SPECIAL FOCUS:

Iran Nuclear Agreement: A game changer for energy markets?

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An international agreement on Iran's nuclear program was reached in July 2015 and is expected to be implemented in the first half of 2016. Sanctions will be suspended at that time and terminated in 2023. Within a few months of sanctions being lifted, Iran could increase crude oil production by 0.5-0.7 mb/d, potentially reaching a 2011 pre-sanctions level of 3.6 mb/d. Iran could immediately start exporting from its 40 million barrels of floating storage of oil, of which more than half is condensate. The impact of Iranian exports on global oil and natural gas markets could be large over the longer term provided that Iran attracts the necessary foreign investment and technology to extract its substantial reserves.

What does the agreement entail?

On July 14, 2015, the five permanent UN Security Council Members plus Germany reached a comprehensive nuclear agreement with Iran, known as the Joint Comprehensive Plan of Action (JCPOA 2015). The plan places limitations on Iran's nuclear program and lifts nuclear-related sanctions by the United Nations (UN) Security Council, the EU and the U.S., which intensified in 2012. On July 20, 2015, the UN Security Council endorsed the JCPOA, and the agreement is expected to formally take effect on October 18 ("Adoption Day") pending Iran's response to queries from the International Atomic Energy Agency (IAEA) about its past nuclear work. Upon IAEA verification that Iran has implemented required measures, the agreement is to formally enter into force on "Implementation Day," expected in the first half of 2016. At that time nuclear-related sanctions would be suspended and Iran could begin to increase its crude oil exports (presently capped at about 1.1 mb/d under sanctions—see Congressional Research Service 2015). Provisions are in place to "snap-back" sanctions if Iran is deemed to violate its commitments. Sanctions end eight years after the "Adoption Day," and the UN resolution (which adopted the agreement) terminates after 10 years, assuming no provisions are reinstated over the course of the agreement. Some nuclear restrictions and IAEA access and verification extend for 15 years.

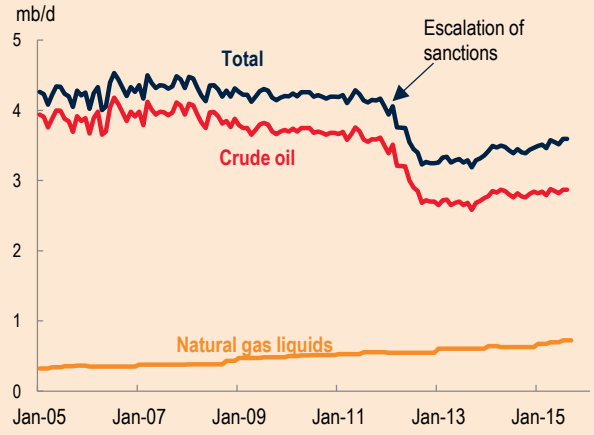
How does it affect the global oil market?

Upon the lifting of sanctions, Iran could almost immediately start exporting using its 40 million barrels of floating storage of oil. Less than half of this inventory is crude oil and the majority is condensate—a liquid produced mainly from its offshore natural gas fields. Condensate can also be produced from crude oil, which is under sanctions, that have inhibited sales. Condensate prices and refining margins remain weak as markets are well supplied, especially in Asia.

Within a few months of sanctions being lifted, Iran could raise crude oil production by 0.5-0.7 mb/d, potentially reaching a 2011 pre-sanctions output level of 3.6 mb/d (Figure B1), or about 4 percent of global oil consumption. It could take longer to register a sizeable increase in production, however, given that some oil fields could require rehabilitation.

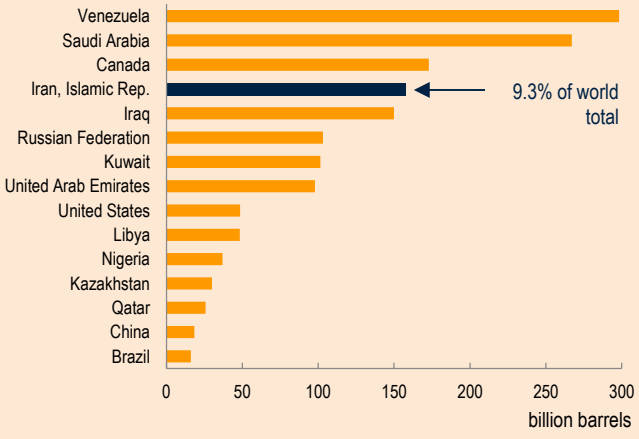
An increase in Iran's exports comes amidst ample global supplies and as OPEC peers and Russia vie for market share, especially in Asia. Iran will quickly seek to regain its earlier market share, particularly in Europe where Iran lost 0.7 mb/d of sales with the imposition of sanctions. International petroleum companies, particularly those in Europe, may choose to

FIGURE B1 Iran monthly oil production



Source: International Energy Agency (2015)
Note: Last observation is September 2015.

FIGURE B2 Proved oil reserves of top 15 countries



Source: BP Statistical Review of World Energy (2015)
Note: Total Global Reserves at end-2014 were 1700 billion barrels.

preferentially source oil from Iran as a strategic measure to help them enter Iran's upstream sector. Rising exports from Iran will add to expected surpluses next year, resulting in greater pressure on prices, unless accommodated by lower production from OPEC or cost-induced declines elsewhere. Anticipation of Iran's exports has already contributed to lower prices in recent months.

In the longer term, Iran has substantial reserves (9.3 percent of world total) to raise production significantly (Figure B2). However, its crude production may only exceed 4.0 mb/d—last seen in 2008—toward the end of the decade, as raising capacity will be costly and require foreign investment and technology. To attract investment amidst sharp cutbacks in expenditures by international companies and larger demand for foreign capital and technology, Iran may have to offer additional incentives. The government is planning to soon present a new oil contract model to international investors. U.S. oil companies will still be prohibited from conducting business with Iran, as other U.S. sanctions remain in place. However, non-U.S. oil companies will be able to take advantage of this opportunity.

In the early 1970s, Iran produced 6.0 mb/d (10 percent of world production) and exported 5.7 mb/d at its peak, but both production and exports declined due to revolution and war from the late 1970s through much of the 1980s, and due to sanctions more recently (Figure B3). The increase in domestic oil consumption, which has been supported by large consumer subsidies, has also impinged on exports. Planned subsidy reforms are underway and are expected to moderate domestic consumption growth while helping exports to rise. Exports of crude oil and natural gas liquids could return to pre-sanction highs of close to 2.5 mb/d by 2017. However, exports will unlikely return to record highs of the 1970s—at least for the foreseeable future.

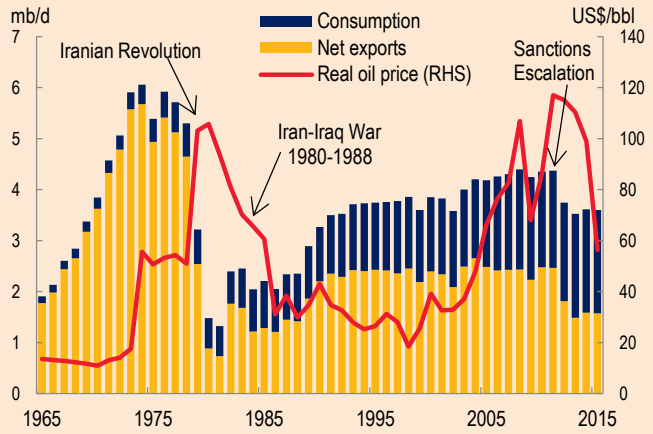
Ianchovichina, Devarajan, and Lakatos (2015) estimate that a rise of 1 mb/d back to a pre-sanction level in July 2011 would reduce international oil prices in 2016 by 13 percent. Apart from the impact on global energy markets, removal of sanctions and larger oil revenues would provide a major boost to the Iranian economy, its international trade, and foreign direct investment—especially in the oil and gas sectors.

How does it affect global natural gas markets?

Iran produced 173 billion cubic meters of natural gas in 2014, equivalent to 5 percent of world production, of which most was consumed domestically. Over the longer-term, Iran has the potential to produce and export significant volumes of natural gas. The country has the world's largest known reserves—18 percent of world total, ahead of the Russian Federation at 17 percent and Qatar at 13 percent, (Figure B4). The country could over time develop gas export capacity via pipelines to neighboring countries and to Europe via Turkey, and eventually transport liquefied natural gas to Europe and Asia. Iran may utilize its gas reserves to promote domestic gas-based industries and inject gas into oil fields to help expand production and exports (gas injection is a normal industry process that increases reservoir pressure to help speed up oil extraction). Moving up the value chain, Iran might also use gas to export higher-value-added electricity and petrochemicals (see Khajehpour 2015).

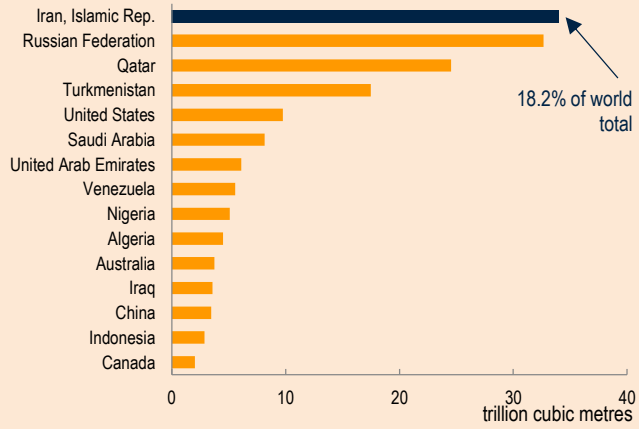
The impact of Iran's exports on regional gas prices will depend on prevailing global gas demand and the ability of markets to absorb the gas. The increasing number of actual and potential gas exporters on the horizon creates uncertainty, as does the changing structure of gas demand

FIGURE B3 Iran oil production



Source: BP Statistical Review of World Energy (2015), World Bank
Note: Includes crude oil and natural gas liquids. 2015 first nine months.

FIGURE B4 Proved natural gas reserves of top 15 countries



Source: BP Statistical Review of World Energy (2015)
Note: Global natural gas reserves at end-2014 were 187 tcm.

(relative to both coal and renewables) due to environmental pressures.

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Annex: Timeline of international oil sanctions

1979 November - US imposes the first sanctions on Iran, banning imports from Iran and freezing $12bn assets.

1995 March - US companies are prohibited from investing in Iranian oil and gas and trading with Iran.

1996 April - Congress passes a law requiring the US government to impose sanctions on foreign firms investing more than $20m a year in the energy sector.

2006 December - The UN Security Council imposes sanctions on Iran's trade in nuclear-related materials/ technology and freezes the assets of individuals and companies.

2007 October - US announces sweeping new sanctions against Iran, the toughest since 1979. UN Security Council tightens economic and trade sanctions on Tehran.

2010 June - UN Security Council imposes a fourth round of sanctions against Iran over its nuclear program, including tighter financial curbs and an expanded arms sanctions.

2011 May and December – the assets of 243 Iranian entities and around 40 more individuals are frozen and visa bans imposed.

2012 January - US imposes sanctions on Iran's central bank, for its oil export profits. Iranian threatens to block the transport of oil through the Strait of Hormuz.

2012 June - US bans the world's banks from completing oil transactions with Iran, and exempts seven major customers India, South Korea, Malaysia, South Africa, Sri Lanka, Taiwan and Turkey from economic sanctions in return for their cutting imports of Iranian oil.

2012 July - European Union boycott of Iranian oil exports comes into effect.

2012 October - Iran's currency, the real, falls to a record low against the US dollar, losing about 50% of its value since 2011. EU countries announce further sanctions against Iran focusing on banks, trade and gas imports and freezing assets of individuals and companies that supply Iran with technology.

2013 November - Iran agrees to curb uranium enrichment above 5% and give UN inspectors better access in return for about $7 billion in sanctions relief at talks with the P5+1 group—US, Britain, Russia, China, France, and Germany—in Geneva.

2015 April - Iran and the EU reach a nuclear framework agreement and set for a final agreement in July 2015 with attendant lifting of the EU and the US sanctions on Iran.

2015 July 14th - The P5+1 group reach an agreement with Iran on limiting Iranian nuclear activity in return for the lifting of sanctions.

2015 July 20th - The U.N. Security Council unanimously approved the July 14th agreement.

2015 October 18th – "Adoption Day." The July 14th agreement (The Joint Comprehensive Plan of Action) comes into effect.

Source: Devarajan and Mottaghi (2015).