrored some of the previous offers for negotiations and included the following key points:

- •Iran's suspension of enrichment-related and reprocessing activities
- •The establishment of a mechanism to review this moratorium
- •Iran's resumption of the Additional Protocol
- •The provision of state-of-the-art light water reactors to Iran through joint projects, along with nuclear fuel guarantees and a 5-year buffer stock of fuel
- •Suspension of the discussion of Iran's nuclear program in the UN Security Council
- •Cooperation on civil aviation, telecommunications, high-technology, and agriculture, and other areas, between the United States, EU, and Iran

Tehran responded to this proposal in August 2006. It rejected the terms of the proposal due to its requirement that Iran suspend its enrichment-related activities, but noted that the proposal contained "useful foundations and capacities for comprehensive and long-term cooperation between the two sides." It did not, however, identify what those useful foundations were.

In March 2008, the P5+1 agreed to "repackage" the June 2006 proposal in order to specify some of the benefits that they would offer Iran as part of a long-term agreement on its nuclear program and to better demonstrate the nature of those benefits to the Iranian public. This agreement to revise the 2006 proposal coincided with the adoption of Security Council Resolution 1803, the third UN sanctions resolution on Iran.

Before that package was formally submitted to Iran, however, Tehran issued its own proposal to the six-country group. While the Iranian proposal also called for comprehensive negotiations leading to cooperation on nuclear energy, and political and economic concerns, it offered very few details regarding the steps Iran would take to resolve concerns related to its nuclear program. Some of its key provisions were:

- "Establishing enrichment and nuclear fuel production consortiums in different parts of the world-including Iran"
- Improved IAEA supervision "in different states"
- Cooperation on nuclear safety and physical protection
- Cooperation on export controls
- Cooperation on regional security and global economic issues

The P5+1 group presented their revised package during a June 2008 meeting in Tehran that included participants from five of the six countries, excluding the United States. During the meeting, the six-countries relayed an understanding that preliminary talks could begin under a six-week "freeze-for-freeze" period in which Iran would halt the expansion of its enrichment program while the six countries would agree not to pursue additional sanctions against Tehran. The proposal also entailed:

- The 2006 package remains on the table
- Consideration of nuclear energy R&D and treatment of Iran's nuclear program as any other NPT non-nuclear-weapons state once confidence is restored
- Technological and financial assistance for Iran's nuclear energy program
- Reaffirmation of the UN Charter obligation to refrain from the use and threat of use of force in a manner inconsistent with the Charter
- Cooperation on Afghanistan, including drug-trafficking, refugee return, reconstruction, and border controls
- Steps towards normalizing economic and trade relations, including support for WTO membership for Iran
- Further details on the prospect for cooperation on agriculture, the environment and infrastructure, civil aviation, and social development and humanitarian issues

Representatives of the six-country group, including the United States for the first time, followed up the June meeting with a meeting in July 2008 in Geneva. At the meeting, Iran issued a non-paper proposing a process for negotiations, highlighting that such discussions would be "based on the commonalities of the two packages" issued by Iran and the P5+1 group in May and June. Both the P5+1 and Iranian proposals called for political, economic, and security cooperation but the Iranian proposal did not address steps that Tehran would take in regard to its nuclear program. The Geneva discussions were inconclusive.

Following the election of U.S. President Barack Obama, who sought to abandon the previous U.S. policy requiring Iran to fulfill UN Security Council demands to suspend nuclear fuel cycle activities prior to negotiations, the P5+1 sought to renew their negotiations with Iran. They issued a statement in April 2009 in which the other five countries welcomed "the new direction of U.S. policy towards Iran," formally inviting Iran to talks once again.
Iran did not respond to that invitation until that September, when Tehran issued a revised proposal. Although that proposal repeated several of the provisions of the one Iran issued in 2008, it did not include a section on the nuclear issue. Instead, the proposal covered the following:

- Cooperation to address terrorism, drug trafficking, organized crime, and piracy
- UN and Security Council reform
- The codification of rights for the use of space
- Promoting a "rule-based" and "equitable" IAEA oversight function
- Promoting NPT universality and WMD nonproliferation

Tehran Research Reactor "Fuel Swap" Proposal

In June 2009, Iran informed the IAEA that it was seeking assistance to refuel its Tehran Research Reactor (TRR), a U.S.-supplied 5 megawatt research reactor that produces medical isotopes. Following Iran's entreaty, the United States proposed that, in return for a supply of 120 kilograms of fuel for the TRR, Iran ship out an equivalent amount of uranium enriched to 4%, totaling about 1,200 kilograms. The 1,200 kilograms accounted for roughly 80% of Iran's LEU stockpile at that time, a percentage that diminished as Iran continued to produce LEU. At an initial meeting between the United States, France, Russia, Iran, and the IAEA October 1, 2009, Iranian officials agreed "in principle" to the exchange.

- Iran exports 1,200 kilograms of LEU in a single batch before the end of the 2009
- Russia further enriches Iran's LEU to about 20%, a process producing about 120 kilograms of 20%-enriched uranium for the TRR fuel rods
- France manufactures the TRR fuel rods for delivery about one year after the conclusion of the agreement, prior to the depletion of the current TRR fuel supply
- The United States works with the IAEA to improve safety and control implementation at the TRR

Following reservations expressed by Iran about the terms of the deal, the P5+1 indicated their readiness to take some steps to facilitate the arrangement:

- A political statement of support by the six countries to guarantee that the TRR fuel would be delivered to Iran
- Financing for the movement of LEU and fuel
- An option for the IAEA to hold Iran's LEU in escrow in a third country until the TRR fuel is delivered

In the months following the initial agreement of the TRR proposal Oct.1, Iran delayed giving the IAEA and the P5+1 a definitive response to the proposal, with many prominent Iranian politicians voicing their opposition to the arrangement, motivated at least in part by their opposition to President Ahmadinejad. Iranian officials publicly suggested alterations to the fuel swap proposal, including: staggering the export of Iran's LEU over the course of a year or transporting 400 kilograms of LEU to Iran's Kish Island to exchange for TRR fuel. These proposals, however, undermined or eliminated the confidence-building nature of the export of the bulk of Iran's LEU. Tehran began to increase the enrichment level of some of its LEU to 20% in February 2010, ostensibly for TRR fuel.

Brazil, Turkey, Iran Tehran Declaration

Brazil and Turkey carried out a diplomatic initiative in the Spring of 2010 to broker the TRR fuel swap with Iran. In an April 20 letter to the leaders of the two countries, President Obama said Iran's agreement to export 1,200 kilograms of LEU "would build confidence and reduce regional tensions by substantially reducing Iran's LEU stockpile." The initiative resulted in the May 17 Tehran Declaration agreed between Presidents Lula da Silva, Erdogan, and Ahmadinejad.

- The three countries "recall the right of all State Parties, including the Islamic Republic of Iran, to develop research, production and use of nuclear energy (as well as nuclear fuel cycle including enrichment activities)"
- Iran transfers 1,200 kilograms of LEU to be held in escrow in Turkey within one month
- Pending their approval of the Tehran Declaration, the IAEA, France, Russia, and the United States (the Vienna Group) would agree to provide 120 kilograms of 20%-enriched uranium fuel to Iran within one year
- If the terms were not filled by the Vienna Group, Turkey would transfer the LEU back to Iran (which maintains legal possession of the material)

France, Russia, and the United States rejected the Tehran Declaration on a number of grounds identified in a June 9 letter to IAEA Director General Yukiya Amano. The key critique was that the declaration did not address Iran's production of 20%-enriched uranium and Iran's accumulation of a larger amount of LEU.

Russian Step-by-Step Proposal

Russian Foreign Minister Sergei Lavrov first publicly proposed a "road map" to implement the P5+1's proposed incentives package July 12 during a speech in Washington. The specific details of the plan have not been made public, but they have been characterized as a "step-by-step" process in which confidence-building and transparency measures taken by Iran are met with an easing of sanctions by the P5+1.

- Each side takes a series of reciprocal actions in four stages
- Iran initially freezes the expansion of its enrichment program and limits enrichment to 5%
- Iran gradually provides greater IAEA access to its nuclear program
- Iran ultimately suspends enrichment for 3 months
- The P5+1 gradually lifts UN sanctions
- The P5+1 each gradually lift unilateral sanctions
- The P5+1 implement the incentives identified in their 2006 and 2008 proposals

Other P5+1 members have not voiced public opposition to the Russian proposal, but some do not appear to support it in its current form. U.S. officials have said that Washington is studying the proposal, and have held meetings with Moscow regarding the plan. Similarly, Iran publicly welcomed the proposal but has been non-committal regarding its terms, claiming it would take several months to study.

2012 Proposals

In April 2012, the P5+1 and Iran renewed diplomatic negotiations in Istanbul. Two more rounds of talks were held May 23-24 in Baghdad, and June 18-19 in Moscow. The negotiators decided in Istanbul to adopt a step-by-step process with reciprocal actions, in order to create momentum towards a long-term solution. Two proposals are being discussed in the ongoing negotiations, one proposed by the P5+1 and another from the Iranians. Both sides agreed to expert-level talks, which took place in Istanbul on July 3, to discuss the technical aspects of each proposal. A fourth round of top-level political meetings has not yet been scheduled.

Iranian 5 Step Proposal

Step 1 - Guidelines

- Iran emphasizes commitments under the NPT and its opposition to nuclear weapons based on the Supreme Leader's fatwa.
- P5+1 recognizes and openly announces Iran's nuclear rights, particularly its enrichment activities, based on NPT Article I

Step 2 - Transparency Measures

- Iran continues broad cooperation with IAEA and will transparently cooperate with the IAEA on "possible military dimensions."
- P5+1 will end unilateral and multilateral sanctions against Iran outside of the UNSC resolutions.

Step 3 - Confidence Building Steps

- Beyond continuous IAEA monitoring of enrichment activities for Tehran Research Reactor (TRR) fuel, Iran will cooperate with P5+1 to provide enriched fuel needed for TRR.
- P5+1 will terminate the UN sanctions and remove Iran's nuclear file from UNSC agenda.

Step 4 - Strengthening Cooperation on Mutual Interests

- Parties will start and boost cooperation on: designing and building nuclear power plants and research reactors (Iran's priorities);
- And light water research reactors, nuclear safety and security, nuclear fusion (P5+1 priorities).

Step 5 - Strengthening Joint Cooperation

- Parties will start cooperating on: regional issues, especially Syria and Bahrain (Iran's priorities);

•And combating piracy and countering narcotics activities (P5+1 priorities).

P5+1 Proposal

Iranian actions:

•Iran halts all 20 percent enrichment activities.

•Iran transfers all 20 percent enriched uranium to a third country under IAEA custody.

•Iran shuts down the Fordow facility.

P5+1 Actions:

•P5+1 will provide fuel assemblies for the Tehran Research Reactor.

•P5+1 will support IAEA technical cooperation to modernize and maintain the safety of the TRR.

•P5+1 could review the IAEA technical cooperation projects and recommend to the IAEA Board restarting some of them.

•P5+1 has put together a detailed package to provide medical isotopes for cancer patients in Iran.

•The United States is prepared to permit safety-related inspection and repair in Iran for Iranian commercial aircraft and provide spare parts.

•The P5+1 will cooperate in acquiring a light water research reactor to produce medical isotopes.

Source: Arms Control Association, "History of Official Proposals on the Iranian Nuclear Issue," *Contact:* Peter Crail, Research Analyst, (202) 463-8270 x102, http://www.armscontrol.org/print/2570

As **Figure 26** shows, each major step in Iran's nuclear and missile progress - or the discovery of Iranian efforts at concealment - has tended to make some aspects of earlier arms control proposals obsolete. This does not mean, however, that the NPT is ineffective or that the IAEA cannot produce credible verification if past agreements are updated and tailored to the circumstances that exist at the time. Groups like the Arms Control Association and ISIS have shown that there are still realistic options for Iran's compliance.[589]

Weapons of Mass Destruction (WMD) Free Zone

Iran has countered US and outside pressure to comply with the NPT and IAEA inspections by denying and concealing its own activity while calling for a Weapons of Mass Destruction Free Zone in the Middle East, which attempts to refocus attention on Israel.

Iran has attempted to exploit the fact that Arab states have long called for a WMD Free Zone in the Middle East which exerts political pressure on Israel as the only state in the region with nuclear weapons but largely ignores their own chemical and biological weapons efforts. This gives Iran an opportunity to shift the debate to Israel, and forces the US to deal indirectly with Israel's current nuclear monopoly.

In 2010, the US, Iran, and other Arab nations agreed to call for UN talks in 2012 on a treaty to ban nuclear weapons from the Middle East.[590] Under the treaty, sponsored by the IAEA, permanent inspectors and surveillance technologies would be installed in current or future civilian nuclear development programs of all twenty-two of the Arab League nations, plus Israel and Iran, backed by the threat of immediate sanctions and possible military action.[591]

Most Middle Eastern nations have agreed to participate in the 2012 Conference. However, the commitment of the three most important nations involved in any future Middle East WMD Free Zone is questionable. Israel has remained undecided about its participation, Iran may not attend if Israel does not, and Syria, embroiled in a bloody civil war, will most likely not attend or be of any help if it did.[592] And even if these nations do attend, it does not mean they will support a functional agreement that requires all states to establish verification regimes for all forms of WMD - chemical, biological, radiological, and nuclear - and probably for key possible delivery systems as well. Moreover, Israel repudiated the language of the 2010 NPT consensus agreement, which noted that Israel's entrance into the NPT would be part of the process of creating a WMD-free zone, forcing Israel to decommission its undisclosed nuclear arsenal as a result:

> This resolution is deeply flawed and hypocritical. It ignores the realities of the Middle East and the real threats facing the region and the entire world. It singles out Israel, the Middle East's only true democracy and the only country threatened with annihilation. Yet the terrorist regime in Iran, which is racing to develop nuclear weapons and which openly threatens to wipe Israel off the map, is not even mentioned in the resolution…as a non-signatory state of the NPT, Israel is not obligated by the decisions of this [NPT] Conference, which has no authority over Israel.[593]

Iran is almost certain to use the WMD free zone proposal to save face and maintain its ostensibly civilian nuclear program, and in exchange for the decommissioning of Israel's weapons, reassure the rest of the world that Iran isn't going to get the bomb either. It would also fit into their rhetoric of claiming the West holds a "double standard" that allows Israel to go unpunished for its reputed nuclear weapons arsenal.[594]

It would be desirable to have a WMD free zone agreement if it could be made real, tied to an Arab-Israeli peace, and end the growing arms race in the Gulf. The current climate of tension and

military competition in the region precludes such an agreement, and this is certain to continue as long as Iran moves towards an unknown nuclear future and drives an ongoing arms race.

As a result, proposals for a WMD free zone pose something of a dilemma to the US. Anything but a fully verifiable and enforceable agreement might help keep a nation like Iran from openly acquiring nuclear weapons but not eliminate an ongoing effort to acquire all of the technology and equipment necessary to rapidly acquire a bomb in the future. The US must also risk choosing between rejecting the Arab position or confronting Israel if it sides with Arab states - some of which do not recognize Israel.

Moreover, there is a wide range of other issues that make any effort to fully and effectively draft an agreement that all side can trust extremely difficult:

- Iran's emphasis on its nuclear and missile programs, and the fact that its enrichment and other activities have already brought it to the nuclear threshold level. It has progressed to the point where it can now disperse and conceal its program, which vastly increases the problems in verification and inspection of both its activities and ability for a nuclear weapons "break out".
- The uncertainties surrounding the ability to verify an Iranian agreement to give up all aspects of its nuclear weapons-related research and development and ensure that there is no covert program. The IAEA has stated repeatedly that there is a "lack of cooperation" on the part of the Iranian government.
- Israel's perception of the need to maintain and improve the size and capability of its nuclear and missile forces, its monopoly or a decisive lead in such forces, and the near impossibility of being certain that Israel had actually given up every weapon: the "Nth weapon" problem.
- Negotiations that focus on Iran's nuclear program will be limited even if they are successful. Iran is building up its conventional long-range missile force, seeking to give them far more accuracy and terminal guidance which would allow them to be used against key point targets. Iran is also examining options for similarly precise drones and long-range cruise missiles which could be used against critical targets as "weapons of mass effectiveness". These weapons may be capable of destroying key power, water, desalination, energy, and other targets with conventional warheads and in ways that would have major economic effect and sometimes threaten the civil population.
- Such "weapons of mass effectiveness" attacks could be combined with the use of cyberwarfare, special operations, and infiltrators or third part sabotage. Shorter and medium range missiles could also be transferred to non-state actors and other countries with few of the risks associated with BRN weapons.
- Depending on the final course of negotiations and the following level of Iranian compliance in actual inspections, Iran could seek to maintain a nuclear weapons program by continuing to develop more efficient centrifuges, carrying over nuclear weapons design efforts including testing of weapons designs using non-fissile cores, or launching bomb and missile warhead designs for reliability and safety testing. It could make significant progress towards developing boost and thermonuclear weapons using such efforts. It might be able to create and conceal small chains of centrifuges and make progress in small, more concealable, heavy water reactor designs.
- Iran has previously declared its chemical weapons power and has all the civil technology and production facilities to make advanced biological weapons. It claims to have destroyed its past stocks, but has had years in which to develop better chemical weapons and a surge capability to produce and load them even if it appears to comply with the Chemical Weapons Convention. It has all of the research, development, and production equipment and technology necessary for the production of advanced biological weapons. Unlike chemical weapons, such weapons can match or exceed the lethality of fission nuclear weapons, and there currently is no credible inspection or verification regime that could determine whether Iran was substituting a biological capability for a nuclear one.
- As Iran's military exercises in the Gulf show, Iran is also building up its capabilities for asymmetric warfare in ways that can threaten conventional navies and employ a wide range of tactics. It continues to use its Al Quds force, intelligence services, and diplomats to pose a growing threat to the Arab states and

Israel, in addition to controlling an axis of influence that includes Iraq, Syria, and Lebanon. Iran is a sponsor of movements that might support its proxy attacks like the Hezbollah, some Shi'ite extremist groups in Iraq, and similar Hazara movements linked to the Al Quds force in Afghanistan.

- Iran can also use cyberwarfare, special operations, and infiltrators or third party sabotage.
- The lack of any real prospects for a full Arab-Israeli peace, and the uncertainties created by the political upheaval in the Arab world.
- Syria's history of covert nuclear programs.
- Pakistan's growing nuclear weapons production and potential export capability - raising the threat of an outside supplier or forcing expansion of the arms control region to include Pakistan and India.
- Uncertainties regarding other weapons of mass destruction in Israel and Arab forces, and regarding the size and nature of their missile, chemical, and biological weapons programs.
- The prospect that biotechnology will advance enough in the region so that both Israel and major Arab states could develop effective genetically engineered or modified biological weapons.
- The steadily growing difficulty in creating convincing verification and inspection regimes that affect all of these interacting variables.

At the same time, some Arab nations like Saudi Arabia have begun to consider creating their own nuclear programs to counterbalance the possibility of a future nuclear-armed Iran and a number of other Arab countries have expressed a growing interest in acquiring nuclear technology. According to the New York Times, Saudi Arabia is "scrambling to hire atomic contractors, buy nuclear hardware and build support for a regional system of reactors […]Egypt has announced plans to build one on its Mediterranean coast […and] roughly a dozen states in the region have recently turned to the IAEA […] for help in starting their own nuclear programs."[595] According to King Abdullah II of Jordan, "The rules have changed."[596]

However, on November 23, 2012, the State Department issued a statement postponing the December conference and it has not yet been rescheduled. At the time of the announcement, Israel had not yet decided if it was going to attend. Even if the meeting is rescheduled and held with both Israel and Iran in attendance, most likely little will happen; Israel will not give up its weapons if Iran still poses a threat, and Iran will not bow to Israeli demands to reduce or eliminate their nuclear program. And member states - especially Israel, Syria, and Iran - will not agree to a framework that includes extensive weapons inspections in the absence of a wide-ranging peace accord between Israel and its neighbors or Iran and its rivals in the region.

Regime Change and Regime Modification

The US does compete with Iran by seeking regime change or modification in Iran; although the scale and nature of this effort is often grossly exaggerated and the US has focused on sanctions and diplomacy as means of altering the current regime's behavior rather than changing the regime. But, given the existing pressures on the Iranian people from corruption, internal power struggles, a devalued currency, high inflation, high unemployment, and rising food costs, some experts seen the prolonged application of sanctions as a possible way to change Iran's regime.

There is no way to accurately list and assess past and current US efforts at regime change and separate fact from fiction. In general, the current Administration seems to feel that changes in Iran's regime must come largely from within as a result of action by the Iranian people. Many experts also feel that any direct or visible form of US support for regime change or support of the opposition within Iran would be counterproductive.

Iranians are keenly aware of the West's past interventions in Iran. US and British involvement in Iranian politics stretches back to the World War II occupation of Iran and the CIA and British-backed overthrow of democratically elected Prime Minister Mosaddegh in 1953.

Iran's current leaders aggressively use Iran's history and Iranian nationalist fears of outside intervention to try to win domestic support. Moreover, much of Iran's current foreign policy is influenced by the desire to limit what Iranian clerics and officials view as corrosive foreign influence.

Rhetoric versus Reality

It is clear that the US has pursued a variety of different approaches to regime change or modification over the last decade. The George W. Bush Administration took a strong stand in favor of regime change - although this stand was more rhetoric than substance. In his 2006 State of the Union address, President Bush expressed his belief that "our nation hopes one day to be the closest of friends with a free and democratic Iran."[597]

Some accounts suggest that President Bush went as far as to authorize covert operations to destabilize the regime, some of which involved assistance to some of the ethnic-based armed groups in Iran.[598] These reports reflect Iranian claims that the US backed unrest among Iranian Baluchis and covertly supported violent opposition movements as a result of the Iran Freedom Support Act. This legislation authorized funding for the active promotion of democracy in Iran, and was debated in ways that gave the impression that the US might use the funds to directly seek the overthrow of the Iranian regime.[599]

However, there is no meaningful evidence that the US actively backed Baluchis or any other violent Iranian opposition group or actively intervened internally in Iranian politics. The Bush Administration clearly realized the damage that any such action could do to Iranian dissidents and moderates if - as was inevitable - it became public.

President Obama initially took a more moderate public approach regarding regime change. The first major public manifestation of this vision for change came in March 2009, during his Nowruz message. He stated that the United States "is now committed to diplomacy that addresses the full range of issues before us, and to pursuing constructive ties among the United States, Iran, and the international community."[600]

He also referred to the country as "The Islamic Republic of Iran", a formulation that appeared to some to suggest that the US had accepted the regime and Islamic revolution, and was no longer seeking regime change.[601] In concert with that approach, Obama Administration officials initially withheld overt support for hardline approaches, such as military action, although no options were explicitly "taken off the table".[602]

The tone in Washington changed when Iran failed to respond to these overtures, nuclear talks stalled, and Iran violently put down protests after the disputed 2009 election. These events hardened the belief that the regime would not become more moderate. The US reacted cautiously initially, because of the fear that the Iranian regime would use US criticism to discredit moderates' demands for greater freedom and increased government accountability.

However, it became apparent that US restraint would not help. In December of 2009, President Obama addressed the protests in Iran and declared: "Along with all free nations, the United States stands with those who seek their universal rights."[603] Obama's 2011 Nowruz statement

reflected this changing diplomatic approach, expressing criticism of the government in Tehran and support for pro-democracy movements. President Obama stated: "Just as the people of the region have insisted that they have a choice in how they are governed, so do the governments of the region have a choice in their response…So far, the Iranian government has responded by demonstrating that it cares far more about preserving its own power than respecting the rights of the Iranian people."[604]

This address was widely noted for its open support of Iranian protesters, its condemnation of abuses against specific, named dissidents, and absence of any renewed overture to Iran's leaders.[605] Obama Administration officials did stop short of publically calling for regime change and no credible reports have surfaced of any form of US covert action against the regime.[606]

The Obama Administration appears to have remained cautious - in large part because it still feels new and visible US efforts could be used to discredit the Iranian opposition. However, Congress took a stronger position on the Iran issue. In 2011, legislation was introduced in the House of Representatives that called for the United States to: "deny the Government of the Islamic Republic of Iran the ability to continue to oppress the people of Iran and to use violence and executions against pro-democracy protestors and regime opponents" and to "to fully and publicly support efforts made by the people of Iran to promote the establishment of basic freedom, which build the foundation for the emergence of a freely elected, open, and democratic political system…"[607]

The Impact of Iran's March 2012 Parliamentary Elections

It is uncertain that either popular unrest or the internal power struggles within Iran's regime will change this situation in the near future. In March 2012, Iran held its first national election since the disputed presidential elections in 2009. The run-up to these parliamentary elections was quite unusual in that the contest was not between reformist and conservative elements as in the past. Rather, the election quickly became an unusually public referendum on President Ahmadinejad and his challenges to the Supreme Leader.

The dispute between rival factions of the conservative camp was over power, but more importantly, over the direction the Islamic Republic was to take some three decades after Khomeini's revolution. While some saw this internal division as the first signs of the regime's eventual downfall, Khamenei's overwhelming victory consolidated his control, strengthening his command over the parliament, judiciary, and security forces.

As political tension between Ahmadinejad and the Supreme Leader became more overt in the lead up to the election, Supreme Leader Khamenei declared participation was religiously obligatory:

> "On Friday's election day…the Iranian nation will give a slap harder than the previous ones in the face of [Global] Arrogance and will show its decisiveness to the enemy so that the front of Arrogance understands that it can't do anything when confronting this nation...All over the world, an enthusiastic election is the symbol of the nation being alive and [a symbol of] their will. Therefore, in any country in which there is vast popular participation in the election, it is a sign of their vigilance and their harmony with the regime..."[608]

The elections easily handed the vast majority of the parliamentary seats to conservative MPs, who won 143 of 290 possible seats. Reformists, who largely boycotted the elections, won only 59 seats. More importantly, pro-Khamenei candidates made considerable gains over those loyal

to Ahmadinejad and Ahmadinejad has found himself significantly weakened and marginalized in the aftermath of these elections.

Pro-Khatami loyalists stated immediately after the March 2012 elections that:[609]

- "We were under circumstances in which the elected president acted against Islam, Imam Khomeini, and the interests of the state. He was even guilty in shedding the blood of hundreds of innocent martyrs...One can't say there was electoral fraud and that he came to power by fraud. There was no fraud. However, there was lack of knowledge. After that some events took place and we understood that we were mistaken [in our support to Ahmadinejad]." -Ayatollah Mohammad-Taqi Mesbah Yazdi
- "Ahmadinejad was not without guilt in the post-election events." -Abd al-Hossein Rouh-al-Amini, Development and Justice party Secretary General
- "Opposing the Resistance Front is opposition to original Islam." -Hojjat al-Eslam Mojtaba Mesbah Yazdi, advocating for one anti-Ahmadinejad party

Another result was that Ahmadinejad largely ceased to contend for power, and his role became more in scope., will there be enough popular opposition to Iran's nuclear efforts to matter. By the summer and fall of 2012, Ahmadinejad was being openly attacked by the Supreme Leader's allies - who accused him of everything from corruption to economic mismanagement and some of whom began to allege that his nuclear policies were the cause of UN, EU, and US sanctions. Khamenei seemed to be using Ahmadinejad as a scapegoat, hoping to pin Iran's growing social and economic problems on him during his last nine months in office, as well as possibly marginalize the office of the presidency.

Khamenei's successes did, however, have some negative impacts on his position.. When Khamenei assumed the office of Supreme Leader, following Khomeini's death in 1989, he was able to wield power without assuming accountability, allowing Iran's weaker Presidents to take responsibility and blame for the country's problems. This remained the case during the presidential tenures of Rafsanjani and Khatami, and during Ahmadinejad's first term. However, Khamenei's domination of the March 2012 parliamentary elections, attacks on Rafsanjani, and the impact of sanctions created a growing risk of eroding this carefully cultivated buffer between the Supreme Ruler and the ordinary citizen, to the point where he would be held fully accountable by much of the population.

Iran's Presidential Elections in June 2013

The outcome of Iran's presidential election on June 14, 2013 was somewhat different, however, and may have a more positive impact on Iranian-US competition, the P5+1 negotiations, and the future of sanctions. The Council of Guardians excluded all moderate and reformist candidate from the ballot, include former President Rafsanjani. Nevertheless, the most moderate of the "conservative" pro-leader candidates, Hassan Rowhani gained a surprising victory over his more conservative rivals by winning 50.71% of the vote. This allowed him to be declared the victor and avoid a run off, with the next closest candidate – Mayor of Tehran Mohammad Bagher Qalibaf – who had just 16.56%. The candidate who seemed closest to the Supreme Leader. Saeed Jalili -- Iran's then current nuclear negotiator and the protégé of the Supreme Leader, came in third, with 11.36% of the ballots cast.[610]

Mr. Rowhani's election came as a surprise to some outside viewers who expected Saeed Jalili, thought to be the Ayatollah's favorite, to win in a decisive manner as had happened in President Ahmadinejad's reelection against the independent reformist candidate Mir-Hossein Mousavi in 2009.

Former State Department official Ray Takeyh posited that this only occurred because the Iranian ruling establishment underestimated, "pent-up resentments among Iranians after years of political repression and the recent economic hardships brought on by Western sanctions," and failed to realize the magnitude that the combination of Rowhani's popularity and divisions among the conservative candidates would have on the outcome of the election.[611]

However, others theorized that the election of Mr. Rowhani was actually carefully orchestrated maneuver in order to lend credibility to the Iranian government. Though Saeed Jalili, with his hard line stance on Iran's nuclear program, seemed like the logical choice for Khamenei, a Rowhani presidency had some major benefits for the Supreme Leader. Rowhani had extensive experience dealing with the bureaucratic power structures, his background in theology and Sharia comforts religious Iranians, and although he campaigned on a (relatively) moderate platform, he seemed unlikely challenge the supremacy of Ayatollah Khamenei.[612]

By allowing him to win, the Ayatollah could attempt to regain some credibility and restore trust in the ruling system.[613] Additionally, Rowhani's measured pragmatism in regards to the nuclear program was far more acceptable to critics both inside and outside Iran that Jalili's unwavering dogmatic commitment to a hardline position. This led some experts like Suzanne Maloney of the Saban Center for Middle East Policy to suggest that allowing the election of Rowhani to stand was done so that there would be a competent leader who had the requisite experience and leadership to spearhead a thawing of relations and easing of sanctions with the West.[614]

At the time of this report, it is still too early to tell if President Rowhani will act on his more moderate rhetoric and work to restore relations with the West or if the status quo of nuclear development and stalled talks will continue. It is still uncertain, however, that any major settlements will occur. President Rowhani must still officially take office and appoint his cabinet before he can begin governing. Furthermore, he did not indicate during his campaign that he would compromise on any of Iran's demands regarding its nuclear programs and the lifting of sanctions, It is also unclear that the Supreme Leader will redistribute control of any portion of the nuclear portfolio to President Rowhani – when President Ahmadinejad took over the presidency, Ayatollah Khamenei retained the nuclear dossier and appointed Saeed Jalili to negotiate with the P5+1 on his behalf.[615]

Furthermore, during the campaign, Mr. Rowhani glossed over the apparent contradictions in continuing Iran's nuclear program while at the same time improving relations with the West.[616] Any demand for recognition of Iran's right to enrich Uranium is unacceptable to the P5+1, but Mr. Rowhani and his government would need such recognition if they were to make any serious concessions.[617] Statements and tweets made by the Rowhani campaign at times call for engagement and negotiations, while also affirming the right of Iran to enrich Uranium and stressing the progress made by the nuclear program under Rowhani's leadership:

- On May 27, 2013 during a live tweet debate: "We must engage in intelligent #diplomacy to move #nuclear file out of UNSC, lift unjust #sanctions #Rouhani2013 #engagement."[618]
- During the same tweet conversation: "Enrichment, centrifuge tech #developed under #Rouhani tenure as nuclear negotiator while #sanctions were avoided and #tensions kept at bay."[619]
- On May 28, 2013 during a state TV interview: "The day I handed over the nuclear file, we had 1,700 or so centrifuges ready. The day I received the nuclear file we had 150."[620]
- On June 7, 2013, during a foreign policy debate: "It is good for centrifuges to operate, but it is also important that the country operates as well, and that the wheels of industry are turning,"[621]

- On June 17, 2013 during his first press conference as President: "Iran has no plans to suspend uranium enrichment…Those days are behind us." However, he added that he would like to see negotiations with the P5+1 become more active.[622]
- Live tweets of the same press conference: "Our program is #transparent, but we can take more steps to make it clear to world that our #nuclear program is within intl regulations..." "all of Iran's #rights - incl nuclear rights - must be recognized. Third, #unilateral and bullying policies need to be scrapped."[623]

Additionally, the characterizations of Rowhani as a "moderate" were only true relative to the other conservative candidates, and overlooked some other key facets of his political history:

- In a 2004 speech that did not become public until years later, he said, "While we were talking with the Europeans in Tehran, we were installing equipment in parts of the facility in Isfahan [a nuclear facility]…In fact, by creating a calm environment, we were able to complete the work in Isfahan."[624]
- In the same speech, he argued for developing the nuclear program by explaining that, "If one day we are able to complete the fuel cycle and the world sees that it has no choice — that we do possess the technology — then the situation will be different. The world did not want Pakistan to have an atomic bomb or Brazil to have the fuel cycle, but Pakistan built its bomb and Brazil has its fuel cycle, and the world started to work with them. Our problem is that we have not achieved either one, but we are standing at the threshold."[625]
- In 1999, Mr. Rowhani supported the violent crackdown on dissidents within Iran while the Secretary of the Supreme National Security Council.[626]
- Even prior to managing the Supreme National Security Council, Rowhani was a part of the elite Iranian ruling circle, longtime friends with the Supreme Leader, and never once formally identified with the Reformist party.[627]

US Initiatives and Information Campaigns Over the Last Decade

Regardless of how these events play out, there is no question that the US would still like to see a different, and far more moderate and democratic regime in Iran. The US has relied largely on information campaigns and the support of Iranian exiles to influence Iranian public opinion since the fall of the Shah and faces the reality that any overt support of Iran's internal opposition could lead to serious backlash and may reinforce the existing regime. The same is true of most options for covert action. The US has limited practical leverage over internal events in Iran, and any direct support of Iranian dissidents would inevitably leak, discredit them, and do more harm than good.

The US has launched a series of initiatives over the last decade to promote opposition parties in Iran. Radio Farda ("tomorrow," in Farsi) began in October 1998 as a project of Radio Free Europe/Radio Liberty, in partnership with the Voice of America (VOA) and now broadcasts 24 hours a day. The VOA also established a Persian language service in Iran (VOA Persian Service) in July 2003.[628] In July 2007, it was renamed Persian News Network (PNN), encompassing radio (1 hour a day or original programming); television (7 hours a day of original or acquired programming, rebroadcast throughout a 24 hour period); and Internet.[629]

Since 2010, the Obama Administration has broadened the scope of its democracy promotion programs. In addition to the traditional efforts to fund journalists, human rights activists, and visit programs, the Administrations has sought to work directly with individuals inside Iran who are organized around apolitical issues such as health care, the environment, and science.[630] Washington has begun to "tweet" in Farsi as well as Arabic, and the Obama administration has made efforts to help the Iranian opposition circumvent government attempts to monitor or cut off communications.[631]

According to the *New York Times*, the Administration has initiated a global effort to deploy "shadow" Internet and mobile phone systems that dissidents can use to undermine governments that censor or shut down telecommunications networks.[632] Similarly, the State Department is financing the creation of stealth wireless networks that would enable activists to communicate outside the reach of governments, an effort with clear implications for any Iranian opposition party.[633] The US has taken a number of additional steps to aid Iranians' access to the internet by easing restrictions on Iranians to download free mass market US software and allowing exports of US software intended to circumvent Iranian internet restrictions.[634]

In December 2011, the US launched a "virtual embassy in Iran", a website which was quickly blocked by Tehran amidst allegations that the US was attempting to recruit spies and foster internal regime change. US State Department officials claimed that the site was merely an attempt to communicate with Iranians about their ability to secure student visas and explain US policy. It appears clear, though, that the effort was aimed at weakening support for the regime among young, technically-savvy Iranians. The President's Nowruz message in March 2012 stated that the United States was seeking to help Iranians circumvent governmental restrictions on the internet and other media. These are only the latest US attempt to make pro-American media and resources available to populations inside Iran.

It is unclear if such US efforts are making progress in changing the nature or behavior of the Iranian regime, although they almost certainly help keep Iranian moderates and opponents of the regime informed and provide some outside support. There is still hope in Washington that the kind of protests that followed the last presidential election in Iran will lead to popular political upheavals. However, the evidence to date indicates that the government in Tehran has successfully consolidated power after widespread uprisings in 2009 and a brief spat of protests in early 2011 and October 2012.

The March 2012 Iranian "election" for Iran's 290 seat parliament did not produce wide protests, in spite of the fact that any serious opposition candidates were barred from running and there were at least some discrepancies in the vote count. The Supreme Leader seems to have been able to push aside former President Mahmoud Ahmadinejad's faction with comparative ease and consolidate the power of the one main conservative faction. The 2013 Presidential election was also peaceful did not prompt protests or outpourings of criticism in the same way the 2009 Presidential election did.

There are few signs of any active challenges or divisions within the military, IRGC, Basij, or intelligence services. There have only been token signs of organized opposition since the two-year crackdown following the 2009 Presidential election: the opposition consists largely of the clerics that have lost power, and polling data showed consistent popular support for Iran's nuclear programs through late 2011.

Yet many political upheavals begin after years of repression and without warning. Expanded sanctions have impacted the Iranian economy and Iranians' daily lives, and significant minorities within Iran appear disillusioned by the government in Tehran.[635] This may force the regime to modify its position on the nuclear issue and US should continue to position itself on the side of democracy and human rights. There is little evidence to date that the US should expect regime change, or that any covert program is likely to make substantial progress versus convincing many Iranians of America's hostile intent once it is exposed. Regime change from within, however, is at least possible.

The "Indirect Approach"

The best approach for the US may well be to let Iranians take the lead in whether to modify or change the regime. This does not mean abandoning strategic communications efforts that allow Iranians outside Iran to talk to Iranians inside Iran, information campaigns that prevent the Iranian government from distorting or concealing the realities surrounding issues ranging from economics to human rights, or strongly backing the efforts of the UN and outside human rights organizations.

It does mean avoiding political posturing and hollow calls for covert action, actual covert action that will inevitably be discovered and discredit the internal opposition in Iran, backing extremist cults like the MEK, and repeating the mistakes the US made in Iraq and Afghanistan in backing exiles that lack credibility.

The MEK was listed as a terrorist group for a reason. It attacked and killed US officials during the 1970s and carried a campaign of murderous terrorism in its power struggle with Khomeini. When it lost, it became the tool of Saddam Hussein until the US invasion of Iraq in 2003, and is now little more than a Rajavi cult with little influence in Iran and even less popularity. It played Congressional politics to become delisted and effectively bribed a number of US officials with high speaking fees in the process. Even if the US were to fund or provide it supplies, it lacks any significant popular support inside Iran and is known for joining with Iraq during the Iran-Iraq War and terrorist attacks against the Iranian government.

The US needs to consider whether it would do better in working with Europe and NGOs in strategic communications and decoupling the US as much as possible from the message - minimizing links between the US and its historical baggage - and calls for reform.

However, the US should do far more to modify or change the regime in a different way. The US message to the Iranian people - and to any elements in the regime that want change and are willing to give up the dangerous elements of Iran's nuclear programs and behavior - should not focus so heavily on sanctions and the threat of war.

The US should make it clear, both independently and in working with the P5+1, that there are strong incentives for Iran to give up its nuclear weapons related efforts and to establish better relations with the US. This includes a rapid end to sanctions, trade and investment incentives, easing of visa restrictions, and other measures that show the Iranian people and the regime that the US has clearly defined positive programs and goals that will benefit Iran. This does not mean abandoning either sanctions or the search for security, but it does mean trusting in the fact that the best way to both modify and change the regime is to create a climate where it cannot use the US "threat" to solidify the Iranian people.

The sanctions, while hurting the people more than the regime, are working, and working well. As the economic situation continues to deteriorate the regime may have to resort to increasingly heavy handed approaches to controlling the population's outrage at the economic situation. This has the potential to alter the regime internally, rather than imposed on it from an outside power.

Implications for US Policy

The US, the EU, and other nations seeking to end Iran's nuclear programs are now engaged in an uncertain and unpredictable race with Iran to see if a combination of outside sanctions and negotiations can make fundamental changes in Iran's behavior and apparent progress in

developing nuclear weapons. The good news is that sanctions are having a major impact. The bad news is that so far this impact has largely been on the Iranian people, the regime has not changed its behavior, and Iran is getting closer and closer to a nuclear break out capability and the ability to deploy nuclear weapons if it chooses to do so.

As has been analyzed in the Gulf Military Balance:, the Missile and Nuclear Dimensions, it may be several years before Iran crosses critical "red lines" like producing weapons grade material, conduction a nuclear test of a nuclear device, or building and deploying nuclear weapons. It is not clear, however, that sanctions will work. The US and its regional allies are already involved in efforts at military containment, but the grim reality is that preventive strikes are still a very real option and the odds they will take place continue to increase.

Sanctions and Negotiations

The previous analysis has shown that new sanctions have already had a major impact. This impact grew steadily during 2012 and 2013, and the new sanctions will continue to have a growing cumulative impact on Iran's savings, foreign exchange reserves, oil and gas export income, and the ability to fund imports. The full effects of these sanctions will not become apparent until late 2013 at the earliest, but they already are cutting Iranian energy exports and revenues, and creating serious banking and trade problems. Iran has made its frankest admissions to date that sanctions are having a major impact. The Iranian Rial has become destabilized, and it fell to record lows in October 2012 as currency markets reacted to the prospect of more limited foreign trade. The Iranian government, the Iranian economy, and the Iranian people are already feeling the pressure.

Sanctions have had some impact on popular attitudes towards the regime, although they have also caused anger at the U.S. While they are not targeted at the Iranian people, they have impacted every Iranian except the very poor and the very rich, and will continue do so in an economy where savings and investment have been hurt by inflation, a devalued currency, and economic mismanagement. Any new series of sanctions is certain to have a growing impact on every Iranian whose income is shaped by the market economy - the vast majority in a country that the World Bank and CIA estimate is 67% to 71% urbanized.

However, Iran's economy has scarcely collapsed despite inflation, unemployment, and an uncertain exchange rate. Iran's leadership has so far been able to keep the economy going and it appears to be more resilient than most people believed. However, sanctions relief will only come with successful negotiations. Iran's leadership may be able to persevere in spite of such pressures due to their ability to deflect sanctions, but there is a limit to this ability. Past polls and election results are one thing, popular discontent after new and continuing sanctions combine with an economy in crisis is quite another.

It is also important to note that the "hardliners" in the regime continue to reject any talks with the US over its nuclear program. And, Iranians cannot avoid seeing the deep differences within the clergy, the growing role of unelected leaders of the IRGC, and the bitter exchanges that used to occur between the Supreme Leader Ali Khamenei and former President Mahmoud Ahmadinejad. Iran's history of corrupt presidential and legislative elections and crackdowns on human rights do not help. The more that sanctions interact with repressive restrictions on normal life, the more these problems are likely to impact all classes of Iranian society.

Iran does not seem to have changed its tactics of using negotiations as a cover while it moves forwards towards nuclear weapons. There were reports in early October 2012 that Iran had offered a new plan to end the nuclear confrontation.[636] The plan proved to be a rehash of past negotiating proposals that called for early dismantling of the sanctions, and a slow dismantling of the key enrichment sites like Fordow in ways that could allow Iran to move its enriched stocks and send them to other concealed centrifuge facilities or store them for a future breakout attempt.

Some reports indicated that this plan was rejected by the United States because it would have allowed Iran to continue to enrich Uranium until sanctions were completely removed and allowed Iran's stockpile of 20% enriched Uranium to remain in the country - making it easier for Iran to retain a "breakout" capacity. This indicated that Iran might have calculated that the end result of this plan would have been the dismantling of the sanctions effort in ways that the US and EU could not rebuild, and would be a variant on Iran's past "negotiate and proceed" tactics..

Other reports indicated that Iran's actions were at least a sign that sanctions might drive Khamenei to accept a serious agreement.[637] Two days later, however, Iranian officials dismissed the report. They claimed the report was "baseless," and that "Iran has never delivered any new proposal other than what had been put forward in talks with the P5+1."[638]

At the same time, Iran became steadily more critical of the IAEA after the spring of 2012 - increasingly implying that the IAEA's activities and reports were an extension of US and Western sanctions efforts and intelligence activities. IAEA officials also became the target of anti-IAEA protests in Tehran mid-August.

Iran took an even harsher tone with the IAEA in the days that followed reports of a new Iranian negotiating proposal and Iran's denial. Iran accused the international agency's inspectors of sabotaging Iran's electrical grids that supply Iran's Fordow and Natanz enrichment plants during August's IAEA inspection. Iranian officials also accused the agency of tampering with equipment and Fereydoun Abbasi, Iran's chief nuclear official said that, "Terrorists and saboteurs might have intruded the agency and might be making decisions covertly."[639]

Some experts felt that these developments reflected an Iranian effort to prepare for either downgrading its relationship with the IAEA or for removing the inspectors altogether. They also speculated that an increasingly hostile relationship between Iran and the IAEA might seriously imperil future negotiations, while the outright removal of inspectors would instantly increase tensions to the point that Israel would seriously consider a preemptive strike.

The IAEA did, however, continue to meet with Iran. Its meeting with Iran on December 15, 2012, was reported to be a "good meeting." There has been more recent news reports that Iran and the IAEA may come together on an agreement that resolves some of the issues between the international nuclear energy organization and the Republic of Iran.[640] It is not known if the deal includes IAEA visitation to the Parchin military facility, other specifics, or if the deal will even happen.[641]Despite the initial hope, the IAEA and Iran failed to reach an agreement.

P5+1-Iran talks have similarly stalled. In mid-December 2012, Iran indicated that it was willing to enter into new talks with the western group of nations. Quickly the P5+1 agreed to a new package, similar to the one offered during negotiations in the summer of 2012, and it appeared that both sides were working towards determining a timetable for talks to begin sometime in January 2013.[642]

When talks finally did get underway in Almaty, Kazakhstan in early April 2013, it was apparent that the two sides were still far apart from each other. At the meeting, the P5+1 put a new proposal on the table that required Iran to suspend enrichment at Fordow, limit the amount of 20% enriched uranium to less than required to build a nuclear weapon, and allow greater access for IAEA inspectors.[643] In return the P5+1 offered limited sanctions relief, mostly pertaining to Iran's gold transactions and petrochemical trade. Iran did little more than offer a rehash of its previous proposals and a demand for almost total relief from sanctions, including banking sanctions, along with recognition of its right to enrich.[644]

Two days of negotiations ended in nothing more than both sides praising for their Kazak hosts and vague promises to meet again. The chief negotiator Catherine Ashton said, "Over two days of talks we had long and intensive discussions on the issues" An unnamed US official said, "It is fair to say that both sides came away with a better understanding of the other's thinking."[645] In reality, nothing had happened except Iran had won more time in which to move forward in its nuclear efforts.

Some experts believe that the time will be right for a deal between the two sides, as sanctions continuing to impact Iran's economy and increase its political infighting. Hassan Rowhani, a former senior Iranian nuclear negotiator, stated that, "For the West to become confident about our peaceful nuclear activities and for us to get our rights and get past the effects of sanctions and the difficult path the enemy has prepared for us, there is only one way, and it is negotiations." [646] It is hard, however, to be optimistic.

The Key Near-Term Choices for US Policy

As both Gulf Military Balances, the Missile and Nuclear Dimensions and the Conventional and Asymmetric Dimensions, have discussed, the US already must be ready for contingencies that could trigger a significant clash or conflict in the Gulf, for Israeli preventive strikes, or for serious US military action if a crisis escalates to the point where the US might have to strike at Iran's overall base of asymmetric forces, conventional forces, nuclear technology, or missile forces. It also must prepare to deal with the reality that Iran crosses critical red lines.

While the US should pursue sanctions and diplomatic options, it must also begin to make hard choices regarding the possibility that sanctions and diplomacy may fail within the next one to three years. This means choosing between containment and preventive strikes, and doing so on the basis of the kind of classified analysis of future options that require full access to both intelligence and military planning data. The choice between bad options should always be as objective as possible and based on the best information and modeling, and many of the key variables are now so highly classified that outside analysis is severely limited.

In the near-term, the US does need to do everything it can to ensure that sanctions lead to successful negotiations. This means the US should pursue the following options:

- *The US should do everything possible to create UN, multilateral, and unilateral sanctions that are as effective as possible.* The time for gradual approaches is over. If there is to be a peaceful outcome to this conflict, it must come before Iran tests a nuclear device or deploys a nuclear weapon. It must come before Israel takes preventive action, the region becomes locked into a nuclear arms race, or Iran creates a technology base so advanced that current IAEA inspection methods cannot detect a covert nuclear weapons program.
- *Make it clear that the US and its allies offer Iran incentives to halt and reverse sanctions continuously.* The US should show other countries that the US and the P5+1 offer Iran real incentives to halt illicit weapons

related activities, and explain and justify sanctions in terms that nations in other regions can understand. Sanctions relief is not enough. Iran needs to see that the US and the rest of the P5+1 will offer incentives in terms of fuel supplies, trade, investment, and energy development. If sanctions are the "stick", the US must act to ensure that there are real and immediate "carrots".

- *Work closely with European, Gulf, and Israeli allies*. The US cannot assume its allies will follow if it does not communicate, consult, and treat them as partners. This is an area where the US must be transparent enough to convince the world it is not repeating the mistakes it made in going to war in Iraq, that it will not act rashly, and it will listen as much as it attempts to lead.
- *Make a convincing case to the Iranian people, its allies and the world that Iran is seeking to obtain nuclear weapons*. It is not enough to cite IAEA reports and continue diplomatic pressure. The US must continue to work with the IAEA and key allies to show the dangers in Iran's actions and make the threat it poses convincing. The US should explain how a crisis in the Gulf could threaten all countries - including the developing countries outside the region. The US must make the case through effective strategic communications and as objectively as possible.
- *Use arms transfer efforts to supplement sanctions.* The US must continue to ensure that China, Russia, and other nations will not transfer advanced arms and military technology to Iran, nor any technology and equipment that could be used to develop nuclear weapons. In the past few years, Russian and Chinese arms transfers to Iran have dropped significantly - this needs to continue. At the same time, as is outlined in US-Iranian Strategic Competition: The Gulf and Arabian Peninsula, it must work with its Arab Gulf allies and Turkey to give them a strong a mix of defenses and deterrents, help Israel obtain the security needed to reduce the incentive for preventive strikes, and - as is discussed in Iraq After US Withdrawal - do what it can to make Iraq secure and a real security partner.
- *Work with the UN, IAEA, and its allies to update the agreements necessary to ensure full compliance with a meaningful and verifiable agreement*. It will not be enough for Iran to allay with the immediate concerns raised by the IAEA. It must be clear that any negotiation ends in a viable agreement.
- *Avoid aggressive interference in the form of regime change, but support strategic communications from Iranian exiles and encourage internal movement towards moderation and democracy*. The US should focus on regime modification when dealing with the nuclear issue and the threat in the Gulf, and leave regime change to Iranians.
- *Attempt to prevent pre-emptive strikes from the Israelis that would stir up nationalism and a "rally around the flag" sentiment in Iran, improving the regime's chances at long term survival.* An Israeli attack would not cause the Iranian people to blame their government or the nuclear program, it would instead cause an outpouring of nationalism and support for the government. As the new sanctions are beginning to take hold and people are angry at the government for its irresponsible economic policies, a pre-emptive strike would reverse the progress of the past few years.
- *Support arms control in enforcing the NPT and giving the IAEA the necessary tools and freedom of action as critical policy option. However, a weapons of mass destruction free zone has virtually no chance of being negotiated in a meaningful form*.

The Uncertain Result: Giving Diplomacy Near Term Priority But Building New Levels of Containment, Deterrence, and Security

Despite the lack of diplomatic progress and the appearance that the Iranians are stalling for time, negotiations may still be successful. Successful negotiations might also bring about long-term changes in the US-Iranian relationship. At the same time, the time windows for reaching some settlement before Iran is fully ready to test and produce nuclear weapons continue to shrink, and it is far from clear that sanctions and diplomacy will stop Iran's progress toward a nuclear weapons capability.

The most likely case still seems to be is that failed sanction, failed negotiations, and an unchanging Iranian regime will either lead to preventive strikes at levels that are actually a

preventive war, or become the beginning of years of intensive confrontation with Iran at every level. The risks of going from diplomacy to military actions are becoming steadily higher as Iran can develops operating chains of advanced centrifuges, comes closer to bring its heavy water reactor at Arak on line, and develops technologies and dispersed-sheltered facilities that limit the effectiveness of preventive strikes. The risks will become critical if Iran acquires weapons grade material, conducts any kind of nuclear test, or is found to be deploying weapons based on some form of "cold" test or sub-critical "hot" test.

So far, Iran has largely backed away from military confrontation. Iran also has at least as much to lose as any other Gulf state if it halts oil traffic through the Strait. Iran also cannot hope to win any serious conventional conflict with the US and its Gulf allies, and it is unclear how much it could really gain from any attempt to use asymmetric means to confront the US.

Nevertheless, it is unclear what will happen if sanctions do result in a major Iranian economic crisis. Rising pressure on Iran can lead it to take risks, and exercise limited military options. Limited or demonstrative Iranian military actions can escalate to serious clashes and accidents can escalate into war. The whole nuclear issue may also become far more intense if some form of serious military clash or limited conflict tales place in the Gulf or over Syria. Iran's progress towards a nuclear weapons capability may still lead Israel to carry out preventive strikes, which will force the US to choose between launching its own strikes to "finish the job" or doing nothing and wasting an opportunity to set back the nuclear program for a longer period of time.

Iran could stops at the point of a nuclear breakout capability, and a period of confrontation and sanctions might last for several more years without Iran actually moving to acquire nuclear weapons. Such as "pause" would also allow Iran to steadily improve its asymmetric capabilities and carry on political warfare. Moreover, if Iran does complete a nuclear weapon without a decisive US military response, it might lead many nations to abandon sanctions or aggressive posturing in fear of Iranian retaliation.

At the same time, Iran will have to take risks of its own. It has no inherent advantages in a regional nuclear arms race and playing the "long game". Hostile Iranian actions and Iran's movement towards a nuclear weapons capability might also strengthen the US's, Europe's, and Southern Gulf states' resolve and support for sanctions. If sanctions continue without preventive strikes, Iran will continue to pay a steadily higher cumulative cost as a result, and popular support for the regime will most likely continue to erode.

In addition, Iran cannot be certain that the use low-level asymmetric tactics can be used without provoking the US and other states to escalate the conflict economically or militarily. Nor can Iran achieve escalation dominance at any level, and the steadily growing level of conflicts that might occur if nuclear weapons are ever used will risk a war that leads to a processing of spiraling escalation - leading to the destruction of Iran's military forces and other assets.

Preparing for Preventive Strikes and/or Extended Deterrence

The real world political and strategic results of replacing sanctions and diplomacy with the use of force are so unpredictable, and the risks are so high, that force must be a last resort. Temporary success from limited preventive strikes could end in convincing the Iranian regime that nuclear weapons are so vital to its survival that they justify any level of sacrifice in order to obtain them and prevent future attacks.

Preventive strikes could lead Iran to withdraw from the NPT and start a far more intensive and dispersed nuclear weapons program. They might usher in a period of confrontation analogous to the Cold War. The use of force could end any chance of a major diplomatic settlement for the life of the Islamic Republic, lead Iran to lash out militarily or by using proxies, and create a major energy and economic crisis in the process.

The risks on all sides should, in theory, give all sides reason to negotiate. In practice, they have so far failed to do so. Moreover, even if sanctions do lead to successful negotiations, they may have serious limitations. Negotiations that focus on Iran's nuclear program will have limited effects even if they are successful. Iran can continue many aspects of nuclear weapons development with little risk of detection. As its recent exercises in the Gulf show, Iran is also building up its capabilities for asymmetric warfare in ways that can threaten conventional navies and employ a wide range of tactics. Iran continues to use its Quds Force, intelligence services, and diplomats to pose a growing threat to the Arab states and Israel, in addition to controlling an axis of influence that includes Iraq, Syria, and Lebanon.

This means that a continued focus on sanctions and arms control efforts must be supported by the continued development of military capabilities to deter and contain Iran, and carry out preventive strikes and restrikes if necessary. The US should preserve and enhance its ability to use force against Iran. The US and its allies should make it clear to Iran that if it conducts nuclear tests, is found to be assembling nuclear weapons, or deploys a nuclear weapon it will justify the use of military force. The US and its allies should also find ways to warn Iran that any major Iranian effort to "close the Gulf" or a large-scale clash between Iran and the US or its allies could lead to escalating military action.

Nevertheless, military force should only be used if it becomes clear that Iran's regime has reached the point where it cannot be deterred, and there is strong evidence Iran will produce and quickly deploy nuclear weapons. It should only come after clearly assessing the relative risks of continuing with sanctions and containment and only after a careful assessment of the relative risks of this option versus preventive strikes. It is far easier to begin a conflict and trigger the law of unintended consequences than live with the result.

Annex A: Overview of US Regulations Involving Sanctions against Iran as of June 2013

Iranian Transactions Regulations - 31 C.F.R. Part 560

As a result of Iran's support for international terrorism and its aggressive actions against non-belligerent shipping in the Persian Gulf, President Reagan, on October 29, 1987, issued Executive Order 12613 imposing a new import embargo on Iranian-origin goods and services. Section 505 of the International Security and Development Cooperation Act of 1985 ("ISDCA") was utilized as the statutory authority for the embargo, which gave rise to the Iranian Transactions Regulations, Title 31, Part 560 of the U.S. Code of Federal Regulations (the "ITR").

Effective March 16, 1995, as a result of Iranian support of international terrorism and Iran's active pursuit of weapons of mass destruction, President Clinton issued Executive Order 12957 prohibiting U.S. involvement with petroleum development in Iran. On May 6, 1995, he signed Executive Order 12959, pursuant to the International Emergency Economic Powers Act ("IEEPA") as well as the ISDCA, substantially tightening sanctions against Iran.

On August 19, 1997, the President signed Executive Order 13059 clarifying Executive Orders 12957 and 12959 and confirming that virtually all trade and investment activities with Iran by U.S. persons, wherever located, are prohibited.

Effective November 10, 2008, the authorization for "U-turn" transfers involving Iran was revoked. As of that date, U.S. depository institutions are no longer authorized to process transfers involving Iran that originate and end with non-Iranian foreign banks. Details concerning the revocation of the U-turn authorization and a description of currently permissible funds transfers can be found in the Financial Dealings with Iran section of this document.

Effective September 29, 2010, the authorization to import into the United States, and deal in, certain foodstuffs and carpets of Iranian origin was revoked pursuant to section 103 of the Comprehensive Iran Sanctions, Accountability, and Divestment Act of 2010. The exceptions to the prohibition on importing goods and services are listed in the **IMPORTS FROM IRAN** section of this document.

Criminal penalties for violations of the Iranian Transactions Regulations may result in a fine up to $1,000,000, and natural persons may be imprisoned for up to 20 years. Civil penalties, which are not to exceed the greater of $250,000 or an amount that is twice the amount

of the transaction that is the basis of the violation with respect to which the penalty is imposed may also be imposed administratively.

OFAC will provide additional guidance on the implementation of sections 104 and 105 of the Comprehensive Iran Sanctions, Accountability, and Divestment Act of 2010 soon.

• **IMPORTS FROM IRAN** - Goods or services of Iranian origin may not be imported into the United States, either directly or through third countries, with the following exceptions:

a) Gifts valued at $100 or less;

b) Information and informational materials;

c) Household and personal effects, of persons arriving in the United States, that were actually used abroad by the importer or by other family members arriving from the same foreign household, that are not intended for any other person or for sale, and that are not otherwise prohibited from importation; and

d) Accompanied baggage for personal use normally incident to travel.

U.S. persons are prohibited from providing financing for prohibited import transactions. There are restrictions on

letter of credit transactions involving the Government of Iran (see **FINANCIAL DEALINGS WITH IRAN** below).

• EXPORTS TO IRAN - In general, unless licensed by OFAC, goods, technology, or services may not be exported, reexported, sold or supplied, directly or indirectly, from the United States or by a U.S. person, wherever located, to Iran or the Government of Iran. The ban on providing services includes any brokering function from the United States or by U.S. persons, wherever located. For example, a U.S. person, wherever located, or any person acting within the United States, may not broker offshore transactions that benefit Iran or the Government of Iran, including sales of foreign goods or arranging for third-country financing or guarantees.

In general, a person may not export from the U.S. any goods, technology or services, if that person knows or has reason to know such items are intended specifically for supply, transshipment or reexportation to Iran. Further, such exportation is prohibited if the exporter knows or has reason to know the U.S. items are intended specifically for use in the production of, for commingling with, or for incorporation into goods, technology or services to be directly or indirectly supplied, transshipped or reexported exclusively or predominately to Iran or the Government of Iran. A narrow exception is created for the exportation from the United States or by U.S. persons wherever located of low-level goods or technology to third countries for incorporation or substantial transformation into foreign-made end products, provided the U.S. content is insubstantial, as defined in the regulations, and certain other conditions are met.

Donations of articles intended to relieve human suffering (such as food, clothing, and medicine), gifts valued at $100 or less, licensed exports of agricultural commodities, medicine, and medical devices, and trade in "information and informational materials" are permitted. "Information and informational materials" are defined to include publications, films, posters, phonograph records, photographs, microfilms, microfiche, tapes, compact disks, CD ROMs, artworks, and news wire feeds, although certain Commerce Department restrictions still apply to some of those materials. To be considered informational material, artworks must be classified under chapter subheadings 9701, 9702, or 9703 of the Harmonized Tariff Schedule of the United States.

With certain exceptions, foreign persons who are not U.S. persons are prohibited from reexporting sensitive U.S.-origin goods, technology or services to Iran or the Government of Iran. Foreign persons involved in such reexports may be placed on the U.S. Commerce Department's "Export Denial Orders" list.

U.S. persons may not approve, finance, facilitate or guarantee any transaction by a foreign person where that transaction by a foreign person would be prohibited if performed by a U.S. person or from the United States.

• DEALING IN IRANIAN-ORIGIN GOODS OR SERVICES - U.S. persons, including foreign branches of U.S. depository institutions and trading companies, are prohibited from engaging in any transactions, including purchase, sale, transportation, swap, financing, or brokering transactions related to goods or services of Iranian origin or goods or services owned or controlled by the Government of Iran.

Services provided in the United States by an Iranian national already resident in the United States are not considered services of Iranian origin.

These prohibitions apply to transactions by United States persons in locations outside the United States with respect to goods or services which are of Iranian origin or are owned or controlled by the Government of Iran. U.S. persons may not import such goods or services into or export them from foreign locations. A U.S. person may, however, engage in transactions in third countries necessary to sell, dispose of, store, or maintain goods located in a third country which were legally acquired by that U.S. person prior to May 7, 1995 on the condition that the transactions do not result in an importation into the United States of goods of Iranian origin.

• FINANCIAL DEALINGS WITH IRAN - New investments by U.S. persons, including commitments of funds or other assets, loans or any other extensions of credit, in Iran or in property (including entities) owned or controlled by the Government of Iran are prohibited. For your information, Appendix A contains a list of banks or entities owned or controlled by the Government of Iran. While U.S. persons may continue to charge fees and accrue interest on existing Iranian loans, a specific license must be obtained to reschedule or otherwise extend the maturities of

existing loans.

Payments for licensed sales of agricultural commodities, medicine and medical devices must reference an appropriate OFAC license and may not involve a debit or credit to an account of a person in Iran or the Government of Iran maintained on the books of either a U.S. depository institution or a U.S. registered broker or dealer in securities. Payments for and financing of such licensed sales may be accomplished by cash in advance, sales on open account (provided the account receivable is not transferred by the person extending the credit), or by third-country financial institutions that are neither U.S. persons nor government of Iran entities. Any other arrangements must be specifically authorized by OFAC. U.S. depository institutions may advise and confirm letters of credit issued by third-country banks covering licensed sales of agricultural commodities, medicine and medical devices.

Effective November 10, 2008, the authorization for "U-turn" transfers involving Iran was revoked. As of that date, U.S. depository institutions

are no longer authorized to process such transfers, thereby precluding transfers designed to dollarize transactions through the U.S. financial system for the direct or indirect benefit of Iranian banks or other persons in Iran or the Government of Iran. However, U.S. depository institutions are permitted to handle funds transfers, through intermediary third-country banks, to or from Iran or for the direct or indirect benefit of the Government of Iran or a person in Iran, arising from several types of underlying transactions, including:

a) a noncommercial family remittance;

b) an exportation to Iran or importation from Iran of information and informational materials;

c) a travel-related remittance;

d) a payment for the shipment of a donation of articles to relieve human suffering; or

e) a transaction authorized by OFAC through a specific or general license.

Several Iranian banks have been separately designated under the Nonproliferation of Weapons of Mass Destruction ("NPWMD") or Specially Designated Global Terrorist ("SDGT") programs for their involvement in the financing of either WMD or ballistic missile proliferation or of terrorism, respectively. Such banks' property and interests in property that are in the United States or in the possession or control of U.S. persons, wherever located, are blocked. U.S. persons are prohibited from engaging in any transaction or dealing in property or interests in property of these designated Iranian banks. Please see the brochures on Nonproliferation and Terrorism for further information on these programs.

• **"PRE-ZERO CONTRACTS" -** Letters of credit and other financing arrangements with respect to trade contracts in force as of May 6, 1995, may be performed pursuant to their terms provided that the underlying trade transaction was completed prior to June 6, 1995 (February 2, 1996 for "agricultural commodities"), or as specifically licensed by OFAC. Standby letters of credit that serve as performance guarantees for services to be rendered after June 6, 1995, cannot be renewed and payment may not be made after that date without authorization by OFAC.

• **OTHER BANKING SERVICES -** U.S. depository institutions, including foreign branches, are prohibited from servicing accounts of the Government of Iran, including banks owned or controlled by the Government of Iran (as in Appendix A) or persons in Iran. However, they are authorized to pay interest, deduct reasonable and customary service charges, process transfers related to exempt transactions, such as the exportation of information or informational material, a travel-related remittance, or a payment for the shipment of a donation of articles to relieve human suffering. They may not otherwise directly credit or debit Iranian accounts.

U.S. depository institutions and U.S. registered brokers or dealers in securities initiating or receiving payment orders involving Iran on behalf of customers must determine prior to processing such payments that they do not involve transactions prohibited by the Iranian Transactions Regulations.

• **TRAVEL -** All transactions ordinarily incident to travel to or from Iran, including the importation of accompanied baggage for personal use, payment of maintenance and living expenses and acquisition of goods or services for personal use are permitted.

• **INTERNATIONAL ORGANIZATIONS** – Under a general license issued by OFAC, effective August 22, 2006, U.S. persons that are employees or contractors for the following international organizations - the United Nations, the World Bank, the International Monetary Fund, the International Atomic Energy Agency, the International Labor Organization or the World Health Organization - are authorized to engage in transactions for the conduct of official business in or involving Iran. Authorized transactions may include leasing office space or purchasing Iranian-origin goods necessary to carry out official business, provided that the funds transfers to and from Iran do not involve a debit or credit on the books of a U.S. financial institution. The exportation or the re-exportation of US-origin or non-U.S.-origin goods

or technology listed on the Commerce Control List in the Export Administration Regulations is not authorized.

• **OVERFLIGHT PAYMENTS -** Payments to Iran for services rendered by the Government of Iran in connection with the overflight of Iran or emergency landing in Iran of aircraft owned by United States persons or registered in the U.S. are authorized.

• **PERSONAL COMMUNICATIONS, INFORMATION AND INFORMATIONAL MATERIALS** - The receipt or transmission of postal, telegraphic, telephonic or other personal communications that does not involve the transfer of anything of value between the United States and Iran is permitted. The importation into the United States from Iran and the exportation from the United States to Iran of information and informational materials, whether commercial or otherwise, regardless of format or medium of transmission, and any transaction incident to such importation or exportation is permitted.

• **TRANSACTIONS INVOLVING U.S. AFFILIATES -** No U.S. person may approve or facilitate the entry into or performance of transactions or contracts with Iran by a foreign subsidiary of a U.S. firm that the U.S. person is precluded from performing directly. Similarly, no U.S. person may facilitate such transactions by unaffiliated foreign persons.

• **IRANIAN PETROLEUM INDUSTRY -** U.S. persons may not trade in Iranian oil or petroleum products refined in Iran, nor may they finance such trading. Similarly, U.S. persons may not perform services, including financing services, or supply goods or technology that would benefit the Iranian oil industry.

PERSONS DETERMINED TO BE THE GOVERNMENT OF IRAN, AS DEFINED IN § 560.304 OF THIS PART

AGRICULTURAL COOPERATIVE BANK OF IRAN (a.k.a. BANK TAAVON KESHAVARZI IRAN), No. 129 Patrice Lumumba Street, Jalal-Al-Ahmad Expressway, P.O. Box 14155/6395, Tehran, Iran [IRAN] ASCOTEC HOLDING GMBH (f.k.a. AHWAZ STEEL COMMERCIAL & TECHNICAL SERVICE GMBH ASCOTEC; a.k.a. ASCOTEC GMBH), Tersteegen Strasse 10, Dusseldorf 40474, Germany; Registration ID HRB 26136 (Germany); all offices worldwide [IRAN]

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BANK MARKAZI JOMHOURI ISLAMI IRAN (a.k.a. BANK MARKAZI IRAN; a.k.a. CENTRAL BANK OF IRAN; a.k.a. CENTRAL BANK OF THE ISLAMIC REPUBLIC OF IRAN), 213 Ferdowsi Avenue, Tehran 11365, Iran; PO Box 15875/7177, 144 Mirdamad Blvd, Tehran, Iran [IRAN] BANK MASKAN (a.k.a. HOUSING BANK (OF IRAN)), PO Box 11365/5699, No 247 3rd Floor Fedowsi Ave, Cross Sarhang Sakhaei St, Tehran, Iran; all offices worldwide [IRAN] BANK MELLAT, Head Office Bldg, 327 Taleghani Ave, Tehran 15817, Iran; 327 Forsat and Taleghani Avenue, Tehran 15817, Iran; PO Box 375010, Amiryan Str #6, P/N-24, Yerevan, Armenia; Keumkang Tower - 13th & 14th Floor, 889-13 Daechi-Dong, Gangnam-Ku, Seoul 135-280, Korea, South; PO Box 79106425, Ziya Gokalp Bulvari No 12, Kizilay, Ankara,

Ankara, Turkey; Cumhuriyet Bulvari No 88/A, PK 7103521, Konak, Izmir, Turkey; Buyukdere Cad, Cicek Sokak No 1 - 1 Levent, Levent, Istanbul, Turkey; all offices worldwide [IRAN] [NPWMD] [IFSR] BANK MELLI IRAN (a.k.a. BANK MELLI; a.k.a. NATIONAL BANK OF IRAN), PO Box 11365-171, Ferdowsi Avenue, Tehran, Iran; 43 Avenue Montaigne, Paris 75008, France; Room 704-6, Wheelock Hse, 20 Pedder St, Central, Hong Kong; Bank Melli Iran Bldg, 111 St 24, 929 Arasat, Baghdad, Iraq; PO Box 2643, Ruwi, Muscat 112, Oman; PO Box 2656, Liva Street, Abu Dhabi, United Arab Emirates; PO Box 248, Hamad Bin Abdulla St, Fujairah, United Arab Emirates; PO Box 1888, Clock Tower, Industrial Rd, Al Ain Club Bldg, Al Ain, Abu Dhabi, United Arab Emirates; PO Box 1894, Baniyas St, Deira, Dubai City, United Arab Emirates; PO Box 5270, Oman Street Al Nakheel, Ras Al-Khaimah, United Arab Emirates; PO Box 459, Al Borj St, Sharjah, United Arab Emirates; PO Box 3093, Ahmed Seddiqui Bldg, Khalid Bin El-Walid St, Bur-Dubai, Dubai City 3093, United Arab Emirates; PO Box 1894, Al Wasl Rd, Jumeirah, Dubai, United Arab Emirates; Postfach 112 129, Holzbruecke 2, D-20459, Hamburg, Germany; Nobel Ave. 14, Baku, Azerbaijan; Unit 1703-4, 17th Floor, Hong Kong Club Building, 3 A Chater Road Central, Hong Kong; Esteghlal St., Opposite to Otbeh Ibn Ghazvan Hall , Basrah, Iraq; all offices worldwide [IRAN] [NPWMD] [IFSR] BANK OF INDUSTRY AND MINE (OF IRAN) (a.k.a. BANK SANAD VA MADAN; a.k.a. "BIM"), PO Box 15875- 4456, Firouzeh Tower, No 1655 Vali-Asr Ave after Chamran Crossroads, Tehran 1965643511, Iran; No 1655, Firouzeh Building, Mahmoudiye Street, Valiasr Ave, Tehran, Iran; all offices worldwide [IRAN] [NPWMD] [IFSR] BANK REFAH KARGARAN (a.k.a. BANK REFAH; a.k.a. WORKERS' WELFARE BANK (OF IRAN)), No. 40 North Shiraz Street, Mollasadra Ave, Vanak Sq, Tehran 19917, Iran; all offices worldwide [IRAN] [NPWMD] [IFSR] BANK SADERAT IRAN (a.k.a. IRAN EXPORT BANK), Ground Floor Business Room, Building Banke Khoon Road, Harat, Afghanistan; No. 56, Opposite of Security Department, Toraboz Khan Str., Kabul, Afghanistan; 5 Lothbury, London EC2R 7HD, United Kingdom; Postfach 112227, Deichstrasse 11, 20459, Hamburg, Germany; PO Box 4308, 25-29 Venizelou St, Athens, Attica GR 105 64, Greece; PO Box 15745-631, Bank Saderat Tower, 43 Somayeh Avenue, Tehran, Iran; 16 rue de la Paix, Paris 75002, France; Postfach 160151, Friedenstr 4, D- 60311, Frankfurt am Main, Germany; 3rd Floor, Aliktisad Bldg, Ras El Ein Street Baalbak, Baalbak, Lebanon; Saida Branch, Sida Riad Elsoleh St, Martyrs Sq, Saida, Lebanon; Borj Albarajneh Branch - 20 Alholom Bldg, Sahat Mreijeh, Kafaat St, Beirut, Lebanon; 1st Floor, Alrose Bldg, Verdun - Rashid Karame St, Beirut, Lebanon; PO Box 5126, Beirut, Lebanon; 3rd Floor, Mteco Centre, Mar Elias, Facing Al Hellow Barrak, POB 5126, Beirut, Lebanon; Alghobeiri Branch - Aljawhara Bldg, Ghobeiry Blvd, Beirut, Lebanon; PO Box 1269, Muscat 112, Oman; PO Box 4425, Salwa Rd, Doha, Qatar; PO Box 2256, Doha, Qatar; 2nd Floor, No 181 Makhtoomgholi Ave, Ashgabat, Turkmenistan; PO Box 700, Abu Dhabi, United Arab Emirates; PO Box 16, Liwara Street, Ajman, United Arab Emirates; PO Box 1140, Al-Am Road, Al-Ein, Al Ain, Abu Dhabi, United Arab Emirates; Bur Dubai, Khaled Bin Al Walid St, Dubai City, United Arab Emirates; Sheikh Zayed Rd, Dubai City, United Arab Emirates; PO Box 4182, Almaktoum Rd, Dubai City, United Arab Emirates; PO Box 4182, Murshid Bazar Branch, Dubai City, United Arab Emirates; PO Box 316, Bank Saderat Bldg, Alaroda St, Borj Ave, Sharjah, United Arab Emirates; all offices worldwide [IRAN] [SDGT] [IFSR] BANK SADERAT PLC (f.k.a. IRAN OVERSEAS INVESTMENT BANK LIMITED; f.k.a. IRAN OVERSEAS INVESTMENT BANK PLC; f.k.a. IRAN OVERSEAS INVESTMENT CORPORATION LIMITED), 5 Lothbury, London EC2R 7HD, United Kingdom; PO Box 15175/584, 6th Floor, Sadaf Bldg, 1137 Vali Asr Ave, Tehran 15119-43885, Iran; UK Company Number 01126618 (United Kingdom); all offices worldwide [IRAN] [SDGT] BANK SEPAH, Imam Khomeini Square, Tehran 1136953412, Iran; 64 Rue de Miromesnil, Paris 75008, France; Hafenstrasse 54, D-60327, Frankfurt am Main, Germany; Via Barberini 50, Rome, RM 00187, Italy; 17 Place Vendome, Paris 75008, France; all offices worldwide [IRAN] [NPWMD] [IFSR] BANK TEJARAT, PO Box 11365-5416, 152 Taleghani Avenue, Tehran 15994, Iran; 130, Zandi Alley, Taleghani Avenue, No 152, Ostad Nejat Ollahi Cross, Tehran 14567, Iran; 124-126 Rue de Provence, Angle 76 bd Haussman, Paris 75008, France; PO Box 734001, Rudaki Ave 88, Dushanbe 734001, Tajikistan; Office C208,

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BANK TORGOVOY KAPITAL ZAO (a.k.a. TC BANK; a.k.a. TK BANK; a.k.a. TK BANK ZAO; a.k.a. TORGOVY KAPITAL (TK BANK); a.k.a. TRADE CAPITAL BANK; a.k.a. TRADE CAPITAL BANK (TC BANK); a.k.a. ZAO BANK TORGOVY KAPITAL), 3 Kozlova Street, Minsk 220005, Belarus; Registration ID 30 (Belarus); SWIFT/BIC BBTK BY 2X; all offices worldwide [IRAN] [NPWMD] [IFSR]

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EXPORT DEVELOPMENT BANK OF IRAN (a.k.a. BANK TOSEH SADERAT IRAN; a.k.a. BANK TOWSEEH SADERAT IRAN; a.k.a. BANK TOWSEH SADERAT IRAN; a.k.a. EDBI), Export Development Building, Next to the 15th Alley, Bokharest Street, Argentina Square, Tehran, Iran; Tose'e Tower, Corner of 15th St., Ahmad Qasir Ave., Argentine Square, Tehran, Iran; No. 129, 21's Khaled Eslamboli, No. 1 Building, Tehran, Iran; No. 26, Tosee Tower, Arzhantine Square, P.O. Box 15875-5964, Tehran 15139, Iran; No. 4, Gandi Ave., Tehran 1516747913, Iran; C.R. No. 86936 (Iran) issued 10 Jul 1991; all offices worldwide [IRAN] [NPWMD] [IFSR] IFIC HOLDING AG (a.k.a. IHAG), Koenigsallee 60 D, Dusseldorf 40212, Germany; Registration ID HRB 48032 (Germany); all offices worldwide [IRAN] IHAG TRADING GMBH, Koenigsallee 60 D, Dusseldorf 40212, Germany; Registration ID HRB 37918 (Germany); all offices worldwide [IRAN] INDUSTRIAL DEVELOPMENT AND RENOVATION ORGANIZATION OF IRAN (a.k.a. IDRO; a.k.a. IRAN DEVELOPMENT & RENOVATION ORGANIZATION COMPANY; a.k.a. SAWZEMANE GOSTARESH VA NOWSAZI SANAYE IRAN), Vali Asr Building, Jam e Jam Street, Vali Asr Avenue, Tehran 15815-3377, Iran; all offices worldwide [IRAN] INTRA CHEM TRADING GMBH (a.k.a. INTRA-CHEM TRADING CO. (GMBH)), Schottweg 3, Hamburg 22087, Germany; Registration ID HRB48416 (Germany); all offices worldwide [IRAN] IRAN FOREIGN INVESTMENT COMPANY (a.k.a. IFIC), No. 4, Saba Blvd., Africa Blvd., Tehran 19177, Iran; P.O. Box 19395-6947, Tehran, Iran; all offices worldwide [IRAN] IRAN INSURANCE COMPANY (a.k.a. BIMEH IRAN), Abdolaziz-Al-Masaeed Building, Sheikh Maktoom St., Deira, P.O. Box 2004, Dubai, United Arab Emirates; P.O. Box 1867, Al Ain, Abu Dhabi, United Arab Emirates; 107 Dr

Fatemi Avenue, Tehran 14155/6363, Iran; P.O. Box 3281, Abu Dhabi, United Arab Emirates; P.O. Box 1666, Sharjah, United Arab Emirates; P.O. Box 849, Ras-Al-Khaimah, United Arab Emirates; P.O. Box 417, Muscat 113, Oman; P.O. Box 676, Salalah 211, Oman; P.O. Box 995, Manama, Bahrain; Al-Lami Center, Ali- Bin-Abi Taleb St. Sharafia, P.O. Box 11210, Jeddah 21453, Saudi Arabia; Al Alia Center, Salaheddine Rd., Al Malaz, P.O. Box 21944, Riyadh 11485, Saudi Arabia; Al Rajhi Bldg., 3rd Floor, Suite 23, Dhahran St., P.O. Box 1305, Dammam 31431, Saudi Arabia; all offices worldwide [IRAN] IRAN PETROCHEMICAL COMMERCIAL COMPANY (a.k.a. PETROCHEMICAL COMMERCIAL COMPANY; a.k.a. SHERKATE BASARGANI PETROCHEMIE (SAHAMI KHASS); a.k.a. SHERKATE BAZARGANI PETRCHEMIE; a.k.a. "IPCC"; a.k.a. "PCC"), INONU CAD. SUMER Sok., Zitas Bloklari C.2 Bloc D.H, Kozyatagi, Kadikoy, Istanbul, Turkey; Topcu Ibrahim Sokak No: 13 D: 7 Icerenkoy-Kadikoy, Istanbul, Turkey; No. 1339, Vali Nejad Alley, Vali-e-Asr St., Vanak Sq., Tehran, Iran; 99-A, Maker Tower F, 9th Floor, Cuffe Parade, Colabe, Mumbai 400 005, India; No. 1014, Doosan We've Pavilion, 58, Soosong-Dong, Jongno-Gu, Seoul, Korea, South; Office No. 707, No. 10, Chao Waidajie, Chao Tang District, Beijing 100020, China; all offices worldwide [IRAN] IRANIAN MINES AND MINING INDUSTRIES DEVELOPMENT AND RENOVATION ORGANIZATION (a.k.a. IMIDRO; a.k.a. IRAN MINING INDUSTRIES DEVELOPMENT AND RENOVATION ORGANIZATION; a.k.a. IRANIAN MINES AND MINERAL INDUSTRIES DEVELOPMENT AND RENOVATION), No. 39, Sepahbod Gharani Avenue, Ferdousi Square, Tehran, Iran; all offices worldwide [IRAN] IRANIAN OIL COMPANY (U.K.) LIMITED (a.k.a. IOC UK LTD), Riverside House, Riverside Drive, Aberdeen AB11 7LH, United Kingdom; UK Company Number 01019769 (United Kingdom); all offices worldwide [IRAN] IRASCO S.R.L. (a.k.a. IRASCO ITALY), Via Di Francia 3, Genoa 16149, Italy; Registration ID GE 348075 (Italy); all offices worldwide [IRAN] KALA LIMITED (a.k.a. KALA NAFT LONDON LTD), NIOC House, 4 Victoria Street, Westminster, London SW1H 0NE, United Kingdom; UK Company Number 01517853 (United Kingdom); all offices worldwide [IRAN] KALA PENSION TRUST LIMITED, C/O Kala Limited, N.I.O.C. House, 4 Victoria Street, London SW1H 0NE, United Kingdom; UK Company Number 01573317 (United Kingdom); all offices worldwide [IRAN] MACHINE SAZI ARAK CO. LTD. (a.k.a. MACHINE SAZI ARAK COMPANY P J S C; a.k.a. MACHINE SAZI ARAK SSA; a.k.a. MASHIN SAZI ARAK; a.k.a. "MSA"), Arak, Km 4 Tehran Road, Arak, Markazi Province, Iran; No. 1, Northern Kargar Street, Tehran 14136, Iran; P.O. 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KALA NAFT TEHRAN COMPANY; a.k.a. KALAYEH NAFT CO; a.k.a. M.S.P.-KALA; a.k.a. MANUFACTURING SUPPORT & PROCUREMENT CO.-KALA NAFT; a.k.a. MANUFACTURING SUPPORT AND PROCUREMENT (M.S.P.) KALA NAFT CO. TEHRAN; a.k.a. MANUFACTURING, SUPPORT AND PROCUREMENT KALA NAFT COMPANY; a.k.a. MSP KALA NAFT TEHRAN COMPANY; a.k.a. MSP KALANAFT; a.k.a. MSP-KALANAFT COMPANY; a.k.a. SHERKAT SAHAMI KHASS KALA NAFT; a.k.a. SHERKAT SAHAMI KHASS POSHTIBANI VA TEHIYEH KALAYE NAFT TEHRAN; a.k.a. SHERKATE POSHTIBANI SAKHT VA TAHEIH KALAIE NAFTE TEHRAN), 242 Sepahbod Gharani Street, Karim Khan Zand Bridge, Corner Kalantari Street, 8th Floor, P.O. Box 15815-1775/15815-3446, Tehran 15988, Iran; Building No. 226, Corner of Shahid Kalantari Street, Sepahbod Gharani Avenue, Karimkhan Avenue, Tehran 1598844815, Iran; No. 242, Shahid Kalantari St., Near Karimkhan Bridge, Sepahbod Gharani Avenue, Tehran, Iran; Head Office Tehran, Sepahbod Gharani Ave., P.O. Box 15815/1775 15815/3446, Tehran, Iran; P.O. Box 2965, Sharjah, United Arab Emirates; 333 7th Ave SW #1102, Calgary, AB T2P 2Z1, Canada; Chekhov St., 24.2 , AP 57, Moscow, Russia; Room No. 704 - No. 10 Chao Waidajie Chao Yang District , Beijing 10020, China; Sanaee Ave., P.O. Box 79417-76349, N.I.O.C., Kish, Iran; 10th Floor, Sadaf Tower, Kish Island, Iran; all offices worldwide [IRAN] NAFTIRAN INTERTRADE CO. (NICO) LIMITED (a.k.a. NAFT IRAN INTERTRADE COMPANY LTD; a.k.a. NAFTIRAN INTERTRADE COMPANY (NICO); a.k.a. NAFTIRAN INTERTRADE COMPANY LTD; a.k.a. NICO), |41, 1st Floor, International House, The Parade, St Helier JE2 3QQ, Jersey; Petro Pars Building, Saadat Abad Ave, No 35, Farhang Blvd, Tehran, Iran; all offices worldwide| [IRAN] NAFTIRAN INTERTRADE CO. (NICO) SARL (a.k.a. NICO), 6, Avenue de la Tour-Haldimand, Pully, VD 1009, Switzerland; all offices worldwide [IRAN] NAFTIRAN TRADING SERVICES CO. (NTS) LIMITED, 47 Queen Anne Street, London W1G 9JG, United Kingdom; 6th Floor NIOC Ho, 4 Victoria St, London SW1H 0NE, United Kingdom; UK Company Number 02600121 (United Kingdom); all offices worldwide [IRAN] NATIONAL IRANIAN OIL COMPANY (a.k.a. NIOC), Hafez Crossing, Taleghani Avenue, P.O. Box 1863 and 2501, Tehran, Iran; all offices worldwide [IRAN] NATIONAL IRANIAN OIL COMPANY PTE LTD, 7 Temasek Boulevard #07-02, Suntec Tower One 038987, Singapore; Registration ID 199004388C (Singapore); all offices worldwide [IRAN] NATIONAL PETROCHEMICAL COMPANY (a.k.a. "NPC"), No. 104, North Sheikh Bahaei Blvd., Molla Sadra Ave., Tehran, Iran; all offices worldwide [IRAN] NICO ENGINEERING LIMITED, 41, 1st Floor, International House, The Parade, St. Helier JE2 3QQ, Jersey; Registration ID 75797 (Jersey); all offices worldwide [IRAN] NIOC INTERNATIONAL AFFAIRS (LONDON) LIMITED, NIOC House, 4 Victoria Street, London SW1H 0NE, United Kingdom; UK Company Number 02772297 (United Kingdom); all offices worldwide [IRAN] NPC INTERNATIONAL LIMITED (a.k.a. N P C INTERNATIONAL LTD; a.k.a. NPC INTERNATIONAL COMPANY), 5th Floor NIOC House, 4 Victoria Street, London SW1H 0NE, United Kingdom; UK Company Number 02696754 (United Kingdom); all offices worldwide [IRAN] ONERBANK ZAO (a.k.a. EFTEKHAR BANK; a.k.a. HONOR BANK; a.k.a. HONORBANK; a.k.a. HONORBANK ZAO; a.k.a. ONER BANK; a.k.a. ONERBANK; a.k.a. ONER-BANK), Ulitsa Klary Tsetkin 51, Minsk 220004, Belarus; Registration ID 807000227 (Belarus) issued 16 Oct 2009; SWIFT/BIC HNRBBY2X (Belarus); all offices worldwide [IRAN] PARS OIL AND GAS COMPANY (a.k.a. POGC), No. 133, Side of Parvin Etesami Alley, opposite Sazman Ab - Dr. Fatemi Avenue, Tehran, Iran; No. 1 Parvin Etesami Street, Fatemi Avenue, Tehran, Iran [IRAN] P.C.C. (SINGAPORE) PRIVATE LIMITED (a.k.a. P.C.C. SINGAPORE BRANCH; a.k.a. PCC SINGAPORE PTE LTD), 78 Shenton Way, #08-02 079120, Singapore; 78 Shenton Way, 26-02A Lippo Centre 079120, Singapore; Registration ID 199708410K (Singapore); all offices worldwide [IRAN]

PETROCHEMICAL COMMERCIAL COMPANY (U.K.) LIMITED (a.k.a. PCC (UK); a.k.a. PCC UK; a.k.a. PCC UK LTD), 4 Victoria Street, London SW1H 0NE, United Kingdom; UK Company Number 02647333 (United Kingdom); all offices worldwide [IRAN] PETROCHEMICAL COMMERCIAL COMPANY FZE (a.k.a. PCC FZE), 1703, 17th Floor, Dubai World Trade Center Tower, Sheikh Zayed Road, Dubai, United Arab Emirates; Office No. 99-A, Maker Tower "F" 9th Floor Cutte Pavade, Colabe, Bumbai 700005, India; all offices worldwide [IRAN]

PETROCHEMICAL COMMERCIAL COMPANY INTERNATIONAL LIMITED (a.k.a. PETROCHEMICAL COMMERCIAL COMPANY INTERNATIONAL LTD; a.k.a. PETROCHEMICAL TRADING COMPANY LIMITED; a.k.a. "PCCI"), P.O. Box 261539, Jebel Ali, Dubai, United Arab Emirates; 41, 1st Floor, International House, The Parade, St. Helier JE2 3QQ, Jersey; Ave. 54, Yimpash Business Center, No. 506, 507, Ashkhabad 744036, Turkmenistan; No. 21 End of 9th St, Gandi Ave, Tehran, Iran; 21, Africa Boulevard, Tehran, Iran; Registration ID 77283 (Jersey); all offices worldwide [IRAN] [ISA] PETROIRAN DEVELOPMENT COMPANY (PEDCO) LIMITED (a.k.a. PETRO IRAN DEVELOPMENT COMPANY; a.k.a. "PEDCO"), National Iranian Oil Company - PEDCO, P.O. Box 2965, Al Bathaa Tower, 9th Floor, Apt. 905, Al Buhaira Corniche, Sharjah, United Arab Emirates; P.O. Box 15875-6731, Tehran, Iran; 41, 1st Floor, International House, The Parade, St. Helier JE2 3QQ, Jersey; No. 22, 7th Lane, Khalid Eslamboli Street, Shahid Beheshti Avenue, Tehran, Iran; No. 102, Next to Shahid Amir Soheil Tabrizian Alley, Shahid Dastgerdi (Ex Zafar) Street, Shariati Street, Tehran 19199/45111, Iran; Kish Harbour, Bazargan Ferdos Warehouses, Kish Island, Iran; Registration ID 67493 (Jersey); all offices worldwide [IRAN] PETROPARS INTERNATIONAL FZE (a.k.a. PPI FZE), P.O. Box 72146, Dubai, United Arab Emirates; all offices worldwide [IRAN] PETROPARS LTD. (a.k.a. PETROPARS LIMITED; a.k.a. "PPL"), Calle La Guairita, Centro Profesional Eurobuilding, Piso 8, Oficina 8E, Chuao, Caracas 1060, Venezuela; No. 35, Farhang Blvd., Saadat Abad, Tehran, Iran; P.O. Box 3136, Road Town, Tortola, Virgin Islands, British; all offices worldwide [IRAN] PETROPARS UK LIMITED, 47 Queen Anne Street, London W1G 9JG, United Kingdom; UK Company Number 03503060 (United Kingdom); all offices worldwide [IRAN] SINA BANK (f.k.a. BFCC; f.k.a. BONYAD FINANCE AND CREDIT COMPANY; f.k.a. SINA FINANCE AND CREDIT COMPANY), 187 Motahhari Avenue, P.O. Box 1587998477, Tehran, Iran, Iran; Kish Financial Center, Kish Island, Iran; SWIFT/BIC SINAIRTH (Iran); alt. SWIFT/BIC SINAIRTH418 (Iran); all offices worldwide [IRAN] WEST SUN TRADE GMBH (a.k.a. WEST SUN TRADE), Winterhuder Weg 8, Hamburg 22085, Germany; Arak Machine Mfg. Bldg., 2nd Floor, opp. of College Economy, Northern Kargar Ave., Tehran 14136, Iran; Mundsburger Damm 16, Hamburg 22087, Germany; Registration ID HRB 45757 (Germany); all offices worldwide [IRAN]

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