

Economic study of associated gas wastage and its potential investment in Iraq

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Abstract:

It aims This is amazing the study to analysis problem waste mystification companion in Iraq and statement Its effects Economic with spotlight light on Possibilities Available To invest in it In what Investigates Development Sustainable.I ate the study reality burn mystification companion in Iraq, And he highlighted Factors The performer to Its continuation like more production oil Don development parallel For the sector mystification, weakness ability Absorption For the economy, and absence markets Finance Advanced, addition to loss Transparency and planning Strategic.as I reviewed the study efforts exerted To limit from This is amazing The phenomenon, Especially role Projects investment and partnerships International, like project growth mystification Integrated, in Strengthening Abilities to treat mystification and reduce lineage Burning.And I concluded the study to that investment mystification companion It represents an opportunity Economic large from during Its use in generation Energy electrical and reduce Accreditation on Importing and increase Revenue Governmental, Please on reduction emissions harmful and investigation Sustainability environmental.as Confirmed Results that success This is amazing efforts Requires repairs Structure include development Structure Infrastructure, and strengthening Transparency, and improving environment Investment, And adopt Policies Integrated Management sectoral oil gas.

Keywords:Associated Gas, Gas Flaring, Gas Investment, Iraq, Economic Study.

دراسة اقتصادية لهدر الغاز المصاحب وإمكانية استثماره في العراق

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المستخلص:

تهدف هذه الدراسة إلى تحليل مشكلة هدر الغاز المصاحب في العراق وبيان آثارها الاقتصادية، مع تسليط الضوء على الإمكانيات المتاحة لاستثماره بما يحقق التنمية المستدامة. تناولت الدراسة واقع حرق الغاز المصاحب في العراق، وأبرز العوامل المؤدية إلى استمراره، مثل زيادة إنتاج النفط دون تطوير موازٍ لقطاع الغاز، وضعف القدرة الاستيعابية للاقتصاد، وغياب الأسواق المالية المتطورة، إضافة إلى نقص الشفافية والتخطيط الاستراتيجي. كما استعرضت الدراسة الجهود المبذولة للحد من هذه الظاهرة، ولاسيما دور المشاريع الاستثمارية والشراكات الدولية، مثل مشروع نمو الغاز المتكامل، في تعزيز قدرات معالجة الغاز وتقليل نسب الحرق. وتوصلت الدراسة إلى أن استثمار الغاز المصاحب يمثل فرصة اقتصادية كبيرة من خلال استخدامه في توليد الطاقة الكهربائية، وتقليل الاعتماد على الاستيراد، وزيادة الإيرادات الحكومية، فضلاً عن تقليل الانبعاثات الضارة وتحقيق الاستدامة البيئية. كما أكدت النتائج أن نجاح هذه الجهود يتطلب إصلاحات هيكلية تشمل تطوير البنية التحتية، وتعزيز الشفافية، وتحسين بيئة الاستثمار، وتبني سياسات متكاملة لإدارة قطاعي النفط والغاز.

الكلمات المفتاحية: الغاز المصاحب، حرق الغاز، الاستثمار في الغاز، العراق، دراسة اقتصادية

1. Introduction:

Oil and gas form the backbone of the Iraqi economy; however, Iraq ranks among the world's top countries in flaring associated natural gas during oil extraction. This waste not only represents a direct financial loss of potential export revenues, but also hinders the development of domestic petrochemical industries and deprives power plants of cheap and clean fuel, thus reinforcing the critical need for gas imports. Natural gas is considered a cleaner fuel with fewer emissions of polluting gases, in addition to being an important energy resource, whether mechanical or electrical, in the transport, industry and other sectors. Investing in this gas and transforming it from a discarded byproduct into a genuine economic resource is a "developmental imperative" for reducing dependence on crude oil revenues, creating jobs, and improving infrastructure. This research explores the technological and financial obstacles hindering gas investment and presents an investment feasibility study highlighting the future prospects for utilizing associated gas to enhance the efficiency of Iraq's energy sector.

2. Research problem:

Natural gas has strategic importance in the balance of political power of the state, but nonHis investment in Iraq over many years has turned it into a wasted fortune. The research problem focuses on Formulating the following question: (How can investment be made?) Associated gas And no waste in Iraq?

3. Definition of natural gas

It is a colorless gas composed of organic hydrocarbons and possesses diverse chemical and physical properties and a high rate of volatility. (Ahmed, 1983: 12) Chemically, it is composed of carbon molecules bonded due to temperature, which transforms microorganisms, algae, and protozoa that have formed over thousands of years into various hydrocarbons that make up 95% of natural gas molecules. There are different types of natural gas, and we will mention two of them:



conventional natural gas It is divided into two parts:

The associated gas is found in the oil reservoirs above or dissolved in the ground. This is where fields containing large quantities of crude oil are located. In fact, these fields also contain significant amounts of natural gas. Therefore, the amount of natural gas extracted depends on and is directly proportional to the amount of oil extracted. Most of this gas is isolated from the oil, and oil is added to the natural gas production. The gas dissolved in crude oil due to high pressure is called associated natural gas. Oil reservoirs are isolated during oil extraction from the well at normal atmospheric pressure. Reports indicate that each barrel of oil extracted is accompanied by an average of 1 cubic meter per barrel of natural gas. However, this can reach as high as 6.7 cubic meters per barrel in some wells, such as the Sarir field in Libya, 12.7 cubic meters per barrel in the Rawdatain field in Kuwait, and 19.8 cubic meters per barrel in some Iraqi fields. (Musa et al., 2013) Therefore, when extracting oil, the associated natural gas must be considered in light of economic feasibility data, local market demand, and export capacity to ensure optimal investment in this economic resource and avoid waste and environmental impacts resulting from leaks or flaring. It should be noted that associated natural gas in many oil fields remains a troublesome problem, especially in fields where the natural gas content is higher than the oil content. In these fields, gas is often flared, a practice now prohibited in many sectors. Furthermore, the costs of transporting natural gas by sea are high compared to land-based methods due to the unstable conditions in the high seas. (Damloji, 2011: 14).

Free natural gas is gas that can be obtained separately from deep gas wells, while crude oil is found in free reservoirs deep underground, mostly in the dry zone. Methane and ethane are the main components of free natural gas. Processing this type of gas is important and easier because its products are light and used in many petrochemical industries. As for cost, the highest cost comes from associated natural gas, which is a byproduct of crude oil extraction or oil refineries. (Mohammed and others, 2020: 1-19).

unconventional natural gas: The term "unconventional gas" refers to gases whose extraction costs exceed those of conventional methods used for the types mentioned above. While unconventional natural gas requires complex extraction processes and incurs higher costs than conventional gas, investors, through technological advancements, are working to overcome these obstacles and reduce extraction costs to make it economically viable and highly attractive to specialized companies. The total global reserves in 2020 were estimated at approximately 382 trillion cubic meters. (Mohammed and others, 2020: 20) The extraction process using hydraulic fracturing requires large quantities of water, sand, and chemicals, posing significant risks to human health. Pollution associated with this process is also higher than that of conventional gas extraction, and carbon dioxide emissions are significantly increased, making capture or storage costs prohibitively expensive. Furthermore, greenhouse gas

emissions, particularly methane, are high during the well-connection phase, causing environmental damage at a time when international organizations are increasingly calling for greenhouse gas reductions..

4.Natural gas properties:

1. The high calorific value of the gas:This is due to the physical and chemical properties of its compounds, which make it a suitable fuel for energy-intensive industries, including electricity generation. The thermal energy produced by natural gas, as a fossil fuel, is greater than that produced by coal or oil. A ton of oil produces 45 million British thermal units (BTUs), while coal produces 27 million BTUs, and natural gas produces 90 million BTUs. It is used in heavy industries as a fuel because they require high energy levels, such as iron and steel, aluminum, cement and brick manufacturing, and some chemical and processing industries. A study conducted by the French National Institute of Statistics and Economic Studies (INSEE) showed that energy costs in the iron and steel industry represent 23% of total production costs, a high energy consumption rate compared to other industries. Using natural gas in this case would achieve significant economic savings by reducing production costs.(Hassan, 2016: 6).

2. Natural gas is characterized by its rapid ignition and complete combustion, meaning it is free of environmental pollutants that could harm humans or other living organisms. The physical properties of its components and the emissions produced during combustion enable it to have a minimal negative impact on the environment. This is in response to evolving environmental concerns that are increasingly intertwined with economic factors and encompass various areas (such as sustainability costs). For example, the amount of carbon emitted by natural gas does not exceed 0.63 tons. (Al-Jurani, 2021: 44).

5.Natural gas components:

A mixture of gases, the proportions of which vary from place to place. Generally, the gases are predominantly methane, which is colorless and odorless. It may originate from plankton that accumulated in the oceans thousands of years ago. From these organic materials, natural gas is formed, which is similar to other conventional energy sources. It is formed when these organic materials and natural gas are present together deep within the Earth. This process also occurs in organic sedimentary layers buried at depths of 1000-6000 meters, where temperatures range between 10-15 degrees Celsius. Natural gas buried at even greater depths is composed of hydrocarbons such as methane, ethane, propane, and butane.(Sari, 2011: 120).

6.The concept of foreign investment:

There are many definitions of investment. Foreign direct investment has been mentioned by a number of political and economic researchers interested in investment, but for the sake of brevity we will limit ourselves to presenting three definitions for three specialized or related institutions or organizations on the subject of investment:(Al-Tamimi, 2006: 196):



Arab Investment Guarantee Corporation: Foreign direct investment is defined as long-term investments in which the owners have an active role in management and decision-making through permanent participation in the capital of the investment project. (Al-Tamimi, 2006: 196)

World Trade Organization (WTO): Foreign direct investment occurs when an investor residing in one country (the home country) owns a productive asset in another country (the host country) with the intention of managing it.

Secretariat of the United Nations Conference on Trade and Development (UNCTAD): Foreign direct investment is defined as investment that leads to a long-term relationship and reflects a permanent benefit and control of the foreign investor, or the parent company in a foreign branch located in a host country other than the one of which they are nationals. Foreign investment – according to UNCTAD – includes ownership of shares, capital, reinvested profits and loans from the parent company to subsidiaries in the host country, investments that lead to control of assets used in production abroad.

7. Types Foreign direct investment:

Foreign direct investment (FDI) takes many forms, reflecting the diverse objectives of investors. These include: investment focused on natural resources (stimulating exports of raw materials and imports of capital goods); investment focused on markets (as an alternative to exports to circumvent import restrictions and transportation costs); investment focused on operational efficiency to maximize profitability; and finally, investment focused on strategic assets to develop research and development and export skilled labor (Al-Tamimi, 2006: 197). While Middle Eastern countries strive to attract investment to achieve development goals by relying on their basic resources without sufficient emphasis on technology localization (Ismail, 1988), the transfer of advanced technology may not always be the optimal goal for host countries, especially if the resulting economic or environmental burdens intensify (Al-Tamimi, 2006: 198). This is particularly relevant given the historically significant decline in investments targeting natural resources due to modern industries' reliance on reducing raw material inputs.

8. Why do countries resort to attracting foreign investment?

Developing and transitional countries resort to attracting foreign direct investment (FDI) to bridge the "savings gap" and address the national economy's inability to provide the necessary hard currency and capital liquidity. Furthermore, FDI plays a role in supporting economic growth by increasing productive efficiency, generating added value, and creating job opportunities (Al-Tamimi, 2006: 198). FDI also contributes to stimulating domestic investment and boosting non-traditional exports (Hassan, 2016: 6), in addition to transferring advanced technology, management systems, and marketing practices to other sectors through emulation. This trend has increased globally since the early 1990s through economic liberalization policies and structural reforms (as seen in the experiences of China, Hungary, and Ireland), which have



demonstrated that a stable investment climate and a sound legal and political environment are the primary drivers for attracting capital, rather than simply an abundance of natural resources.

9.Does Iraq need foreign investment?

The Iraqi economy faces severe structural crises that make attracting foreign investments an inevitable necessity. These crises are represented by the weakness of capital accumulation and investment allocations as a result of low skills and deteriorating security conditions (Ministry of Planning, 2005), the high rates of apparent and disguised unemployment and the inability of the bloated public sector to absorb graduates (Al-Hafiz, 2004; Al-Badri, 2002: 184), in addition to the weakness of exports and the dominance of oil rents at a rate of 93% (Al-Jalabi, 2005: 123), the severe weakness in the branches and capabilities of banking institutions and technical personnel (Al-Hafiz, 2004: 19), as well as the phenomenon of the flight of national capital as a result of the absence of security and stability and the severe deterioration of the basic infrastructures as a result of wars and the embargo (Al-Jalabi, 2005: 123). To overcome these imbalances and keep pace with the market economy, the legislative environment in Iraq moved through a package of reform decisions issued by the Coalition Provisional Authority (such as decisions 37, 39, 40), which culminated in the Iraqi government issuing the Foreign Investment Law No. 13 of 2006 to provide the legal foundations that attract capital (Al-Badri, 2002: 184)..

10.Flaring of associated gas in Iraq

Iraq has been flaring large quantities of associated gas for over a decade, ranking third globally in 2023 after Russia and Iran. Approximately 17.7 billion cubic meters of associated gas were flared in 2023, in addition to an estimated 3.3 billion cubic meters of methane lost due to leaks and incomplete combustion. Data shows that about 16.3 billion cubic meters of this flared gas originated from fields managed by the federal government through the Iraqi Ministry of Oil, while approximately 1.4 billion cubic meters came from fields located within the Kurdistan Region, which are managed independently. Compared to most countries, Iraq's gas flares are large, with an average flare volume of about 9 million standard cubic feet per day.(Bernstein et al., 2025)The figure shows(1)Annual gas flaring volumes in Iraq (including the Kurdistan Region, alongside oil and condensate production, as oil production is the primary driver of gas flaring) are calculated. Flaring intensity, i.e., the amount of gas flared in cubic meters per barrel of oil and condensate, has remained relatively stable over the past decade, but is still more than double the global average of 4.9 cubic meters per barrel.(Bernstein et al., 2025) Table (1) can be seen, which showsIndicators of oil production and associated gas investment in Iraq (2020-2025)

Table (1) showsIndicators of oil production and associated gas investment in Iraq (2020-2025)

Burning	Waste	Gas	Gas flared	Total	Crude	oil	Year
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density (m3/barrel)	(burning) percentage %	invested (mcf/day)	(mcf/day)	associated produced (mcf/day)	gas production (million barrels/day)	
10.8	54.4%	1,280	1,530	2,810	3.99	2020
11.1	54.5%	1,340	1,610	2,950	4.10	2021
11.0	55.7%	1,380	1,740	3,120	4.45	2022
10.2	48.4%	1,650	1,550	3,200	4.30	2023
9.5	41.7%	1,950	1,400	3,350	4.15	2024*
7.4	32.8%	2,350	1,150	3,500	4.40	2025*

Source prepared by the researchers: Based on World Bank data and oil price indicators, available <https://data.albankaldawli.org/>

As shown in Table (1), there is a gradual shift in the strategy for managing associated gas. While the period (2020-2022) was characterized by a strong direct correlation between increased oil production and increased gas flaring, this correlation began to weaken in 2023. This is clearly demonstrated by the rise in the volume of gas being utilized from (1,280 million cubic feet per day) in 2020 to promising projections of (2,350 million cubic feet per day) in 2025, reflecting an improvement in the efficiency of the gas separation and processing infrastructure. The year 2022 saw the highest levels of gas flaring and waste in history, with the amount of gas flared reaching 1,740 million cubic meters per day (MMcf/day), representing a waste rate of 55.7%. This increase is attributed to the significant surge in oil production (4.45 million barrels/day), which was not matched by sufficient capacity in gas processing plants, resulting in the loss of a vast gas resource that year. The table shows that this index recorded its highest levels in the year. In 2021, production reached 11.1 m³/barrel, then began to decline, reaching its best projected level in 2025 at 7.4 m³/barrel. This narrative decline confirms that Iraq is moving towards cleaner and more efficient oil production, where larger quantities of associated gas are recovered for every barrel of oil extracted. The figures in the table above show that the gap between gas produced and flared still represents a significant opportunity cost. Despite the noticeable improvement, if the flaring rate remains at approximately 32.8% in 2025, it means that quantities that could cover a significant deficit in the electricity sector and reduce reliance on imported gas will continue to be wasted.

On the other hand Gas flares in Iraq are mainly concentrated in a number of large fields located in the Basra region. The figure shows (1) These fields are located in the southeast of the country, near the Arabian Gulf, which is the main outlet for Iraq's oil exports.



Source: Capterio FlareIntel; World Bank.

Shape(1)A map showing the locations of gas-flaring fields in Iraq, with additional details on flaring in the seven main fields covered in the case sty, the 1.4 billion cubic meters flared were separated from the production of the Kurdistan Region of Iraq.

Table (2) shows theThe economic value of associated gas investment opportunities in Iraq (2020-2025)

Cost of importing alternative gas (billion dollars)***	Lost electrical power (megawatts)**	Estimated value of annual waste (billion dollars)*	Gas flared (mcg/day)	Year
1.8	5,100	2.5	1,530	2020
2.1	5,300	3.2	1,610	2021
3.5	5,800	5.1	1,740	2022
3.2	5,100	4.2	1,550	2023
2.8	4,600	3.8	1,400	2024**
2.2	3,800	3.1	1,150	2025**

Source prepared by the researchers: Based on World Bank data and oil price indicators, available<https://data.albankaldawli.org/>

We observe through analysisDataaboveThe Iraqi economy faced a dual challenge during the period (2020-2022); while oil production was increasing, the amount of gas being flared was consuming a significant portion of the economic viability of the extractive sector. The figures reveal that in [year]2022 This represented the peak of "missing economic costs," with the estimated value of annual waste reaching approximately5.1 one billion dollarsThis figure does not just represent a financial loss, but embodies a "missed opportunity" that could have been invested in financing major development projects or reducing reliance on external borrowing to cover the budget deficit. In the energy sector, the analysis reveals a sharp gap between available potential and actual reality; while Iraq suffered from a chronic shortage of electricity, flares in oil fields were wasting energy capable of generating more than5800 megawatts in 2022 alone. This narrative contradiction illustrates that the electricity crisis in Iraq is not just a production crisis, but a crisis of managing primary resources, as ideal fuel for power plants is burned in the open air, while the state is forced to spend huge sums (reaching \$3.5 billion in 2022) to import alternative gas across the borders. With the transition to the next phase (2023-2025), the features of the economic transformation began to appear in the language of numbers; we observe a gradual decline in the amounts spent on gas imports, with estimates dropping towards\$2.2 billion by 2025. This decline is not just an accounting figure, but a reflection of the success of gas investment projects in replacing the imported resource with the national resource, which contributes to easing the

pressure on the central bank's hard currency reserves and improves the balance of payments.

During the analysis of Table (2) The gas sector in Iraq has transitioned from being an "environmental and financial burden" to an "economic engine" that is now being activated. However, projections for 2025 still indicate losses amounting to...\$3.1 billion, but the downward trajectory of lost values confirms that investing in gas infrastructure is the surest path to achieving energy sovereignty, and transforming the oil sector from a purely extractive sector to an integrated sector that maximizes added value and reduces the drain on public funds.

11. Integrated Gas Growth Project

In 2021, after four years of turmoil, Iraq began moving forward with a large, integrated project aimed at significantly increasing its associated gas processing capacity, as well as meeting other investment needs in southern Iraq. (Bernstein et al., 2025)

Integrated Gas Growth Project in Southern Iraq

This project represents a significant leap forward in oil policy. Its first phase aims to process 300 million standard cubic feet per day (MMscfd) of associated gas from the West Qurna 2, Majnoon, and Artawi fields, with expansion plans to increase processing capacity to 600 MMscfd in the second phase, encompassing additional fields. It also includes the establishment of infrastructure for exporting natural gas liquids (Bernstein et al., 2025). In addition to gas processing, the project encompasses the construction of a major seawater treatment plant with a capacity of 2.5 million barrels per day (bpd) to replace and release fresh water and maintain reservoir pressure. It also includes upgrading production at the Artawi oil field from 60,000 to 210,000 bpd and constructing a 1 GW solar power plant to address electricity shortages in southern Iraq (Al-Tamimi, 2006: 211). The project received high-level French-Iraqi political support, culminating in final binding agreements in August 2021 at a total cost of \$27 billion. This was followed by a restructuring of investment shares in July 2023 to settle at 45% for Total Energies as operator, 30% for Basra Oil Company, and 25% for Qatar Energy.

12. Gas flaring in the fields covered by the project

When the Integrated Gas Growth Project comes into operation, the project will collect and process associated gas from two of Iraq's largest flaring fields, Majnoon and West Qurna 2, along with developing oil production in the Artawi field with the aim of eliminating routine gas flaring. The West Qurna 2 field recorded flares of approximately 1.8 billion cubic meters in 2023, followed by a significant 70% decrease in 2024 in response to the shutdown of some flares or maintenance of their operational efficiency, despite increased production by Lukoil (Ismail, 1988). The Majnoon field (operated by Basra Oil Company as a balancing field to comply with OPEC quotas) experienced flares of 0.5 billion cubic meters in 2023, with clear fluctuations in shutdown and restart rates.

Meanwhile, the Artawi field recorded flares of 0.3 billion cubic meters, coinciding with maintenance periods and the transfer of operational responsibilities to Total Energies (Hassan, 2016: 6). A 50 million standard cubic foot pre-processing unit was already commissioned at the end of 2025, followed by the awarding of a \$1.7 billion engineering, procurement and construction contract to China Petroleum Construction in April 2025 to prepare pipelines and facilities for full main operation in 2028.

As for AThe project's developmental impact and the radical shift in Iraq's energy approachIt was representedThis represents a genuine and radical departure from the failures and missteps of previous projects, which were characterized by disorganization and reliance on non-binding memoranda of understanding that quickly collapsed (Hassan, 2016: 6). The strategic advantage of this project lies in its foundation on binding legal and executive frameworks, supported by a strong joint leadership commitment from the Ministry of Oil, Total Energies, and the Prime Minister's office. This ensures a qualitative shift in the structure of the national economy. The project's major benefits include reducing carbon emissions and greenhouse gases, achieving substantial financial savings of billions by reusing recovered gas to power local electricity plants, reducing energy imports, and enhancing the overall efficiency of the national energy system while ensuring the sustainability of Iraq's oil and gas sector.

13. Conclusions:

He suffers Economy Iraqi from weakness in ability Assimilation, a result loss Factors Support like Structure Infrastructure and cadres Artistic, Which Limit from attract Investments foreign And it increases from cost Projects.

Suffering the environment investment in Iraq from loss clear in Transparency, The matter that hinders Taking decisions investment minute And it increases from degree risk.

It is burn mystification companion from Most prominent Challenges in sector Energy, where It continues Iraq Loss quantities large from mystification, despite Availability Opportunities Economic large To invest in it.

It was linked more burn mystification High production Oil, Which It indicates on absence integration between Policies production oil and management mystification companion.

I achieved a company gas Basra Progress partially in reduction Burning, unless that Results what Still Don Level Required because of Limitations ability Absorption and challenges Finance.

14. Recommendations:

necessity Strengthening ability Absorption For the economy Iraqi from during development Structure Infrastructure Providing Staff Artistic Eligible To support Projects investment.

the job on stability Economy The whole from during control on Rates inflation and investigation stability monetary Enhances trust investors.



development markets Finance Iraqi and increase Its efficiency To be Capable on finance Projects The Great And attracted Investments foreign.

Hurry in to implement projects to treat mystification The companion, Expanding Abilities Treatment To limit from waste and investigation Benefit Economic.

investigation integration between Policies production oil and management mystification, To ensure reduction Burning and increase efficiency to exploit **Resources.**

15. Sources and References

Second: Sources in Arabic

➤ union banks Arabic(2004),June).changing...openness...development.magazine union banks Arabic,(283),21.

➤ Ahmed, Mohammed Hamid, Ahmed, Mohammed Abbas, Al-Ma'mouri, slave High.Don year to publish).reference former(p20).

➤ Al-Badri, Qais righteous(2002).calendar activity Banking Private in Iraq.in Research and discussions Conference Scientific the third For the section Studies Economic(p184).Baghdad:house Wisdom.

➤ Bernstein, Andrew, Davis, Mark, Metro, Tom, And Toledano, Perrin(2025).the job To limit from burn mystification companion:Opportunities True, projects True, results Real.study condition burn mystification in Republic Iraq(Iraq Federal) (birthday Al-Nawfali, translator).center Statement For studies and planning.

➤ Al-Tamimi, Sami slaves(2006).Investment foreigner Live in Iraq:reality and challenges with look especially law Investment foreigner For the year2006.magazine The stranger For science Economic And administrative, university Basra, college Administration and the economy.

➤ Jabbar, Reham Star(2024).repercussions Economic waste mystification companion in Iraq and ways Correct it To achieve Development Sustainable in Iraq For the duration(2004-2007) [research graduation notpublication].university Maysan, college Administration and the economy.

➤ Al-Jalabi, Essam(2005), October).oil and politics oil in Iraq.in program For the future Iraq after ending occupation(p123).Beirut:center studies Unity Arabic.

➤ The Guardian, Mehdi(2004),17–19March).Missions Challenges re Reconstruction in Iraq[paper introduction].conference Beirut around re Reconstruction Iraq, Beirut, Lebanon.

➤ The Guardian, Mehdi(2004),29December).a lecture around re Reconstruction Iraq[a lecture].seminar The organization from before council Business Iraqi room commerce Dubai, nation The UAE Arabic United.

➤ Hassan, Kazim slave The Giver, Hadiri, rightly guided slave rightly guided(2016).industry Energy Electric in Iraq(Edition First).house Al-Waddah For publication.

➤ Sari, victory Religion(2011).strategy promotion Efficiency Usability For wealth Gas in framework principles and goals Development Sustainable:study



Applied on sector mystification Algerian[message Master's].university Farhat, college the sciences Economic Science Commercial and sciences Management.

➤ For Damluji, morning friend.Don year to publish).technique transformation mystification to Liquids and its returns Economic and its effect on industry oil.magazine oil Cooperation Arabic, organized Countries Arabic Source oil(OAPEC),33(122),14.

➤ Mohammed, Mohammed Hamid, Ahmed, Mohammed Abbas(2020).mystification natural:Geopolitics conflicts Next(Edition First).Library Jordanian Hashemite.

➤ My guide, Ibrahim(2019).Economics wealth petroleum:Economy Egyptian For example For study.Alexandria, Egypt.

➤ Musa, Maher Yaaqoub, Hassan, escape Abbas(2013).importance Use mystification natural in production Energy Electric in Iraq.Printing press Baghdad.

➤ Noor Religion, Ahmed(1977).practical Refining and its products:basics industry oil gas(Part the first).Publications organized Countries Arabic Source For oil, Kuwait.

➤ ministry Planning Cooperation development(2005).strategy Development Nationalism2005-2007.Baghdad, Iraq.