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Oil and gas sector in Iraq: reality and solutions

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Summary:

Although Iraq is considered a major source of crude energy, it imports oil derivatives from abroad with a financial value estimated at more than 7% of the total public government expenditures.

The amount of this percentage is more than \$6 billion, and it can be settled in Iraq.

- The Iraqi Government needs to make a serious effort to halt the sabotage of local production lines supplying crude oil to national oil refineries, as well as to combat the corruption of non-integration of local oil production, which leads to a significant diversion of hard currency.

The waste of 47.5% of Iraq's gas production is caused by oil production operations, with one-third of local gas needs being imported annually. These imports amount to \$1.1 billion annually, representing a net loss of \$6 billion in oil derivatives imported from abroad. Iraq has not benefited from the historic opportunity resulting from a 71% increase in world oil demand over the past 20 years. Iraq has not worked to achieve its plans to reach a daily production rate of 10 million barrels. The export rate continued at 3.8 million barrels per day, with the world moving towards reducing fossil fuel use and replacing it with clean energy by 2050, which would be a real crisis for the Iraqi economy.

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The establishment of refineries, the development of existing refineries, and the establishment of petrochemical industries will increase the benefits of local oil production.

Although the licenses for service contracts have made many gains in the Iraqi economy and the oil industry, they have not achieved the expected ambitious results due to the institutional and security weakness of the energy sector in Iraq

- There is a need to reconsider the establishment and governance of the National Oil Company, to make it able to manage the current partnership with foreign companies and to qualify it to manage the operations of the petroleum and gas extractive industry in all its phases after reducing dependence on foreign companies. The experience of Saudi Aramco can be applied in this regard.

To maximize oil investment, Iraq needs to establish new refineries, and the concession method (BOT) can be utilized to do so. The idea of this method is to contract with a foreign or local company the construction, financing and operation of the management of the facility or project for a certain period, and after the expiration of the contract, the ownership of the facility or project is transferred to the State. If Iraq invests in the oil derivative industry, it will have to develop and establish transport and distribution networks, revive petrochemical industries (carpets, cosmetics, plastics, pharmaceuticals, fabrics, rubber, etc.), as well as enact the oil and gas law and resolve the contentious points of the extractive sector. The oil sector and its derivative industries in Iraq are in a critical stage.

Introduction:

The energy sector, including oil and gas, is considered one of the most vital sectors globally, with both producer and consumer countries of interest. However, the more important and complex it becomes the closer we get to countries that depend heavily on oil for their revenues and expenditures, such as Iraq. Iraq's economy is largely dependent on revenues from the oil industry, but it suffers from poor management and exploitation.

Iraq remained intact despite the exploitation of its energy resources by oil-producing countries, including its neighbors, after the collapse of the previous regime in 2003. Despite Iraq's 2005 permanent constitution stressing the need to use modern techniques and methods to exploit its resources, this remains the case. As a result, the problem of the management of Iraq's oil and gas sector is the process of its exploitation, with the oil industry confined to extraction as crude oil, storage and marketing, and then selling the entire quantity to consuming countries as crude oil, after which it is imported as oil derivatives or industrial materials at double prices. On the other hand, the process of developing and expanding the production capacity of the oil sector has weakened, and the investment of the associated gas supplier, which is disposed of by burning it in large quantities, has weakened.

Based on this, this paper will discuss the reality of Iraq's energy sector after 2003, as well as its attempt to put forward practical solutions for the development and exploitation of Iraq's oil and gas sector using optimal methods prevailing at the global level.

Firstly: The reality of the energy sector in Iraq after 2003

Iraq's economic life is largely dependent on the oil sector, which is the centerpiece and backbone. The importance of it is determined by the following factors:

1. Its significant contribution to the composition of Iraq's GDP (GDP) accounts for about 45% of annual output.
2. It is important to balance the set of scales of payments, as it accounts for the largest proportion of Iraq's export structure abroad, which amounts to more than 95% of total annual exports.
3. It is the main supplier of foreign currency and financing for imports, obligations, and international transactions.
4. It constitutes the main source of funding for both the public budget and development plans within the country.

Depending on this important factor, the oil sector in Iraq is facing considerable pressures, leading to its failure to manage and invest in modern methods. The oil and gas sector was managed in a way that dictated thought and style, despite Iraq's permanent post-2003 constitution providing otherwise. (112/II) on the understanding that the Federal Government, in cooperation with the producing provinces and provinces, should formulate strategic policies for the development of oil and gas wealth, using the latest marketing techniques and investment promotion. The problem of managing the Iraqi oil and gas sector lies in the process of its exploitation, which is characterized by a deficit in increasing production capacity and transforming it from extraction to industrialization, as mentioned in the introduction to the paper. This is due to many reasons, but the most important is the confusion of governance and the fragmentation of functions in this sector, as well as

the lack of an effective and efficient national body that can be tasked with managing and developing the energy sector within the country.

As a result, the process of extracting and selling oil in Iraq has become a constant drain on the depleted supplier, with minimal economic feasibility, by draining the oil reserves daily and selling as crude oil abroad, in exchange for financial revenues to the State. (bleeding the currency) by reverse feeding and returning abroad in exchange for Iraq's obtaining oil derivatives and industrial and consumer materials, thus emptying the general budget of its development objectives. During the last decade, Iraq's oil derivatives import costs amounted to more than \$38 billion, as shown in table 1.

years	The oil derivatives import costs million) (dollar	Percentage of total budget expenditures	years	The oil derivatives import costs million) (dollar	Percentage of total budget expenditures
2005	2,557.5	9.6%	2014	3,886.6	3.8%
2006	1,471.7	6.4%	2015	1,948.8	3.8%
2007	1,446.7	7.5%	2016	1,691.0	4.4%
2008	2,369.6	4.3%	2017	2,070.4	3.8%
2009	1,336.9	4.2%	2018	2,366.1	3.6%
2010	1,638.3	3.2%	2019	5,164.0	6.4%
2011	2,091.4	3.7%	2020	2,140.2	3.8%
2012	4,521.5	5.5%	2021	3,732.3	4.2%
2013	4,190.2	4.8%	2022	6,179.1	7.4%

Source: prepared by the researcher, relaying on:

1. The central bank of Iraq, the annual economic report, (Department of Statistics and Research, 2005–2021), miscellaneous pages.

2. Ministry of Finance, Final Accounts of the Iraqi State, (National Audit Office, 2004–2013).

3. Also look: Iraqi Balance of Payments, FOB statistics, for the years 2013–2022.

According to the above table, the State bears financial costs for the import of oil derivatives from abroad, in two ways: first, the sale of these derivatives locally at subsidized prices of up to 40%¹, and second – Iraq pays abroad for the import of oil derivatives and crude materials, which leads to the bleeding of hard currency abroad. This is due to the inability of Iraqi refineries to meet growing local demand, as the import of petroleum products, especially gasoline, gas oil and white oil accounts for more than 10% of Iraq's total annual import². The Iraqi Ministry of Oil attributes the shortfall in local production of oil derivatives to the following reasons³:

- Lower crude oil processing rates to refineries as a result of sabotage of oil-carrying pipeline networks.
- Failure to establish new refineries with integrated units, such as installation of petrol improvement units for outdoor refineries, processing units, CCR, RFCC.
 - Old technology used in oil installations.
 - Weak investment in the manufacturing industry.
 - Delay in the completion of new projects that will increase the quantity and quality of the product, owing to non-contracting with the parent companies directly.
 - Weak basic production infrastructure, such as electricity processing hours, and poor security.

1. Quoted from: Al-Sabah Iraqi newspaper, (electronic version, issue No. 4511, 2022), p. 2.

2. Ministry of Planning, Annual Report on Imports for the Year 2020, (Central Bureau of Statistics, 2021), p. 6. <https://cosit.gov.iq/ar/63-stat-ar?start=55>

3. also look: Kamel Allawi et al., The Oil Industry in Iraq: Challenges and Prospects, (Iraq: Iraq Center for Studies – Al-Saqi Printing and Distribution, 2015), p. 114. Also: Financial Supervision Bureau, Evaluating the Performance of the Ministry of Oil to Reduce the Import of Oil Derivatives and Plans to Increase Local production for the years 2010–2013, (Republic of Iraq: 2017), p. 5.

Most of these reasons apply to the weakness of Iraq's extractive industry (crude oil production),

In addition to the administrative and financial corruption that has spread in this sector, crude oil production in Iraq has experienced significant fluctuations, which began with the start of the war with Iran. and although the regime changed after 2003, the approach to oil exploitation has not changed This can be inferred by tracking the level of oil production capacity before and after 2003, when peak oil production capacity reached 3.8 million barrels per day before Iraq entered the war⁴.

In addition, peak production capacity after 2003 reached 4.5 million barrels per day in 2019, a rise. (15%), and successive governments in Iraq after the fall of the former regime were unable to pass peak production capacity before 2003 until 2016 (as shown in Table 2), despite ambitious plans adopted by each new Government to achieve significant growth in crude oil production, there has been talk of access to more than 9 million barrels per day in accordance with the Integrated Energy Strategic Plan⁵. However, this has not been achieved and the production capacity of crude oil has remained 23%⁶ below the OPEC export quota allocated to Iraq.

4. Kamel Allawi and others, the aforementioned source, p. 37.

5. Ministry of Planning, National Development Plan 2013–2017, (Republic of Iraq: Central Bureau of Statistics, 2013), p. 21. Also see: Ali Mirza, Economic Papers and Oil of the World and Iraq, Volume 1, (Iraqi Economists Network Publications Series – E-Book, 2021), p. 168.

6. OPEC, Annul Statistical Bulletin, (Vienna, Austria: 2021), P.P.12–13.

Table 2: production capacity for crude oil in Iraq, and the daily rate for export 2000–2021

years	Proven oil reserves (billion barrels)	Production capacity (million barrels / day)	Average daily export (million barrels/day)	Iraq's average export share in OPEC (million barrels/day)	The financial loss
2000	112.5	2.6	2.0	unavailable	unavailable
2001	115.0	2.5	2.0	an	an
2002	115.0	2.2	1.6	an	an
2003	115.0	1.5	1.0	No record	100%
2004	115.0	1.9	1.5	No record	100%
2005	115.0	1.8	1.4	No record	100%
2006	115.0	1.9	1.5	No record	100%
2007	115.0	2.0	1.6	No record	100%
2008	115.0	2.2	1.8	No record	100%
2009	143.1	2.3	1.9	No record	100%
2010	142.2	2.3	1.8	No record	100%
2011	141.4	2.6	2.1	No record	100%
2012	143.1	2.9	2.4	No record	100%
2013	143.1	2.9	2.3	No record	100%
2014	143.1	3.2	2.5	No record	100%
2015	143.1	3.7	3.0	No record	100%
2016	148.4	4.1	3.3	4.3	23%
2017	147.2	4.2	3.3	4.3	23%

years	Proven oil reserves (billion barrels)	Production capacity (million barrels / day)	Average daily export (million barrels/day)	Iraq's average export share in OPEC (million barrels/day)	The financial loss
2018	148.4	4.2	3.5	4.5	23%
2019	148.4	4.5	3.9	4.5	14%
2020	148.4	3.9	3.4	4.4	23%
2021	145.0	3.9	3.4	3.8	11%
2022	144.0	4.4	3.4	3.9	13%

Source: Prepared by the researcher based on:

1. Ministry of Planning, Annual Statistical Group 2020–2021 (Republic of Iraq: Central Bureau of Statistics, 2021). Available on the link:

<https://www.cosit.gov.iq/documents/AAS2021/18.pdf>

2. OPEC, Annual Statistical Bulletin, (Vienna, Austria: 2022), P.P.12–13.

3. Organization of Arab Petroleum Exporting Countries (OPEC), annual statistical report (Kuwait: 2003–2022).

On the other hand, the management of the naughty gas supplier (oil-associated gas and free gas)⁷ was not better than the management of the oil extractive industry. Decision-makers in successive Iraqi

7. The natural gas reserve in Iraq is divided into two parts: the first is oil-associated gas, which accounts for the largest percentage of approximately (71%) of the total natural gas reserve, as it increases with the increase in crude oil production, and the second part is free gas, the most prominent of which is the confiscation of coal, and it constitutes a percentage of (29%) of gas in Iraq. yunzr: Majd Sabah Abdel Ghali and Ahmed Jahiwar, The Future of the Energy Sector in Iraq in Light of the Energy Strategy for the 2012–2030 Period, (Iraq: Gulf Economic Journal, Volume 33, Issue 33, 2017), pp. 7–8.

Governments focused most of their attention on the oil extractive industry, with considerable neglect of the gas supplier, which is no less important than oil, especially in local uses. Natural gas is available in Iraq in large quantities, especially associated gas, but so far Iraq has not been able to make optimal use of this resource, as gas production in Iraq is still very low, reaching about 4% of total energy production, as estimated by the International Energy Agency (IEA) in 2019⁸. About half of the gas associated with oil is incinerated because of its low potential for investment, while the utilization of free gas (0.75%) of the volume of proven reserves in 2021 is not exceeded, as shown in table 3.

Table 3: percentage of natural gas exploitation in Iraq in total proven reserves (selected years)

years	Proven reserve (million cubic meters)	Annual production	Annual consumption	Burnet
2016	3,820,000.0	29,326.0	11,612.0	17,714.0
2017	3,744,000.0	29,870.0	13,231.0	16,639.0
2018	3,819,830.0	31,358.0	14,522.0	16,834.0
2019	3,819,830.0	32,699.0	15,453.0	17,258.0
2020	3,819,830.0	28,738.0	14,812.0	14,173.0
2021	3,714,000.0	30,553.0	15,737.0	14,476.0

Source: Prepared by the researcher, based on:

1. Ministry of Planning, Annual Statistical Group 2020–2022 (Republic of Iraq: Central Bureau of Statistics, 2022). Available on the link:

<https://cosit.gov.iq/documents/AAS2023/18.pdf>

2. Organization of Arab Petroleum Exporting States (OAPEC), information bank base. Available on the link:

<https://oapecorg.org/ar/Home/DataBank>

8. International Energy Agency, World Energy Balances: A View on the Middle East.: look at the link: <https://www.iea.org/reports/world-energy-balances-overview/middle-east>

The significant gas waste is evident from the table above. As a result of the poor ability to exploit it, the financial loss here lies in two aspects. The first is not to invest this resource, which can generate significant financial revenues for the country; the second is the financial costs of importing gas from abroad, estimated at one third of domestic consumption. Programmer, which is an additional burden on budget expenditures estimated at more than \$1.1 billion annually.

Secondly: Proposed method of oil and gas management and investment

According to available official data, Iraq lost huge financial revenues that could have been earned through real and advanced investment in the extractive sector (Oil and gas), at a time when Iraq's peak oil production was about 3.8 million barrels per day in the last century, global oil consumption was about (56) million barrels per day, and by the beginning of the 21st century, this consumption began to rise gradually to about (96) million barrels per day in 2021 at a rate of increase (71%) , while Iraq's oil production capacity only increased (13.5%) in 2019, hence the decline in subsequent years (see previous table 2).

Given the global trend towards developing renewable energy sources and reducing dependence on fossil energy sources, and, above all, oil, due to climate pollution and possible future environmental disasters the most petroleum-consuming countries have already begun to research and develop clean energy sources, aimed at gradually reducing oil consumption, reaching its lowest consumption by the beginning of 2050, according to the studies of world energy institutions and agencies . If these efforts are realized and the most oil-consuming countries are able to develop energy sources that are alternative to oil and safer to the environment, that means a financial and economic collapse for rentier countries, foremost among which is Iraq.

Based on the fact that: (oil revenues are the main financier of Iraq's general budget, the main engine of domestic economic activity and the most prominent financier of economic development projects within the country) Therefore, obtaining near-term financial revenues is one of the priorities of fiscal policy in Iraq.

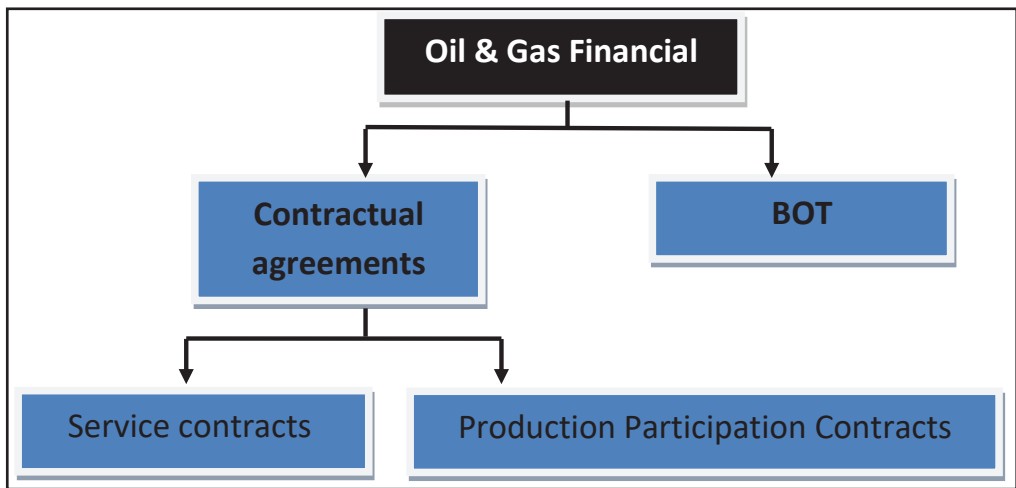
The easiest way to achieve this for Iraq is to move towards increasing the quantity of oil production. and to invest gas in a modern manner that leads to non-burning and waste, The philosophy of the proposed method of oil and gas investment here lies in the possibility of exploiting Iraq's large oil reserves, increasing production capacity to 6.5 barrels per day in the medium term, and targeting production capacity ranging from (10-15) million barrels per day long term, effort to exploit gas (free, accompanying) to meet the local needs in the medium term, to achieve surplus production capacity in the long term, on the one hand, to promote the benefit and the development of the oil industry through the establishment of refineries and the development of old refineries, and to work towards the establishment of an industrial petrochemical city with a view to further enhancing the benefits.

This can be achieved by adopting two methods, one for the extractive industry and one for the manufacturing industry, as follows:

1. Development of the extractive industry: While Iraq is unable to increase its crude oil production capacity, other oil-producing countries benefit from increases in global oil demand, although the cost of producing a barrel in these countries is much higher than the cost of producing it in Iraq. Which led some oil producers to acquire a share of the oil market that could have been that of Iraq ,butbecauseofthechaosofmanagementthissectorandtheobjective reasons mentioned above. Project, it is difficult for Iraq to develop its production capacity based on its own potential. This has led to the use of foreign companies to develop this sector, following the method of service contracts

. Oil States currently follow two methods of financial regulations in their agreements with foreign companies competent in the management and development of the energy sector, namely (concession agreement and contractual agreements) , as indicated in chart (1).

Chart (1) financial systems followed in contracting for the development of the oil and gas sector



Source: Alia Kamel Al-Saleh, the Oil and Gas Sector in the Gulf: Overview and Regionalism, (Kuwait: Gulf Development Policy Center, 2012), 17-18.

The method of service contracts adopted by the Government of Iraq at the end of 2009 represents the best model for oil investment in Iraq, according to the assessment of most experts in the oil sector, which the researcher agrees with, due to the following considerations⁹:

A. This method is based on service contracts only, for fees charged by the company, which means that all operations to manage the oil sector belong to the State, which is consistent with the Constitution's provision that oil belongs to the people.

B. Foreign companies receive specific production fees ranging from (\$1-2) per barrel produced.

C. These contracts were able to bring in technology and technical expertise, which helped to develop the capacity of Iraqi staff working in this sector who lacked experience and competence.

D. This finances the development process, which helped ease financial burdens on the state budget.

E. Through this type of contract, Iraq was able to make new oil explorations, resulting in a net increase in crude oil production from fields under service contracts by more than (2) million barrels per day between 2010-2021.

F. Total financial returns on production from licensing rounds for the period from 2010 to the end of 2018 amounted to \$ 571 billion, while the total cost actually paid to foreign companies during the same period was about \$ 74 billion.

9. Consider Abdul Hussein Al-Anbaki, Iraq's Oil Economics, (Iraq Center for Studies, Al-Saqi Printing and Distribution, 2012), p. 168. And also: The Iraqi Institute for Economic Reform, a symposium entitled: Oil licensing contracts, their pros and cons, (Al-Nahrain University, College of Business Economics, May 23, 2019). Available at: <https://iier.org/>

G. The percentage of Iraqi workers working to carry out service contracts with foreign contracting companies amounted to 80% of total employment, of various specializations and ranks.

However, this method of managing the oil sector has not achieved the ambitious results expected. Most experts refer to the institutional and security weaknesses of the energy sector in Iraq, as well as the lack of export outlets. The Iraqi Government should therefore work to achieve a number of measures, the most important of which are¹⁰:

- Reconsider the establishment and governance of the National Oil Company, make it able to manage the partnership with foreign companies at present, and qualify it to manage the operations of the oil and gas extractive industry at all stages after reducing dependence on foreign companies. The Saudi Aramco Oil Company model can be used to achieve this¹¹.

- Expediting the enactment of the Oil and Gas Act, because of its importance in the management of the oil and gas operations sector and as the legal reference for the work of the National Petroleum Company, which could benefit from Norwegian experience¹².

- The establishment of a committee of experts, chaired by the Minister of Oil, whose task would be to explore the possibility of developing new oil export outlets and to negotiate with Saudi Arabia, Turkey and Syria to reopen old export lines.

Consequently, associated and free gas can be invested in Iraq in the same manner (Service contracts) in which the oil sector has invested,

10. Carole Nakhleh, *Iraq's Oil Future: Discovering the Right Framework*, (London: University of Surrey, Surrey Center for Energy Economics, 2008), p. 17.

11. For more, see: Organization of Arab Energy and Cooperation, Tenth Arab Energy Conference, (United Arab Emirates – Abu Dhabi: 2014), pp. 12-16.

12. Adnan Al-Janabi, *The Rentier State and Dictatorship*, (Baghdad: Institute of Iraqi Studies, 2013), pp. 52-55.

giving precedence to meeting local needs, and then considering the process of increasing gas production and export as most reports by global energy agencies expect gas consumption to be second globally by the beginning of 2030, approaching oil consumption by 2040¹³.

2. Manufacturing development. The manufacturing industry, which is intended to refine oil from crude into value-added products, proposes partnerships with foreign companies in the same manner (service contracts) for 14 existing refineries¹⁴, as well as the Karbala refinery and Maysan in operation¹⁵. However, Iraq needs new refineries for optimal oil investment. Here, the concession method (BOT) can be adopted to create new refineries. The idea of this method is to contract with a foreign or local company to build, finance and operate the management of the facility or project for a certain period. After the expiration of the contract, the property of the facility or project belongs to the State¹⁶. However, according to standard studies, global crude oil refining does not contain high profit margins unless it is associated with other complementary activities, such as transport, distribution, petrochemical and other petroleum industries¹⁷. Therefore, the production of petroleum derivatives and the development of refineries in Iraq should be accompanied by the development of transport and distribution networks and the revival of petrochemical industries such as the industry. (Carpets, cosmetics, plastics, pharmaceuticals, fabrics,

13. Quoted from: Ali Mirza, *Economic Papers and the Oil of the World and Iraq*, previously mentioned source, p. 530.

14. Republic of Iraq – Ministry of Planning, *National Development Plan 2018–2022*, p. 149.

15. Farouk Younis, *Dialogues on Economic Issues*, (Iraqi Economists Network Publications Series, 2020), p. 107.

16. Hussein Ahmed Dakhil Al-Sarhan, *The Possibility of the Agricultural Sector Leading the Partnership between the Public and Private Sectors in Iraq*, (Iraq: House of Wisdom Magazine, Economic Studies, Issue 43, 2020), p. 147.

17. Ali Mirza, *Economic Papers and the Oil of the World and Iraq*, Volume 1, previously mentioned source, pp. 158–160.

rubber, etc.)¹⁸, and this type of industry has a large base in Iraq that originated since the 1970s, but most of it was extinguished after 2003 year, and accordingly, it is necessary to reinvest it according to the style of bot contracts. (BOT), and for this type of contract to come on the ground, two basic conditions should be available:

1. Legislation governing this contracting.
2. Gradual removal of government energy subsidies.

Accordingly, public budget expenditures that were spent on oil derivatives are pressured to no avail economically, Moreover, the government will receive taxes and fees from the profits and wealth of foreign companies investing in this sector, Improving the governance of the contracting process with foreign companies will also contribute to the development and increase of oil and gas production and will generate significant additional revenue for the state from the sale of crude oil.

18. Alia Kamel Al-Saleh, The Oil and Gas Sector in the Gulf..., previously mentioned source, p. 27.