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Original article

PROBLEMS OF THE FUEL AND ENERGY COMPLEX OF IRAQ: ANALYSIS AND POSSIBLE SOLUTIONS

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Abstract. In this article, the authors analyze the state of the fuel and energy complex in Iraq. Authors try to make Iraq start a new path for development fuel and energy sector by reviewing investments in this sector. Iraqi Ministry of oil has announced ambitious plans to raise oil production and exports over the current decade by relying on foreign investment as a main means to achieve this increased production, and the main way for investors seeking to enter the Iraqi oil and gas market is growing by the oil licensing rounds announced by the Iraqi ministry of oil.

Keywords: Oil & Gas sector, Integrated National Energy strategy, Budget, Iraq

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Проблемы экономики.

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ПРОБЛЕМЫ ТОПЛИВО-ЭНЕРГЕТИЧЕСКОГО КОМПЛЕКСА ИРАКА: АНАЛИЗ И ВОЗМОЖНЫЕ ПУТИ РЕШЕНИЯ

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Аннотация. В данной статье авторы анализируют состояние топливно-энергетического комплекса Ирака и, по результатам проведенного анализа разрабатывают рекомендации для того, чтобы вывести Ирак на новый путь развития топливно-энергетического комплекса. Министерство нефти Ирака объявило об амбициозных планах по увеличению добычи и экспорта нефти в текущем десятилетии, полагаясь на иностранные инвестиции в качестве основного средства для достижения этого увеличения добычи, и основной путь для инвесторов, стремящихся выйти на рынок нефти и газа Ирака.

Ключевые слова: нефтегазовый сектор, интегрированная национальная энергетическая стратегия, бюджет, Ирак

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Introduction

Iraq is a rich country in oil, but its economy suffers from severe structural weaknesses. Iraq's proven oil reserves, which amount to about 143 billion /barrels , are among the highest in the world., which constitutes the third largest conventional oil reserves in the world after Saudi Arabia and Iran, and the costs of extracting oil are very low, and the increase in production since year 2003 has contributed to a rise in per capita GDP from \$1,300 in year 2004 to \$6,300 In 2013, Iraq, as is well known, needs to re-build the infrastructure, re- build what was destroyed by wars, and revive the productive sectors (such as industry, agriculture and services), as well as the obsolescence of many industrial projects, which need to be reconstructed and modernized. At the same time, the Iraqi economy suffers from a large gap between revenues and expenditures, and insufficient savings to bridge the gap between foreign investments, to secure the minimum necessary resources, for reconstruction, as directing part of the oil surpluses to the sectors (industrial, agricultural, and service) is a necessity. An urgent need with clear strategic dimensions, because of the importance of these sectors and the goods they provide mostly for domestic consumption, and oil export revenues will remain the main source of financing the development of Iraq's economic sectors in the foreseeable future in order to reduce dependence on oil and increase day by day

Analysis of Iraqi economy and impact of fuel & energy sector

Iraqi economy wheel is heading towards development with deliberate steps, after oil sales achieved a financial surplus. Iraq will have a surplus of the difference in selling oil in the range of 20 billion dollars," stressing that "in the current financial abundance remained unlikely to resort to borrowing. the steps taken by the government, through the white paper that it announced after its formation, have clearly reflected on economic development .the government succeeded during two years of its work in achieving the highest rate of economic growth at the level of Arab countries, according to International Monetary Fund reports that expected the economic growth rate in Iraq to reach 9.5% during 2022 and 2023.Economists stress that Iraq needs to invest the financial surplus in the completion of large development projects, but with a delay in approving the budget for 2022, the investment of this money remains suspended.

The important investment accelerators are linked to the budget law for the year 2022, through the new investment spending doors and new investment programs, and not with the disbursement of 1/12 of the actual current expenditures in the year 2021. and he indicated that "the average oil revenues for the year 2022 will increase by no less than 60% of the revenues of oil exports for the year 2021, which means that there will be a large financial reserve available to the state at the end of the year that may exceed 40 billion dollars," noting that "Iraq has been placed at the forefront His priorities, which seek to enter the prospects of development and accelerated development, are to transcend the stage of the rentier economy or the mono-economy, as crude oil still constitutes the largest weight in the components of the gross domestic product.

The five-year and ten-year economic and social development plans are what determine the sectoral and overall growth rates to bring about a fundamental change in the contribution of the vital productive sectors other than the crude oil sector to the gross domestic product, which is called the diversification of the production structure of the overall economy.

The importance of changing production patterns and their components in employing labor and investing in national capital for the benefit of the real vital sectors, starting from maximizing the role of the agricultural sector in the gross domestic product and ending with the manufacturing industry and digital services, without forgetting that there is a major limitation on that diversification represented in by coherently undertaking investment in physical and institutional infrastructure.

The growth in the various sectors increases by a doubling rate whenever the rates of investment in the infrastructure of the economy increase, foremost among which are six sectors: electricity, water, transport, communications, education and health. Thus, nations progress on the basis that development management is joint between state programs and private sector programs in an integrated manner.

We can suggest the establishment of a fund or account concerned with the stability of the budget and fed annually with a percentage of the surplus oil revenues, to hedge against the risks of price fluctuations. increasing the cash reserves with the Central Bank to 90 billion dollars by the end of this year," noting that "the devaluation of the Iraqi dinar led to the preservation of foreign currency reserves with the Central Bank of Iraq after the low and critical levels that reached in the late year 2020".iraqi government expected that the continued recovery of oil prices will increase these reserves to more than 90 billion dollars by the end of 2022, which is a record level for Iraq," noting that "the depreciation of the Iraqi dinar against the US dollar in December 2020 contributed to the decline in demand." On the US dollar, while the current demand for the dollar is higher than the declines seen in 2020, it is much lower than the period before 2020 the total external and internal debts amount to more than 99 trillion dinars.

Oil is supposed to be directed to areas where the Iraqi economy suffers from a lack of funding, the most important of which is to bridge the deficit gap in the general budget, and to be directed to development purposes and improving the situation of the citizen, especially the health file, especially with the outbreak of the pandemic and the existence of phenomena suffocating hospitals, as well as providing expenses to meet the needs of the ration card and improve its quality.

The rise in oil prices can be called (the oil market uprising) due to three cases or problems that occurred in the oil market, which is the increased demand for fuel in Europe due to the decrease in European stocks by 11%, the withdrawal of the strategic oil stock by the United States of America, and the decline in exports to Kazakhstan, which is a member of OPEC. this increase represents successful and good indicators of reviving the Iraqi economy if it is used properly and correctly within the economic engineering in Iraq's oil policy, leading to the absorption of unemployment and the reduction of loans, which has become a burden on the Iraqi economy, the public budget and the Iraqi citizen in particular. it should follow the example of what some countries did by placing them within the strategy of supporting generations, as economists in oil policy tended to directly strengthen the sovereign fund of their countries," stressing "the need to take the right and proper measures in oil policy and achieve an increase in the economic system." In Iraq, as it is a fragile system, it does not adopt standards on how to use these increases so that they will be reflected on the Iraqi economy and citizens.

There is a new wave of high crude oil prices, and it is possible to invest this to break the financial constraint that prevents real economic development, and to invest large sums that can be allocated to activate the aspect." investment and the establishment of some strategic projects that generate goods and services and have an impact on achieving a qualitative leap for the Iraqi economy. the importance of working to establish a sovereign fund and a financial and economic buffer, because the rise in oil prices will not continue, and we will face in the coming years factors of a decline in prices, so this fund is important to maintain to ensure the future for future generations.

According to data of Iraqi ministry of finance , we can summarize the budget of Iraqi oil & gas sector in the Table 1 :

Table 1 – The budget of Iraqi oil& gas sector

Year	Budget(billions \$)
2015	15
2016	16.7
2017	15.1
2018	16.1
2019	18.5
2020	13.4
2021	11.5

Sources : prepared by Authors.

Now we can show the changes in the budget of Iraqi oil& gas sector as the following figure 1:

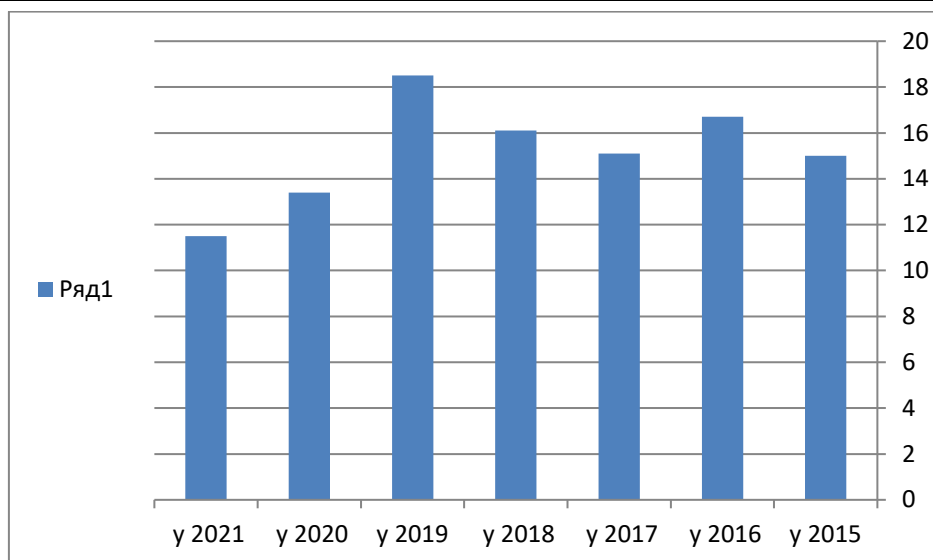


Fig. 1. Changes in the budget of Iraqi oil & gas sector

Sources: prepared by Authors

The planned budget for the energy sector (oil - electricity - dues of the Basra Gas Company) amounted to about 33,3 trillion Iraqi dinars in the 2021 year, and it constituted as a percentage of total spending about 25%, and the budget of the Ministry of Electricity amounted to about 17 trillion Iraqi dinars, mostly Current if it reaches about 14.3 trillion Iraqi dinars, of which 13.5 trillion is under the item of commodity requirements. As for capital, from the total, about 2.6 trillion dinars, and the budget of the Ministry of Oil amounted to about 15.1 trillion Iraqi dinars, most of which are dues for extractive oil companies included in the capital budget and amounted to about 13.6 trillion Iraqi, and the current oil budget amounted to about 2.5 trillion dinars. The problem of electric power in Iraq is represented in the asymmetry of demand and supply, especially in peak times, as Iraq needs approximately 28 gigawatts, which is available at peak times, with the total energy import not reaching nearly 18 gigawatts.

German company "Siemens" in the 2018 year offered Iraq a roadmap agreement to develop the electricity sector with a value of approximately 15 billion dollars, and in the 2019 year it was agreed with the two parties and as a first stage to award contracts worth 700 million euros, which includes the construction of a gas-powered electric power projects with a capacity of 500 megawatts in the Zubaidiya area, the construction of more than 13 stations and the supply of 40 gas turbines using cooling systems, and it pledged to provide more than 25 giga-watts 25,000 megawatts, i.e. 89% of Iraq's need for electric power at peak times, and the amount with the German Siemens is close to the budget of the Ministry of Electricity for the 2021 year only and not for all years of the general budget, so why did this agreement not continue. The experience of Egypt and its agreement with Siemens is not far away. Within 3 years, the company was able to build three stations, the largest in the company's history.

Siemens signed a deal worth the electricity problem is in large part an international and regional political one. Its motives are first, financial, and administrative corruption, and secondly, the failure to implement economic development plans and the disruption of the agricultural and industrial sectors so that the economy remains exposed to its foreign trade, which has a rate of openness of about 70%, and thirdly, social as a blazing fire every summer peak to ignite the Iraqi street.

Iraq needs a specialized company that addresses the problem of electricity radically, starting with structuring this sector, developing the current energy, and building additional stations to start the correct production process, and then addressing the transmission and distribution networks and dealing with energy losses. Its outputs, for example, are 20 megawatts, and here the energy sector loses about 10 megawatts, in addition to that, processing and restructuring the Ministry of Electricity and making it one of the (profitable) holding companies and setting up a system for collecting energy outputs, provided that the ministry provides capacities to meet the local demand to dispense with private generators and achieving self-sufficiency in this sector.

The experience of Iraq in the field of the oil industry is frustrating, although Iraq has been producing oil for nearly nine decades, but it has not succeeded in seriously initiating the export of that strategic resource in the form of oil products or derivatives, and it has not succeeded in the least in investing oil as a basic material that can be Thousands of recipes are extracted from it, which is the raw material for thousands of industries. The limited number of dilapidated refineries that are used to produce a limited number of oil products (quantitatively and qualitatively). The area of the oil industry has remained within its narrowest limits, which do not exceed its counterparts in the poorest countries in the world, including those that do not possess oil at all. What makes matters darker is the waste and corruption of oil wealth, as well as the manifestations of confusion, irrationality, and moodiness in making decisions and the policies adopted for the use and spending of oil revenues.

We can summarize the Main problems of Iraqi oil sector as following:

- 1) The insistence of a group of foreign oil companies that had wide concessions in the process of extracting and exporting Iraqi oil before the nationalization of oil in 1973, on exporting oil in crude form, and for considerations related to the unbalanced agreement that linked them to Iraq at that time.
- 2) The process of investment and development of the oil industries depended on a set of wrong administrative policies and irregular improvisational behavior, and a clear strategy was absent from it.
- 3) The deterioration of the pivot structure of the oil industries and their obsolescence, and this led to severe pressure on the energies of machinery and equipment in that sector with the intention of investing their energies to maximum limits without perpetuating or modernizing these equipment, and this matter made the pivot structure need billions of dollars to ensure the restoration of production energies, As for the refining and manufacturing capacities, it is an issue that requires another financial, temporal and technical horizon.
- 4) Investment in the oil industries is limited to national government projects, and the absence of other types of projects such as: local private sector projects, foreign private sector projects, joint projects between the government sector and the local and foreign private sectors.
- 5) The absence of a unified organizational strategy that combines the steps and decisions taken to develop this industry in specific time frames, quantity and digital marketing.
- 6) The lack of technical, technical and administrative training by the oil industry departments in a way that enhances its capabilities or provides it with new capabilities and skills.
- 7) The dispersion and scattering of the sites of the current industries and their lack of the necessary security protection for the management of work there.
- 8) A lot of advanced technical expertise that was working in the oil sector leaked to sectors unrelated to its specializations, or outside Iraq, despite the fact that all of these experiences have been spent huge amounts of money to train and refine their skills.
- 9) Weakness and failure to finance the development of the oil industries sector, and the prevalence of cases of administrative corruption.
- 10) Need for equipment to ensure continuity (and hence development).
- 11) Qualitative fluctuation, declining commitment to international quality standards, and the economy on producing products with backward and outdated quality specifications.
- 12) The oil industry's lack of a regular standard level of production (inconsistency in the qualitative level of production).

The first priorities of the oil policy in Iraq, is the reconstruction and rehabilitation of oil fields and facilities, the improvement of A new oil fields, the completion of exploration and oil exploration programs, the exploitation of natural gas in the widest economic sectors, the construction of new refineries for local consumption and export, training and rehabilitation of new oil owners, encouraging the local private sector, and emphasizing On the importance of legislating a clear and comprehensive petroleum law, which takes into account Iraq's great hydrocarbon potential, the state of destruction and neglect that befell that industry, and the scarcity of financial resources.

Methodology of solving the problems in Iraqi fuel & Energy Sector

The Iraqi government has prepared An "Integrated National Energy Strategy" by Company & Booz. International Advisory With the support of the World Bank, and under the supervision of a committee of advisors in the Council of Iraqi Ministers, in cooperation with each of the ministries (oil, planning, finance, industry and mining) and the environment to develop the energy sector (oil and natural gas) from year 2012 to year 2030 for increasing its production of Crude oil is widely used and developed to meet the stabilizing demand for oil.

Oil derivatives, as well as the development of facilities for the exploitation of natural and free natural gas during the development of gas fields discovered after concluding the necessary investment contracts with companies on providing employment opportunities and achieving huge financial returns for the Iraqi budget.

The energy strategy indicates that the development of the infrastructure of the energy sector (oil, gas, electricity) is an essential factor in achieving its goals, but the reality indicates the exact opposite. We indicate that the infrastructure of the energy sector is very underdeveloped, in the least developed and other efficient, lacks advanced technology, and urgently needs technical and financial investments. The purpose of developing it, as the wars and the accompanying deterioration significantly affected them after a year 2003 and destroy it. These actions have caused harm in many fuel and energy projects.

Problems may be including the smallest equipment, even the largest one of the gas and gas isolation stations in the oil fields, as its damages reached between 30-90% Oil pumping stations, production facilities and water pumping facilities whose damage rates ranged .nearly 90%, drilling equipment, generators, warehouses, workshops ,Spare parts, control and safety equipment, gasoline and LPG filling stations as well as the destruction of the infrastructure of the transmission towers of electric power and the problems of bypassing the network distribution and excessively high loads, which led to huge waste and energy losses electric power . as well as weak control and supervision over crude oil transmission lines and their exposure corrosion, leaching and problems of the crude oil extraction process, such as deterioration of quality specifications for crude oil and oil derivatives produced due to the lack of modern equipment and equipment, the lack of treatment of the pollutants present in the crude oil before they reach the ports, and the presence of cases of tampering and encroachment on pipelines, wells, installations and oil depots, bottlenecks in storage and pumping at sea berths, and low efficiency of the crude oil tanker, inaccuracy of measurement and control in the transportation and tuning of crude oil and its derivatives and differences It is clear between the quantities that are pumped and those that are received or maintained, as they are still Measuring devices for the quantities of oil produced and mandarin are not yet complete , that

The problem of the presence of sufficient storage capacities in the southern oil fields led to any delay or interruption in loading tankers in marine facilities due to weather conditions can lead directly to stop production.

Recommendations

We can show some of our recommendations to solve the problems of Iraqi fuel and energy:

1) Increasing the oil & gas production according to OPEC+ Agreement by attract foreign investments to the later industries sector, as the quantities of oil, the massive natural gas, which requires the government to establish refining facilities and petrochemicals and fertilizers, modernizing the existing ones, and working on developing the necessary plans to reduce production abroad by taking advantage of the cheap feedstock gas prices especially the natural gas. Iraq can if the security situation improves and the decrease in corruption indicators in it will attract international companies that aspire to invest in the subsequent conflicts of the production of natural gas, which constitutes a strong attraction to it.

- 2) Work to solve all problems in Iraqi fuel and energy sector by benefit from the experiences of the gulf cooperation council countries in dealing with foreign companies that invests in the oil sector and try to adopt the laws and legislation that it enacted and study of contracts entered into and their suitability with the oil and natural gas industry in Iraq.
- 3) Focus on Maintenance and protection of the northern and southern tandoor systems, in order to achieve required flexibility for tanning, and implementing projects related to the tanning system in ports and sites and the development of color and storage capabilities.
- 4) Investing the natural gas and stopping the waste of the burned gas that we represent a high percentage of the gas produced, if exposed this investment will yield a significant return by reducing imports of liquid gas to meet the local need and to meet the need dry gas electric power projects
- 5) Developing the electricity sector as an important and basic pillar for most of the activities and events that take place. It relies on it to a high degree in running the wheel of its production, so it is necessary to develop a new policy. It considers the country's conditions and its real needs through the adoption of plans to establish projects large power stations are distributed throughout the country through their reliance on turbines. the gas and thermal component, and the geographical distribution of power plants is linked to locations that provide fuel sources and the date of their completion are linked to the implementation of oil field and development projects and gas, and attention to the rehabilitation and training of cadres to carry out the necessary operation and maintenance work for high-efficiency electric power production units and encouraging the private sector to invest in electric power industry.

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