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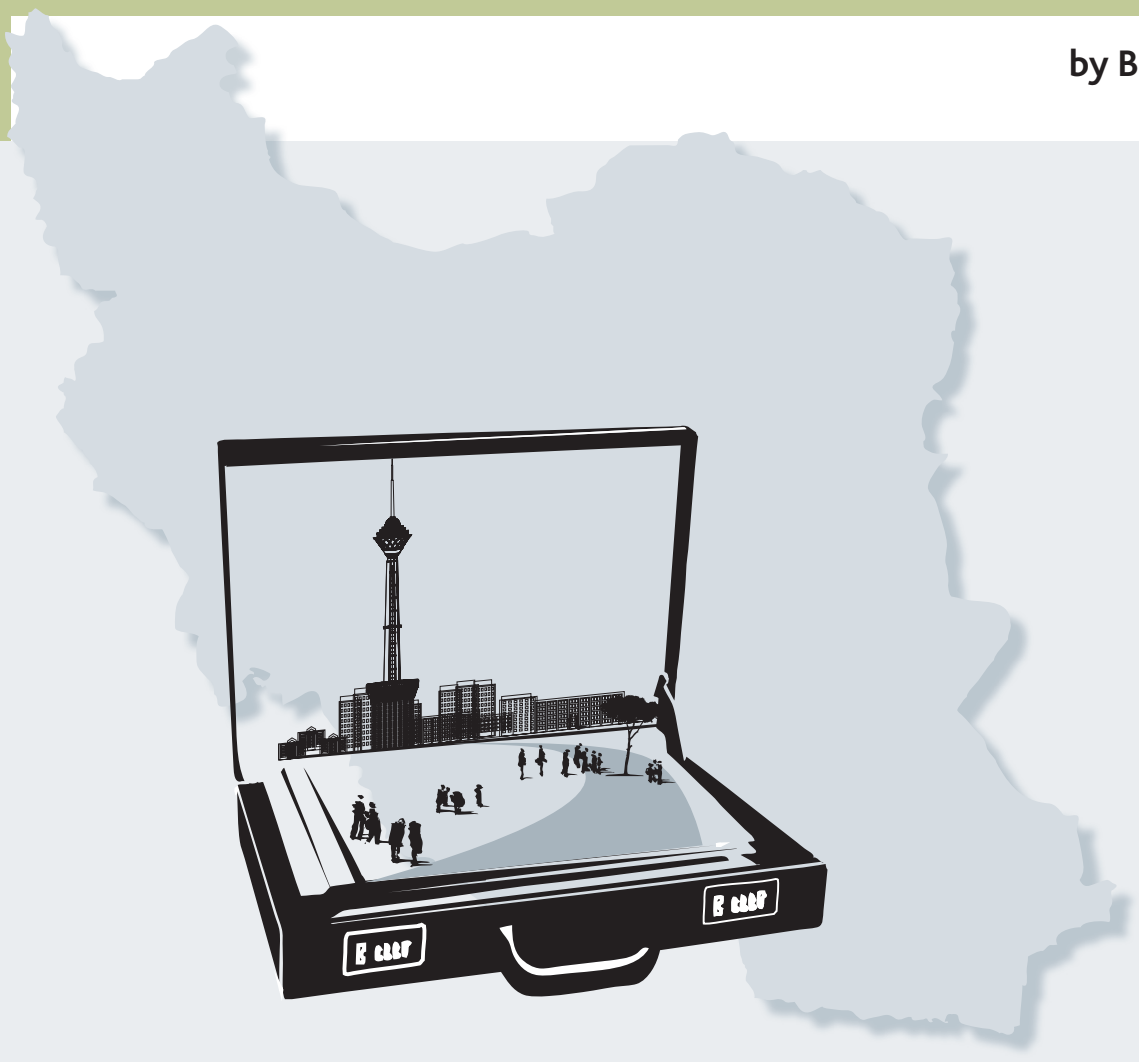
The Future of the Petroleum Sector in Iran

by Bijan Khajehpour



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This working paper was produced for the Legatum Institute's workshop on Economic Reform in September 2013. The workshop was part of 'The Future of Iran' project, which is designed to encourage Iranians to begin thinking about the challenges they will face if, or when, they suddenly find themselves in a position to carry out major political, social and economic reforms.

I. Introduction

Managing the country's vast oil and gas resources has been a major challenge for all Iranian governments since the last century. This paper will discuss the status quo of the Iranian petroleum sector and outline a number of trends that will determine the future developments of this significant industry. It will refer to the state of the oil and gas industry, especially its key trends in the past few years, take a closer look at the sector's contribution to the Iranian state budget and then move to analyse internal and external policies and phenomena that will shape the future of this sector.

The paper will conclude by assessing what approach could be adopted to pave the way for a more transparent, accountable and democratic management of the oil and gas sector.

II. State of the Industry

Iran's petroleum sector is experiencing a period of decline—not just because of external sanctions, but also as a result of lack of investment in new capacities. Historically, oil and gas wealth, which has been monopolised by the government, functioned as an instrument to define the relationship between the state (as the provider) and the people (as the subjects). This took place in the form of energy and food subsidies. However, Iran has started the process of redefining that relationship by lifting blanket subsidies and introducing cash hand-outs.[1]

Over the past decade, many analysts predicted that over time Iran would become a net importer of energy due to its energy trajectory, i.e. marginal growth in production parallel to a massive rise in domestic consumption. However, the realities on the ground are more complex and one needs to understand three phenomena to gauge the future potential of the country's energy sector. These are:

a) The country's ability to maintain its oil production capacity in light of the current sanctions and sector realities;

b) The future of gas production and the gas utilisation strategy; and

c) Trends in domestic energy consumption in light of subsidy reforms as well as a push towards greater energy efficiency.

Below we will dissect these three factors in order to gauge the future potential of this industry in Iran.

II. 1 Oil Production

Iran holds approximately 157 billion barrels of proven crude oil[2] (the world's fourth largest reserves). The country's official production capacity is around 4 million barrels per day (mbpd). According to OPEC's secondary sources, Iran's actual production stood a 2.7 mbpd in July 2013, whereas Iran's official statistics suggest a production of 3.7 mbpd.[3] Industry experts believe that the real production level is somewhere between the above two figures and that the discrepancy can be explained by the fact that some of Iran's exports are no longer reported to circumvent current oil export sanctions.

The country's oil production is undermined through a lack of technology, which is one of the direct consequences of western sanctions on Iran's petroleum sector. Production has been declining as a result of depletion,[4] which is estimated to amount to about 6% of Iran's production capacity per annum. Prior to the latest wave of external sanctions, the National Iranian Oil Company (NIOC) had managed to maintain production at a level of 4.2 mbpd for several years, meaning that new capacity had compensated for the depletion factor. However, in the past five years production has declined as a consequence of lack of investment and technology.

One of the techniques that Iran has utilised to recover falling oil production has been to inject vast amounts of natural gas into the declining oilfields to increase pressure. However, the prospect of that programme will depend on the availability of excess gas in the country's gas sector (see below).

The future outlook of oil exports will be discussed below in the overall energy balance.

II. 2 Gas Production

With 33.6 trillion cubic meters of proven natural gas reserves Iran now sits upon the largest gas reserves in the world.[5] Current gas production stands at 550 million cubic meters per day (mcm/d) and is projected to grow extensively by 2016 as new phases of the giant South Pars gas field come on stream. Incidentally, the new petroleum minister of Iran, Bijan Namdar Zanganeh,[6] has stated that he will dedicate most of his attention to gas sector developments.

The government's strategy in utilising gas over the past decade has been to increase the role of natural gas in the domestic energy basket. In fact, the gas utilisation strategy has been defined through the following priorities:

a) Provide gas to domestic consumption to free up oil for exports;

b) Inject gas into oil reservoirs to increase production;

c) Promote gas utilisation in domestic gas-based industries; and

d) Export gas through pipelines and other methods.

Consequently, Iran has not yet become a major exporter of gas as most of the gas has been allocated to domestic usage. However, the increase in gas production and the growing efficiency in domestic energy consumption will pave the way for greater energy exports in the future.

II. 3 Domestic Energy Consumption

The introduction of subsidy reforms in December 2010 led to some energy savings. The original idea of the reforms was to ease the financial burden on the government and achieve better wealth distribution. Despite a different original plan, the government re-allocated the resources to achieve US$40 billion in new revenues from price corrections. The original redistribution plan was also corrected to allocate 80% of the revenues directly to the recipients (about 63 million citizens) and 20% to the industries (only partly materialised). Though the financial burden on the government has not been eased, it is clear that energy consumption has been managed more efficiently—it is expected that energy efficiency will increase further as and when the next phases of the subsidy reforms will be implemented.[7] In international assessments, energy efficiency is now being treated as a fuel itself[8] and it can be considered an achievement if Iranian officials compel industry and citizens to become more energy efficient.

Consequently, there are two important upsides of the subsidy reforms that need to be taken into account:

- The accumulated energy saving is expected to reach some 100 mcm/d (equal to $12 billion of annual export revenue for the economy);
- Iranian companies, while under pressure in the short run, will have to become more competitive internationally;

What the subsidy reforms mean for Iran's petroleum sector is that domestic consumption will be contained and more oil and gas should be available for industrial and export activities.

Looking at other fuels, Iran currently consumes 1.8 million bpd or 2.2% of total global crude oil production.[9] The majority of crude oil is either refined into gasoline to fuel automobiles[10] or converted to diesel for transportation, electricity generation and heating oil for areas where natural gas infrastructure has not yet been built. Furthermore, Iran plans to add around 985,000 b/d of refining capacity by 2014, mostly through expansions and upgrades for gasoline production to increase production to 160 million litres per day. Hence, by 2014, Iran will effectively become an exporter of gasoline to regional markets; especially as local gasoline demand growth will be contained due to the price elasticity resulting from subsidies being lifted.[11]

All in all, Iranian officials underline that there have been considerable energy savings. According to Nasser Sajjadi, the deputy director of the National Iranian Oil Products Distribution Company (NIOPDC), the consumption of four highly-consumed fuels in Iran has declined noticeably since implementation of the subsidy reforms. Another NIOPDC official, Jalil Salari, stated that the consumption of LPG, gasoline, kerosene, and diesel had declined between 4 and 19 percent.[12]

In terms of electricity, price corrections have contained growth in consumption while overall power generation has grown, allowing Iran to export electricity to neighbouring markets. In the year ending on 20 March 2013, Iran exported 11.054 billion kilowatt hours of electricity to its neighbouring countries, showing a 29 percent rise year on year.[13]

II. 4 Overall Energy Sector Balance

The following table summarizes the oil and gas balance sheet of Iran:

TABLE 1: IRAN'S OIL AND GAS PRODUCTION, CONSUMPTION AND EXPORTS [14]

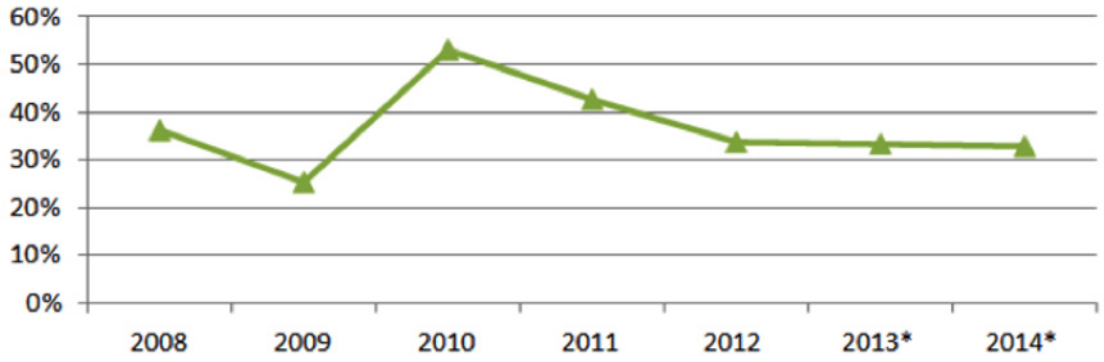
2013	OIL	GAS
Current Production	3.3 mbpd	550 mcm
Current Imports (from Turkmenistan)	—	22 mcm
Domestic Consumption	1.8 mbpd	545 mcm
Current Exports	1.5 mbpd	27 cm

Evidently, Iran's oil production and exports have declined over the past few years (in January 2012, Iran was still exporting some 2.3 mbpd of oil). So far, gas exports have not been a major compensation for declining oil exports. However, taking into account all the projects underway, especially the South Pars projects, Iran will have major potential to ramp up the exporting of gas within the next three years (see Future Outlook below).

III. Budget Facts and Figures

Based on the current Iranian state budget[15] about 33.2% of the Treasury's income originates from the export of oil and gas.[16] As the following graph indicates, the share of oil and gas revenues in the state budget peaked in 2010 at more than 50%, but has followed a declining tendency ever since. Projections indicate that oil and gas export revenues will continue to contribute about one third of the Iranian government's income in Rial terms, but will also play a more significant role as a source of hard currency for the country's economy.

GRAPH 1: SHARE OF OIL AND GAS REVENUES IN THE IRANIAN STATE BUDGET



While the overall impact of the petroleum sector is in decline as a contributor to the state budget, the industry remains an important element in the country's economy. Official statistics in Iran do not provide the share of the petroleum sector in the overall Gross Domestic Product (GDP) as it is included in the share of industry (38.4% in 1391 AP[17] according to the Statistical Center for Iran). Based on statements by officials in the ministry of petroleum, the sector has an approximate 25% share in the Iranian economy.[18] Nonetheless, experts and officials agree that the share of the petroleum sector to the overall economy is in decline.[19]

IV Future Outlook

Table 2 below summarises the outlook for oil and gas production by 2016. As mentioned earlier, Iran's oil production will remain stagnant for some years, mainly due to sanctions and lack of investment. In fact, NIOC's new production will mainly make up for the depletion factor. However, current sanctions on Iran's crude exports will compel Tehran

to invest more in refining capacity which will lead to a growth in domestic consumption of oil (for production of petroleum products) and a reduction of crude oil exports. This, in turn, will pave the way for other developments in the sector that will be significant for the country (especially the growth of the downstream sector). Gas production will increase significantly and will facilitate the growth of energy exports in diverse forms (see below).

TABLE 2: PROJECTION FOR IRAN'S OIL AND GAS PRODUCTION, CONSUMPTION AND EXPORTS[20]

2016	OIL	GAS
2016 Production	3.5 mbpd	840 mcm
2016 Imports		27 mcm
2016 Domestic Consumption	2.8 mbpd	660 mcm
Potential for Export in 2016	0.7 mbpd	**207 mcm**

Considering all of the above developments in production and consumption of energy, it is valid to argue that by 2016 Iran will be a small exporter of crude oil but a significant exporter of gas, petroleum products, electricity and petrochemicals.

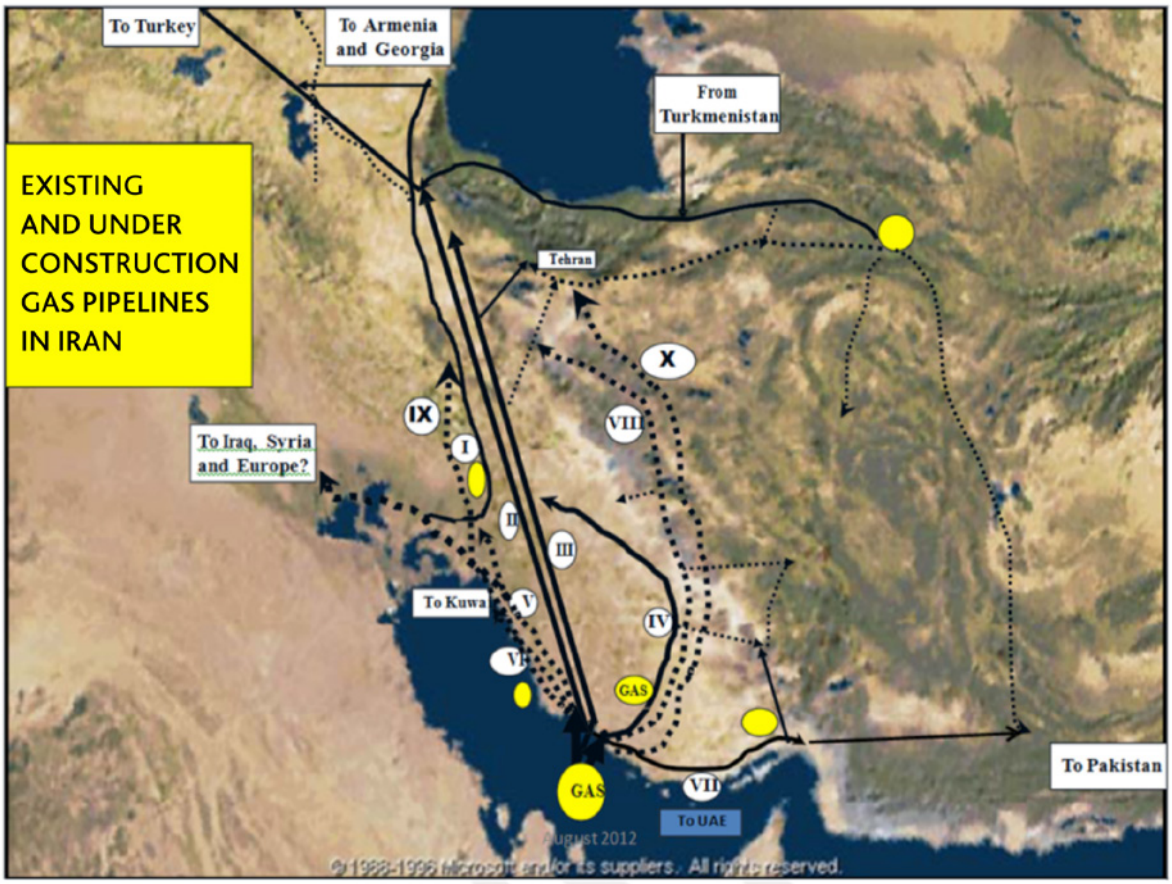
In petrochemical production, which is mainly gas-based, Iran aims to be a major producer and exporter. In the Iranian year that ended on 20 March 2013, Iran exported petrochemical products worth US$ 12 billion, showing a 33 percent increase in value compared to its preceding year. The country also plans to export 17.4 million tons of petrochemicals, worth 13 billion dollars, in the current Iranian year.[21] Though the petrochemical sector is also hit by external sanctions, the country's vast resource base and the availability of regional and Asian markets could facilitate further exports.

It is evident that Iran is moving away from being a crude oil exporter towards a diversified energy exporter in the forms of pipeline gas, petroleum products, electricity and gas-based industrial products. Tehran sees itself as a major energy provider in the region and believes that energy interdependency will increase mutual cooperation. There is no doubt that the current sanctions are slowing down Iranian development, but they are also compelling Iran to become a giant producer and exporter of energy-related products and services. The recent change of government in Iran and the emergence of a more moderate administration will offer an opportunity to ease some of the existing tensions, but a return to a tension-free relationship between western powers and Iran will require a longer period of time.

Experts agree that Iran has the resources (natural and human) as well as a favourable geography that will allow it to play the role of regional energy hub. Cooperation with Iran in this matter would ease some of the existing tensions. Antagonising Iran will deprive the world and the region of one of the main suppliers of energy, particularly gas.

In fact, the main story of the next decade will be gas. Iran is seriously contemplating long term plans to promote energy interconnectivity in the region (see map below)—an objective that goes beyond economic considerations and can be considered part of the country's regional strategy.[22]

MAP: IRAN'S EXISTING AND PLANNED GAS PIPELINES



Considering the views of key domestic players and the desire to attract needed investments and create jobs, one can identify a pattern focusing on the development of gas-intensive industries as opposed to the export of gas. Tehran has already started creating a number of special zones for the development of gas-intensive industries, such as the Jask Region in the Sea of Oman. Furthermore, gas-based industries such as petrochemicals, cement, aluminium and steel, as well as integrated gas projects, are being promoted by the government. Such integrated projects could also be one way of attracting foreign investment to the country.

Increased future gas production will allow Iran to export energy in the forms of pipeline gas, electricity (mainly produced in gas-fuelled power plants) as well as products of gas-based industries (steel, aluminium, cement,[23] petrochemicals[24] etc.).

The above combination of exports is also a reflection of the general mood among the key stakeholders in Iran with regards to gas exports. In fact, domestic opponents of gas exports believe that exporting gas in its raw form equates to exporting development potential. This group, led by some prominent MPs and former government officials, believes that the priority should be given to gas injection into oil fields as well as to the industrial and petrochemical sectors.

What facilitates the export of energy in the form of electricity is the fact that Iran has indigenous capabilities in constructing power plants; this means that, in the process of adding value to gas to produce electricity, Tehran is not dependent on foreign technology. This is also the case when it comes to constructing domestic and export pipelines. However, when one considers other forms of adding value to gas (petrochemicals, liquefied natural gas or LNG, gas to liquids or GTL as well as other gas-based industries) Iran would be dependent on foreign technology, which is not widely available under the current sanctions regime.

Furthermore, production and political difficulties aside, Iran's presence in the regional and global gas market faces political barriers, especially external sanctions[25] due to the country's nuclear programme.

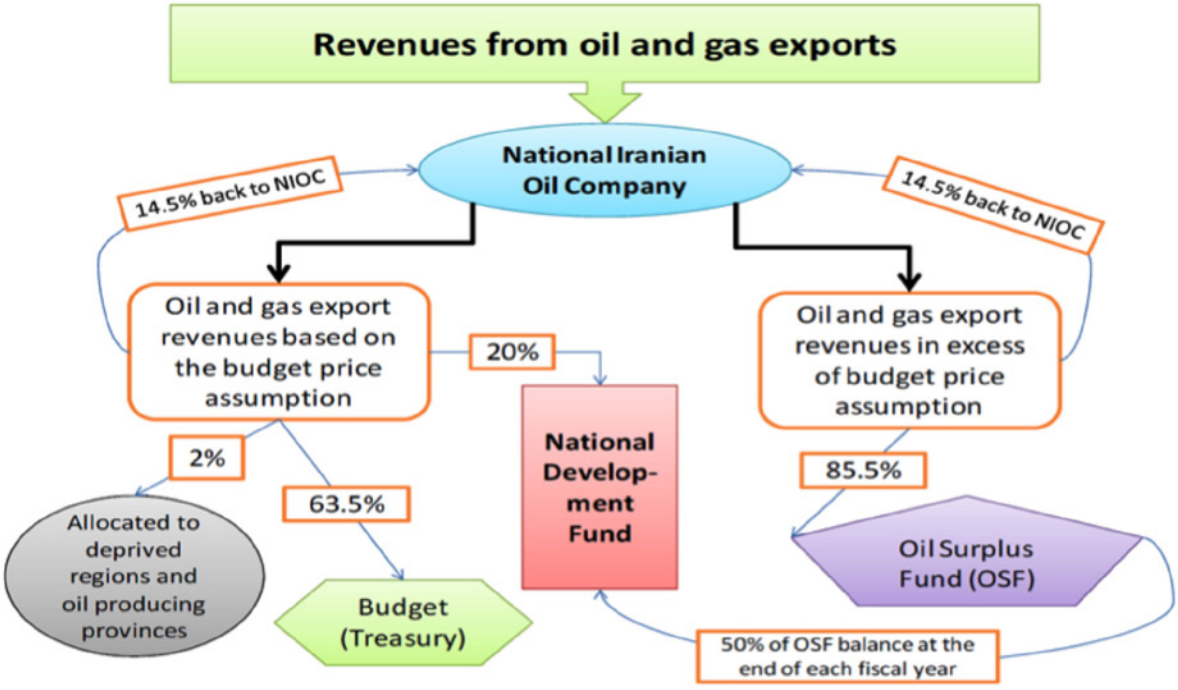
V. An Alternative Strategy?

It is clear that the Iranian petroleum sector is suffering from government dominance. The government is the owner of assets, regulator, operator and main player in this vast sector. Evidently, oil and gas export revenues have been an important factor in the financial viability of the Iranian government. However, the fact that the petroleum sector is easily at the disposal of the government has led to temptations to utilise this industry for other purposes. Iran's new petroleum minister, Bijan Namdar Zanganeh, has already announced that he will return to his "energy diplomacy"—essentially using oil and gas opportunities to improve international relations.[26]

In addition to the sector being overshadowed by the government, Iran has in recent years witnessed the growth of companies affiliated with the Islamic Revolutionary Guards Corps (IRGC) that have extensive expertise in construction, though less in the petroleum sector specific technologies. The growth of such companies, as well as private sector Iranian firms that had no expertise in the industry, has been a consequence of the absence of international companies due to sanctions. This has shaped the current decline in the sector.

Unfortunately, key decision-makers in Iran have opted to exclude "upstream oil and gas companies" from privatisation so that the government will remain the main player in this sector. This decision shows that the Iranian government is not ready to give up its monopoly on the upstream side—a monopoly that assures the government exclusive access to the proceeds of oil and gas exports as well as the sale of oil and gas to domestic buyers.

The graph below summarises how oil and gas revenues are distributed in Iran, underlining the fact that the government remains the key player in all instances of financial control.



Clearly, the dominance of the government, as well as semi-state entities such as the IRGC, will continue to lead to the utilisation of this sector for other objectives (foreign policy, national security, distribution of wealth etc.). This approach will also pave the way for an increase in corrupt dealings at all levels of government involvement in the industry.

Consequently, the alternative strategy for Iran to manage its petroleum sector would be to pass the operational aspects of oil and gas development on to expert firms and for the government to remain the main regulator as well as the recipient of royalties from oil and gas exports as well as from the domestic sales of the product.

In such a scenario NIOC would be the main regulator and it would turn its various subsidiaries (both in upstream and downstream sectors) into independent companies that would be able to develop the country's hydrocarbon resources through expert technical and commercial approaches. The government would charge a royalty that would be meaningful for the operating companies, would respond to the country's needs, and would allocate some of those funds to the Oil Stabilization Fund and the National Development Fund. These funds should also operate independently from government so that they can optimise the use of these resources for the Iranian economy and for future generations.

In this alternative strategy, the Iranian government would focus on what the Norwegians call "national governance and control" over the oil and gas sector.[27] As such, an indigenous Iranian framework would have to be defined for ownerships, royalties and industry standards and processes. The regulator and royalty recipient would certainly be a more efficient option in Iran, where the politicisation of the petroleum sector has undermined its performance and development.

It remains to be seen whether political and economic reform undertaken by the new administration, together with external sanctions and pressure, will pave the way for a more transparent and accountable management of the Iranian petroleum sector. It is clear that the current crisis, as a result of sanctions and mismanagement, will compel the government to seriously engage the private sector. This will be an opening for private companies to demonstrate their abilities to manage this resource more efficiently. However, the government's desire to hold on to this unique source of revenue will continue to impede the process, unless key stakeholders realise that a change of approach would actually be a win-win scenario for the government and the economy as a whole.

REFERENCES

1. The Iranian government introduced an ambitious subsidy reform plan in December 2010 which aimed at removing all blanket subsidies within five years and instead introducing cash hand-outs to the lower income classes in order to optimise the energy consumption trends in the society.
2. http://www.bloomberg.com/news/2013-08-22/iran-oil-minister-vows-to-revive-output-as-he-eyes-price-war-1-.html
3. *OPEC Monthly Bulletin*, August 2013.
4. Depletion refers to the loss of production capacity as a result of aging oil fields.
5. BP Statistical Review of World Energy 2013, accessed at www.bp.com/en/global/corporate/about- bp/statistical-review-of-world-energy-2013.html
6. He also led the petroleum ministry between 1997 and 2005.
7. The second phase is expected in the second half of 2013.
8. For example look at the World Energy Outlook 2013 at www.worldenergyoutlook.org/publications/weo-2013.
9. *BP Statistical Review of World Energy* June 2013.
10. Although a gasoline rationing system was introduced in June 2007, this policy has curbed Iran's petrol imports to some extent.
11. Fuel prices will continue to rise in different stages until they reach 90% of international fuel prices.
12. *Tehran Times*, 12 January 2012.
13. *Tehran Times* at http://www.tehrantimes.com/economy-and-business/106890-irans-electricity-exports-up-29-year-on-year.
14. Author's estimates based on OPEC Market reports, *BP Statistical Reviews* and the Iranian Ministry of Petroleum's statistics.
15. Relating to year 1392 which started on 21 March 2013.
16. *Iran Economics Magazine*, June 2013—macroeconomic data page 67.
17. Year ending on 20 March 2013.
18. For example look at comments made by deputy minister Khojasteh Mehr as published by Eghtessad Online on 14 June 2012.
19. Statement by Adel Azar, head of the Statistical Center of Iran as reported by the official website of the Ministry of Petroleum on 30 May 2013.
20. Author's estimates based on actual gas projects and the Iranian Ministry of Petroleum's statistics.
21. Press TV at http://www.presstv.ir/detail/2013/04/09/297357/petchem-products-earn-iran-12b/
22. For more details on this issue, please refer to: "The Role Of Economic & Energy Relations With Turkey And Russia In Iran's National Strategy", published by CSIS: http://csis.org/files/attachments/120529_Khajehpour_Russia_Turkey_in_Iran_National_Strategy.pdf
23. According to domestic industry sources, Iran is already the world's 4th largest manufacturer of cement, which is one of the main export items to regional markets (especially Iraq, Afghanistan and Qatar).
24. Iran's annual petrochemical output stands at 47 million tons (below the installed capacity of 54.5 mt) with annual exports reaching about US$ 12 billion.
25. Iran's energy sector has been subject to sanctions imposed by U.S. Presidential Executive Orders since 1995 and also a number of laws passed by the U.S. Congress (laws known as originally ILSA and later IFA). In recent years, there have been additional sanctions related to Iran's nuclear program initiated by the U.S. and also by the UN Security Council.
26. For more details see http://www.al-monitor.com/pulse/originals/2013/08/iran-petroleum-sector-veterans-zanganeh.html.
27. For a detailed analysis of the Norwegian approach to the petroleum sector, please refer to: http://www.sv.uio.no/tik/forskning/publikasjoner/tik-artikkelserie/Ryggvik.pdf

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