Statement before the Senate

Energy and Natural Resources Committee

"Terrorism and Global Oil Markets"

A Statement by:

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'Iran's Energy Policy and Return to the global Energy Market'

Chair Murkowski, Ranking Member Cantwell and members of the committee, thank you very much for the opportunity to appear before your Committee today and to discuss the important issue you have posed. I will focus my remarks on Iran's Energy Policy and Return to the global Energy Market.

Iran and Western Powers after more than a decade of dispute over Tehran's nuclear program, reached to a final agreement in July 14 2015. Iran tackling with different types of economic and energy sanctions is now getting ready to re-integrate in to the global economy and energy market.

The EU oil embargo, coupled with US sanctions in 2012, created real challenges for Iran's oil production, export capacity and market access. The cutting in half of Iran's total oil exports, coupled with inadequate storage capacity, forced the National Iranian Oil Company (NIOC) to reduce its crude oil and condensate production up to 17 percent and to shut down some of its fields[1]. In 2012, the average export of Iran oil declined by 40 percent, from 2.5 million barrels a day (mb/d) in 2011 to about 1.5 mb/d in 2012. By 2014, Iran's position in the OPEC had fallen to the seventh exporter after Saudi Arabia, Iraq, the United Arab Emirates (UAE), Nigeria, Kuwait, and Angola.[2] The latest status of Iranian oil and gas fields indicate that Iran's current crude oil production is about 2.9 mb/d, and natural gas liquids (NGL) and condensate production has stayed level at about 692,000-710,000 b/d.[3] Out of this 2.9 mb/d, Iran consumed about 1.7- 1.9 mb/d domestically and exported about 1-1.2 mb/d.

The nuclear related sanctions have had a general impact on the investment and progress of the upstream oil and gas projects but did not specifically target Iran's natural gas exports. Nevertheless Iran was able to increase its natural gas production since 2012, in spite of sanctions. In 2014, Iran's natural gas production increased and its natural gas trade balance was positive for the first time

Iran's Post Nuclear Deal Energy Policy

Iran, with its huge oil and gas reserves, has witnessed many ups and downs in its relations with other countries and international oil companies. In response to each challenge, Iran's energy policy changed, shifting toward self-reliance. After the 1979 Islamic Revolution, years of sanctions and war prevented the energy industry from having continuous access to the necessary investment and technology. Furthermore Since 2012, sanctions against Iran's energy industry and oil exports intensified, due to conflict surrounding Iran's nuclear program. In 2014, Iran's Leader Ayatollah Khamenei announced the idea of the "Economy of Resistance,"

with the aim of reducing dependency on oil revenue, and increasing value-added production by processing raw material domestically and exporting the processed material. Therefore, focusing on the downstream and refinery sector, as well as the petrochemical sector, will be a major component of Iran's energy industry after the nuclear deal and in the next decade.

In regards to oil production, Iran will try to regain its pre-2012 crude oil production level of 4 mb/d of and its lost markt share of 2.5 mb/d of export.[4] National Iranian Oil Company (NIOC) seeks to achieve this by implementing reinjection techniques utilizing water or natural gas, and by developing new fields.

Development of natural gas fields and increase of its natural gas production capacity is at highest priority of NIOC. South Pars, the giant non-associate gas field shared by Iran and Qatar, is the top priority. The advantages of increasing natural gas capacity are many. Iran can utilize natural gas production for: generating its domestic electricity needs; feedstock of its petrochemical factories; re-injecting natural gas to its mature oilfields to increase its oil production; signing long-term natural gas export contracts with international partners; or converting it to electricity for export to neighboring countries.

As a byproduct of natural gas, condensate creates other significant advantages for Iran.[5] The value and international prices for condensate is higher than Iran's heavy and sour crude oil. There is also far less intense competition in the condensate market than does in crude oil. Iran could also process its condensate domestically, and produce light distillate products like gasoline for domestic use and export.

Creating long-term energy trade ties and engaging international investors for longer periods of time are other important elements of Iran's energy diplomacy. Tehran is planning to strengthen its economic and energy ties with its Arab neighbors and its North Caspian neighbors by exporting oil, gas, refined petroleum products, and electricity. Also, by modifying its upstream investment contracts, Iran would create longer ties with international investors. It's noteworthy that Iran has revised its upstream investment regulations with the goal of increasing the incentives for the international investors. One significant change in the new contracts is the increase in duration of the agreement from 5-7 years to about 20-25 years. NIOC's goal is to increase the quality of work and protect its oil and gas reservoirs by engaging the international companies for longer periods of time. This also on the other hand will give the investors a more vested stake and interest in Iran and could create political advantages for the country.

Investment Requirements

Iran's fifth five-year economic plan (March 2011 to March 2016), aimed to increase the country's oil production to from 4 mb/d to 5.152 mb/d by attracting $155 billion of investment to its upstream oil and gas industry.[6] It is also estimated that a total investment of about $200-250 billion is needed to address Iran's whole oil and gas industry, including upstream exploration and production, downstream,

petrochemicals, midstream, and shipping.[7] However Iran could not obtain the required investment due to the international sanctions.

For its mid-term production goals Iran needs about $50 billion of investment; $30 billion of it would be for South Pars natural gas development plans, and at least $20 billion to complete its ongoing oil development projects in the West Karun reservoirs within the next two to three years.[8] Iran's National Development Fund (NDF) approved a $20 billion allocation for investment in West Karun, and the remaining funds would need to come from foreign investment.

Impacts of Iran Return to the Energy Market

As mentioned earlier, market expects that Iran's oil supply will gradually rebound upon the sanction removal. Depending on the timeline of the sanctions-unwinding process, Iran could increase its exports of crude oil about 400,000-500,000 kb/d by mid to end of 2016. Iran could also add an additional 150,000-200,000 b/d of condensate to its liquid export volumes by mid-2016. Iran's petroleum minister announced that he is ready to add 500,000 b/d of oil to its export upon the removal of sanctions, and an additional 500,000 by mid-2016, and part of this additional oil would be condensate. At the same time, the sanctions rollback on Iran, and the prospect of the country oil production hike, could have an immediate, psychological impact and downward effect on the international oil prices.

In the mid to long-term Iran's main focus will be the development of its natural gas fields, particularly the South Pars gas field. Iran's natural gas and condensate production is expected to rise significantly in the next 3-5 years. Iran is going to utilize its additional natural gas capacity in different ways: 1) To export natural gas, particularly to its neighbors, in order to increase its gas export market share and also as part of its energy diplomacy to create long-term energy alliance; 2) To use its natural gas as the feedstock of its refinery plants. Iran's current petrochemical production capacity is about 60 million tons/year, and the country is planning to increase this capacity to 180 million tons/year by the end of 2025. 3) To convert part of its natural gas into electricity and export electricity to its neighboring countries, with the goal of increasing the value added to its natural gas and also diversifying its exports products. This diversifies Iran's options for utilizing its natural gas, at a time of the oversupply in the market and low energy prices and also creates stronger trade ties and alliances with Iran's consumers and neighbors. Iran plans to allocate 6 bcm of its natural gas for conversion to electricity by 2020, which yields additional 5,000 megawatts of electricity per year, solely for export.[9] Iran current electricity generation capacity is about 74,000 megawatts per year.[10]

Iran's condensate production will also increase to 1 million b/d by 2017, and Iran is planning to increase its condensate refinery capacity by the next 2-3 years, in order to refine most of its condensate domestically and export the refined products instead of condensate. Iran plans to increase its oil refinery capacity to 2 mb/d, and to expand its condensate refinery capacity to 1 mb/d by 2020, thereby reaching a total refinery capacity of 3 mb/d. NIOC is almost on track to meet this goal; by the

end of 2014, Iran reached its nominal oil refinery capacity of 2 mb/d. On the condensate side, Iran can achieve a 1 mb/d condensate refinery capacity by 2020. Its is expected that by 2017 Iran become self-sufficient in producing its gasoline needs and by 2020 can replace almost all of its condensate export with the light distillates produced in its refineries. This also means that in the medium to long-term, Iran's oil export share in the market will remain same as its pre-2012.

Therefore, it is important to note that Iran's major energy impact in the medium and long terms will be on the downstream, refined petroleum products, and petrochemical markets.

Madam Chair, Members of the Committee;

If Iran complies with the Joint Comprehensive Plan of Action (JCPOA) as the result of the nuclear deal, its re-integration to the energy market would be under a new policy and with a different approach from its pre-2012 dynamics. This shift would be based on two major components: 1) increasing its self-reliance and 2) maintaining a more active energy diplomacy to create long-term ties with its neighbors and international partners.

It is important to note that since 2012, Iran's dependency on its oil revenue was substantially reduced. The Energy Information Administration (EIA) estimates that Iran's net oil export revenue in 2012 was $69 billion, down from $95 billion in 2011.[11] Iran's oil export revenue prior to 2011 was above 80 percent of Iran's total export earnings and about 60 percent of the government's revenue. The share of oil export in Iran's annual budget plunged from above 70% prior to 2012 to about 33% in 2015. This is reflected in its 2015 budget. In 2015, the Iranian government is substituting its lost oil revenue with increased taxes, privatizing some government firms, coupled with savings from its fuel subsidy reduction plan.[12] Therefore, increasing its crude oil export share is not in Iran's medium to long-term energy policy, nor its necessity. Instead Iran will focus on expanding its refined products, petrochemical and natural gas export capacity. So the idea of a sudden glut of Iranian oil on world markets – and the revenue accrued to such – is not entirely accurate.

Another important factor that would affect the global energy industry's approach toward Iran is its relatively very low production costs. This is highly attractive to international investors, particularly at such current low prices. The cost of producing one barrel of oil from onshore and offshore fields in Iran varies from between $2 to $5 (production maintenance costs increase it to $7- $10).[13] Sanctions against Russia since 2014, combined with turmoil in Iraq, have made Iran's potential for investment comparatively favorable. Saudi Arabia also has very low production costs, but the Kingdom has no plan for increasing its production capacity at the moment.[14] Massive untapped natural gas resources with a high rate of return, coupled with land access to major consumers, are other attractive factors for investors and international oil companies.

Having Iran out of isolation would have a significant impact on involving partners inside Iran and also energy trade movements. At the time of sanctions and restricted access to the international resources, Iran has no economic choice but to partner with countries like China and Russia. However there has been a strong signal from Iranian officials that in fact they would prefer to do business with European and American companies. Hence energy and industry involvement of those companies and countries that their policies and interests are in the same line and direction as US policy might be of an advantage.

Energy supplies and trade movements from Iran, particularly when energy supplies in the region, particularly in Iraq and Syria, are threatened by the terrorist groups such as Daesh, is important. It is noteworthy that damage to the energy facilities in the mentioned countries could have long-term impact on their supplies. On the natural gas side; in the next 2-5 years Iran could expand its natural gas export capacity and potentially could export its gas via pipeline and LNG to its neighboring countries or to Asian and European markets. Iran could conceivably become a transit point for energy resources in the North Caspian, transferring oil and natural gas from countries like Azerbaijan or Kazakhstan to the global energy market. Therefore Iran could potentially have an important role in the energy trade movement in the region and to the global oil market, specifically at the time that Middle East's energy supplies are tackling with terrorist threats and overall instability.

I would like to also note that I discussed the details of this testimony and more in a report that I recently wrote for Atlantic Council titled 'Iran's Energy Policy After the Nuclear Deal'.

Once again thanks for the opportunity you gave to present this important topic before your committee and I am looking forward to the questions.

Appendix

Table 1: NIOC's Plan to Increase Crude Oil and Condensate By 2017-2018[15]

Hydrocarbon Type	By June 2015	End of 2017- Mid-2018	Major Source of Increase
Crude Oil	About 2.9 mb/d	4.7 mb/d	EOR/IOR of mature fields 700 kb/d new oil from West Karun oilfields
Condensate	480 kb/d	1 mb/d	South Pars Phases: 12, 15-16, 17-18

Table 2: NIOC's Plan to Increase Natural Gas By 2017-2018[16]

Hydrocarbon Type	By June 2015	End of 2017- Mid 2018	Major Source of Increase
Natural Gas	About 580 mcm/d	1 bcm/d	South Pars Phases: 12, 15-16, 17-18

Table 3: Additional Condensate Production from South Pars, 2015-2016[17]

South Pars Phases	Production Capacity (b/d)	Latest Status
Phase 12	**120,000 (Current Production rate is about 71,000-80,000 b/d)**	**Completed and inaugurated in March 2015**
Phases 15 and 16	**75,000**	**Expected to be complete by the end of 2015**
Phases 17 and 18	**80,000**	**Expected to be complete by mid-2016**

Endnotes

[1] Offshore Post, 'Oil Prices Slide As Global Leaders Reach Iran Deal', http://www.offshorepost.com/oil-prices-slide-as-global-leaders-reach-iran-deal/, Sara Vakhshouri, "Iran Faces Hurdles Hiking Oil Production when Sanctions Lifted," Oil and Gas Journal, vol. 113, issue 5, June 1, 2015.
[2] Organization of the Petroleum Exporting Countries, "Annual Statistical Bulletin, 2015."
[3] SVB Energy International, "Iran Upstream Oil and Gas Report."
[4] "Iran Oil Minister Describes the Oil Policy of Economy of Resistance," *SHANA*, April 19, 2014, www.shana.ir/fa/newsagency/pdf/215340.
[5] Condensate, or natural gas condensate, is light hydrocarbon liquid with low density that is the byproduct of natural gas from a gas field. It is also called natural gasoline, because it contains hydrocarbons with the boiling range of gasoline.
[6] SVB Energy International, "Iran Upstream Oil and Gas Report."
[7] Ibid.
[8] "Iran's Shared Oil, Gas Fields Need $50 Billion," *Press TV*, September 3, 2015, http://www.presstv.com/Detail/2015/09/03/427618/iran-oil-gas-production-shared-fields-zangeneh.
[9] "Iran's Priorities for Developing Its Shared Oil and Gas Fields," *IRNA*.
[10] "Iran's Electricity Production Increased," *Mehr News Agency*, September 9, 2015, http://www.mehrnews.com/news/2912331.
[11]EIA, Country Analysis Brief, Iran, June 19 2015, *EIA*: http://www.eia.gov/beta/international/analysis_includes/countries_long/Iran/iran.pdf
[12] Iranian new year starts from March
[13] The Economist, 'Iran Oil: Sanctions Response', 20 February 2012.
[14] 'Too much energy? Asia at 2030', American Enterprise Institute (AEI), February 2015, https://www.aei.org/wp-content/uploads/2015/02/Too-Much-Energy.pdf
[15] Sara Vakhshouri, "Iran Energy Policy after the Nuclear Deal", Atlantic Council, November 2015, http://www.atlanticcouncil.org/images/publications/Iran_Energy_Policy.pdf, SVB Energy International, "Iran Upstream Oil and Gas Report", June 2015
[16] Ibid
[17] Ibid