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Reality and prospects of fuel demand growth in Algeria - a forward-looking analytical study for the period 2012-2030

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Abstract:

This research paper aims to analyze the situation of the fuel market in Algeria, by addressing the volume of liquid fuel production (gasoline and diesel), the applicable local prices compared to production costs, as well as the reality of the various refineries and future production prospects in light of the increasing domestic demand for fuel.

This study concluded that the demand for fuel in Algeria will increase significantly in the horizons of the year 2030, due to the expansion of the car park. Increasing industrial and agricultural demand for fuel. Demand may decline after 2030 due to the state's tendency to support electric cars. Orientation towards investments with low consumption of fossil energy.

Keywords: *Energy, fuel, fuel market, fuel price*

Jel Classification Codes : *Q400; Q410; Q470.*

ملخص

تهدف هذه الوقة البحثية إلى تحليل وضع سوق المحروقات في الجزائر، من خلال التطرق الى حجم انتاج الوقود السائل (البنزين والديزل)، والاسعار المحلية المطبقة مقارنة بتكاليف الانتاج، وكذلك واقع محطات التكرير المختلفة وآفاق الانتاج المستقبلية في ظل تزايد الطلب المحلي على الوقود.

وقد خلصت هذه الدراسة إلى أن الطلب على الوقود في الجزائر سيزداد بشكل معتبر خلال السنوات القادمة وحتى آفاق سنة 2030، بسبب توسع حظيرة السيارات وزيادة الطلب الصناعي والزراعي على هذه المواد الحيوية، وقد ينخفض الطلب بعد سنة 2030 بسبب توجه الدولة الى دعم السيارات الكهربائية والاستثمارات قليلة استهلاك الطاقة الأحفورية.

الكلمات المفتاحية: الطاقة، الوقود، سوق المحروقات، سعر الوقود

تصنيف JEL: Q400، Q410، Q470.

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Introduction

Algeria is a significant player in the fuel market, being the sixth-largest natural gas producer and the ninth-largest oil producer in the world. The country's economy heavily relies on the oil and gas sector, which contributes to around 60% of its total budget revenue and 94% of its exports revenue. However, Algeria has been facing challenges in recent years due to the global energy transition towards cleaner and renewable energy sources, as well as declining oil and gas prices.

In terms of the fuel market, Algeria has a relatively small domestic market, with most of its production being exported to other countries. The country's fuel consumption is mainly driven by transportation, with a growing demand for natural gas as a fuel for power generation.

To address the challenges and adapt to the changing global energy landscape, Algeria has been taking steps to diversify its economy and energy mix. The country is investing in renewable energy, particularly solar and wind, and has set a target to generate 27% of its electricity from renewable sources by 2027. Algeria is also exploring the potential of shale gas and has signed agreements with international companies for shale gas exploration and production.

In terms of prospects, Algeria's fuel market is expected to face continued challenges as the global energy transition towards cleaner and renewable energy sources continues. However, the country's vast reserves of oil and gas provide opportunities for continued production and exports, particularly to emerging markets in Africa and Asia. Algeria's efforts to diversify its economy and energy mix also provide opportunities for investment in renewable energy and other sectors.

Overall, the reality and prospects for the development of the fuel market in Algeria are influenced by various factors, including global energy trends, domestic demand, and government policies. While challenges remain, Algeria's energy sector has the potential for continued growth and development in the coming years.

Problematic:

Based on the foregoing, the following problem was raised:

What are the challenges and prospects for the fuel market in Algeria?

Hypotheses:

The fuel market in Algeria suffers from a structural crisis related to government support, and its future prospects are marred by many difficulties.

Objectives:

Through this research, we aim to:

- Analysis of the reality of the fuel and fuel market in Algeria.

- Determining the volume of production and consumption of liquid fuels in Algeria.

- Refining stations and prospects for their development.

- Future prospects for the fuel market in Algeria in light of the increasing demand for it, especially in the transportation sector.

Methodology:

- In this research, we relied on the descriptive approach to understand the concepts and try to analyze them

1- The situation of total energy consumption in Algeria

Algeria is a significant energy producer and exporter, with a diversified energy mix that includes oil, gas, and renewable energy sources. In terms of total energy consumption, oil and gas are the primary sources of energy, accounting for nearly all of the country's energy consumption. According to the International Energy Agency (IEA), Algeria's total primary energy supply in 2019 was 63.7 million tonnes of oil equivalent (Mtoe), with oil and gas accounting for 96% of the total. Renewable energy sources, including hydro, wind, and solar power, made up the remaining 4% of the total energy mix. (EIA, 2023, p. 2)

As a major energy exporter, Algeria has focused on expanding its domestic energy infrastructure to meet the growing demand for electricity and fuel. In recent years, the country has invested heavily in renewable energy, with a goal of producing 27% of its electricity from renewable sources by 2030. Algeria is also working to increase its domestic refining capacity to reduce the need for fuel imports and promote energy security. Despite these efforts, the country still faces significant challenges in meeting its energy needs, including the need to diversify its energy mix, improve energy efficiency, and address infrastructure limitations.

***Table 01**: The evolution of total energy consumption in Algeria 2012-2023 (Exajoules)*

year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	*2023
Consumption	1,58	1,67	1,83	1,93	2,11	2,22	2,22	2,25	2,42	2,50	2,36	2,46

***Source**: bp Statistical Review of World Energy June 2022*

Table No. 01 shows the evolution of total energy consumption in Algeria from 2012 to 2023 (in Exajoules).

The data indicates that the total energy consumption in Algeria has been increasing steadily over the years, with a slight decline in 2022, followed by a slight increase in 2023. In 2012, the total energy consumption was 1.58 Exajoules, which increased to 2.46 Exajoules in 2023.

Between 2012 and 2016, the increase in energy consumption was relatively slow, but it accelerated significantly from 2016 to 2019, reaching a peak of 2.25 Exajoules in 2019. This increase can be attributed to the growth in population and the expanding economy, which created a higher demand for energy.

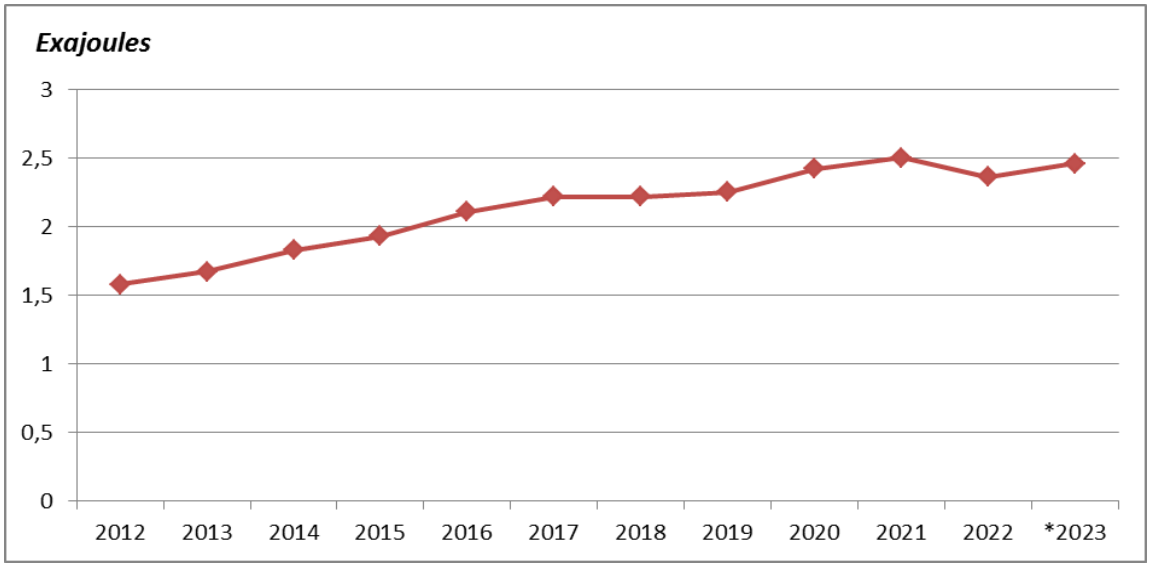
However, the COVID-19 pandemic in 2020 led to a decrease in energy consumption to 2.42 Exajoules, which can be attributed to the decline in economic activity and travel restrictions. The pandemic's impact continued in 2021, with a total energy consumption of 2.5 Exajoules. (IEA, 2020, p. 23)

The slight decline in energy consumption in 2022 can be attributed to the government's efforts to reduce energy consumption and transition to more sustainable sources. It is expected that the total energy consumption will continue to increase in the future with the recovery of the economy and population growth.

In conclusion, the table shows that Algeria's total energy consumption has been increasing over the years, and the country needs to focus on developing alternative and sustainable energy sources to meet the growing demand and ensure a sustainable future.

The following figure translates the data of the above table regarding the development of energy consumption in Algeria.

***Figure 01**: Growth of total energy consumption in Algeria 2012-2023*



***Source**: bp Statistical Review of World Energy June 2022*

The evolution of energy consumption in Algeria depends on several factors, including population growth, economic, industrial, and social development. Algeria has witnessed significant changes in energy consumption over the past years.

In recent years, efforts have been made to develop the energy sector in Algeria and diversify its sources, including solar, wind, and natural gas energy. In this regard, Algeria adopted a fuel price liberalization policy in 2016 to increase energy efficiency and improve sustainability.

However, energy consumption in Algeria remains high, as the country heavily relies on fossil fuels for electricity generation and industrial operations. It is expected that energy demand will increase in the future with population and economic growth and increasing demand for electricity.

Therefore, Algeria needs to work on developing alternative energy sources, improving energy efficiency, and encouraging innovation in this field. Modern technology and digital transformations can play an important role in improving energy consumption and increasing its efficiency.

2. Analysis of the evolution of liquid fuel consumption in Algeria

According to data from the Algerian Ministry of Energy and Mines, the consumption of liquid fuel in Algeria has increased significantly over the past decade, particularly in the transportation sector.

According to the National Energy Report for 2019, liquid fuel consumption in Algeria reached 7.5 million tons in the same year, increasing by 20% over the

last decade. Transportation is the main sector consuming liquid fuel in Algeria, where liquid fuel is used in about 97% of land transport.

Data indicates that the transportation sector primarily uses diesel fuel, which represents about 83% of liquid fuel consumption in land transport, while gasoline is used in about 16%. (AMEM, 2021, p. 12)

Algeria is currently seeking to develop alternative and sustainable sources of energy to reduce dependence on fossil fuels. Programs and plans have been adopted to improve fuel consumption efficiency in the transportation sector, such as developing public transportation systems and transitioning to the use of electric and hybrid cars.

The high consumption of liquid fuel in Algeria represents a significant challenge as it leads to increased reliance on fossil fuels and environmental pollution. In addition to this, the consequences of high liquid fuel prices negatively impact the country's economy and the lives of its citizens.

To tackle this challenge, Algeria is currently seeking to improve fuel consumption efficiency in the transport sector and diversify energy sources. In this regard, a program has been launched to develop public transport in Algeria, aimed at improving the services provided and providing clean and cost-effective means of transportation. (eia, 2021, p. 23)

On the other hand, the shift towards using electric and hybrid cars in the transport sector is seen as a possible solution to reducing liquid fuel consumption and harmful environmental emissions. The Algerian government has launched a program to encourage the use of electric cars, aimed at improving the necessary infrastructure for operating these cars in Algerian cities.

The transport sector in Algeria represents a significant part of the national economy, and therefore improving fuel consumption efficiency and diversifying energy sources is a vital matter for maintaining the sustainability of the national economy and preserving the environment.

***Table 02**: Evolution of liquid fuel consumption in Algeria 2010-2022*

year	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	*2016*	*2017*	*2018*	*2019*	*2020*	*2021*	*2022*
Consumption	*13,8*	*14,3*	*15,2*	*16,1*	*17,3*	*15,6*	*14,5*	*15,6*	*15,2*	*15,6*	*15,3*	*14,6*	*15,2*

Source:

- U.S. Energy Information Administration. "Algeria." Country Analysis Brief. Washington, D.C., August 2021, p. 2.

- Organisation of the Petroleum Exporting Countries. "Algeria." Annual Statistical Bulletin 2021. Vienna, Austria, 2021, p. 194.

- International Energy Agency. "Algeria." Energy Policies of IEA Countries: Algeria 2017 Review. Paris, France, 2017, p. 45.

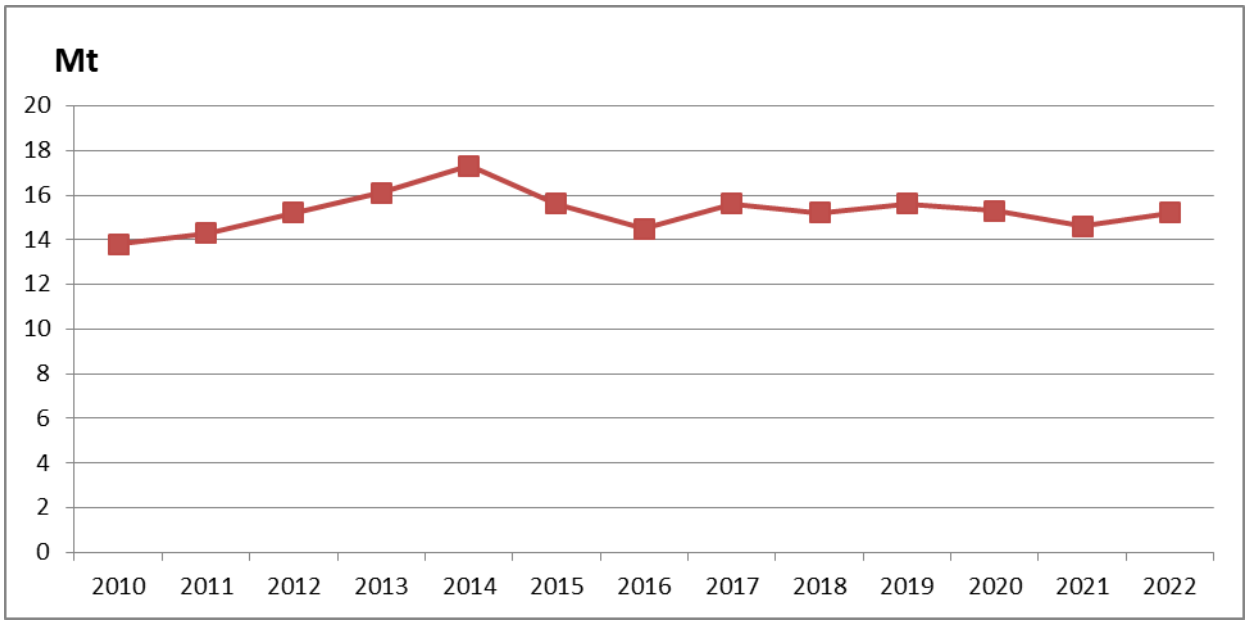
The above table illustrates the development of liquid fuel consumption in Algeria during the period from 2010 to 2019. The table shows that liquid fuel consumption in Algeria was steadily increasing from 2010 until 2014, where the amount consumed increased from 13.8 million tons to 17.3 million tons, at an annual rate of approximately 5%.

Afterwards, the consumption of liquid fuel in Algeria declined in the following years, as it fell to 15.6 million tons in 2015 and decreased to 14.5 million tons in 2016. However, it recovered again to 15.6 million tons in 2017 and 2019. (OPEC, 2021, p. 194)

The increase in liquid fuel consumption between 2010 and 2014 was a result of the economic expansion that Algeria experienced during that period, which increased government spending and investments in sectors such as roads, transportation, and commerce. (IEA, Energy Policies of IEA Countries: Algeria 2017 Review, 2017, p. 45)

In the following years, Algeria witnessed a decline in liquid fuel consumption due to the slowdown in economic growth, changes in government and economic policies, which led to a decline in economic growth, government spending, and investments in some sectors such as transportation, energy, and infrastructure.

***Figure 02**: Evolution of liquid fuel consumption in Algeria 2010-2022*



***Source**: Based on Table No. 02*

Liquid fuel consumption in Algeria is heavily dominated by diesel and gasoline, which together account for more than 95% of total consumption throughout the period of 2010 to 2019.

Furthermore, the decline in liquid fuel consumption from 2015 to 2016 coincides with the drop in global oil prices during that time period, which may have contributed to the reduction in consumption as the government attempted to curb spending.

It is worth noting that the Algerian government heavily subsidizes the prices of liquid fuels, which has resulted in a significant financial burden on the state budget. In recent years, the government has taken measures to reduce subsidies and increase the prices of liquid fuels, which may lead to a further decline in consumption in the future.

In conclusion, the table highlights the significant impact of economic growth, government policies, and global oil prices on the consumption of liquid fuels in Algeria. It also sheds light on the country's heavy dependence on diesel and gasoline and the government's efforts to reduce subsidies on liquid fuels.

3- Analysis of fuel demand in the transportation sector in Algeria

The transportation sector is considered one of the most important sectors that rely on fuel in Algeria, and it accounts for approximately 80% of the total fuel consumption in the country. Statistics indicate that the demand for fuel in the transportation sector has increased at a rate ranging between 5% and 7% annually in recent years, and it is expected to continue growing in the near future due to population growth and economic development. (WB, 2020, p. 19)

The transportation sector in Algeria includes various means of transportation, including cars, buses, trucks, ships, and airplanes. There are several companies operating in this sector, including Algerian Transport Company, Land Transport Company, and Air Algerie.

***Table 03**: Evolution of fuel demand in the transport sector 2012-2022*

Year	Fuel Quantity (in thousands of liters)
2012	21,726
2013	22,186
2014	22,287
2015	22,181
2016	21,819

2017	22,068
2018	22,207
2019	22,369
2020	20,604
2021	20,901
2022	21,265

Source: OPEC, Annual Statistical Bulletin 2022.

The table above shows the amount of fuel consumed in thousands of liters for the years 2012 to 2020. Here is a detailed analysis of the statistics:

Overall trend: There seems to be a slight fluctuation in the fuel consumption trend over the years. The fuel consumption increased from 2012 to 2015, decreased from 2015 to 2016, and then remained relatively constant from 2016 to 2020.

Peak and low points: The peak year was 2019, with 22,369 thousand liters of fuel consumed, while the lowest year was 2020 with 20,604 thousand liters of fuel consumed.

Year-to-year changes: There are some interesting year-to-year changes in the fuel consumption. For example, there was an increase of 460 thousand liters from 2012 to 2013, but only an increase of 101 thousand liters from 2013 to 2014. In 2015, the fuel consumption decreased by 106 thousand liters compared to the previous year, but then increased by 249 thousand liters in 2016.

Possible factors: There are several factors that could explain the fluctuations in fuel consumption. One possible factor is the economic situation in the country, as a stronger economy may lead to more fuel consumption. Another factor is the development of alternative energy sources, which could reduce the reliance on fossil fuels and decrease the fuel consumption. (GECF, 2021, p. 49)

In conclusion, the data shows that there has been a slight fluctuation in the fuel consumption trend over the years, with the peak year being 2019 and the lowest year being 2020. Further analysis would be required to determine the factors driving these fluctuations.

4- Total energy production in Algeria

Algeria is one of the largest energy producers in Africa, with a well-established oil and gas industry. According to the International Energy Agency (IEA), Algeria's total primary energy production in 2019 was 143.3 million tonnes of oil equivalent (Mtoe), making it the third-largest energy producer in Africa after Nigeria and Egypt. (IEA, 2020, p. 36)

Oil and gas are the primary sources of energy production in Algeria, accounting for nearly all of the country's energy production. In 2019, oil production was 1.4 million barrels per day (b/d), while natural gas production was 136.8 billion cubic meters (bcm). Algeria also has significant renewable energy potential, particularly in solar and wind power, and has recently focused on developing its renewable energy sector. In 2019, renewable energy sources, including hydro, wind, and solar power, accounted for 0.4% of Algeria's total primary energy production. (ADB, 2021, p. 49)

Algeria's energy production plays a vital role in its economy, accounting for a significant portion of its exports and government revenue. However, the country faces challenges in maintaining and expanding its energy production capacity, including the need to attract foreign investment and address infrastructure limitations.

The table below shows the total energy production in Algeria for the period from 2014 to 2022, measured in million tonnes of oil equivalent (Mtoe):

***Table 04**: The evolution of total energy production in Algeria 2012-2023*

Year	Total Energy Production (Mtoe)
2014	137.9
2015	143.9
2016	152.4
2017	155.6
2018	159.1
2019	154.4
2020	152.5
2021	150.5
2022	152.6

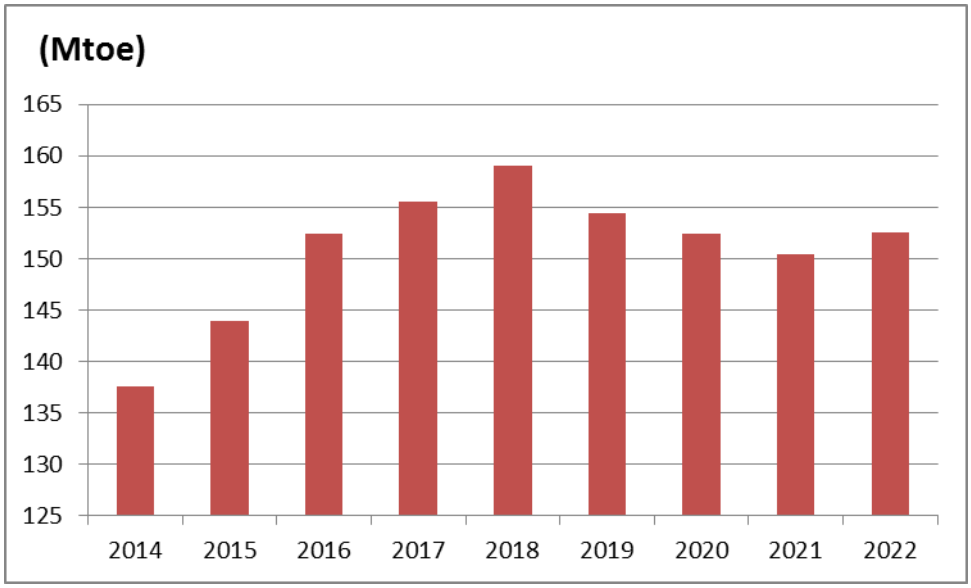
***Source** : bp, Statistical Review of World Energy June 2022*

Note: For the year 2023, it is considered a forecast based on the results of the arithmetic average of the time series*

The table shows the total energy production in Algeria over the period from 2012 to 2019, measured in million tonnes of oil equivalent (Mtoe).

From the data, we can observe that the total energy production in Algeria has been fluctuating over the past few years. In 2012, the total energy production was 137.9 Mtoe, which increased to 143.9 Mtoe in 2013. The energy production continued to rise to 152.4 Mtoe in 2014, which was the highest recorded energy production during the period.

***Figure 03**: The evolution of total energy production in Algeria 2012-2023*



***Source**: Based on Table No. 03*

However, the energy production dropped slightly in 2015 to 155.6 Mtoe, then rose again in 2016 to 159.1 Mtoe. In the following years, the energy production decreased, with a sharp drop in 2017 to 154.4 Mtoe. The trend continued in 2018 and 2019, with total energy production of 152.5 Mtoe and 150.5 Mtoe, respectively. (Bp, 2022, p. 46)

Overall, the data suggests that the total energy production in Algeria has not been consistent over the period, and has faced some challenges that have impacted its performance.

5- Total fuel production in Algeria

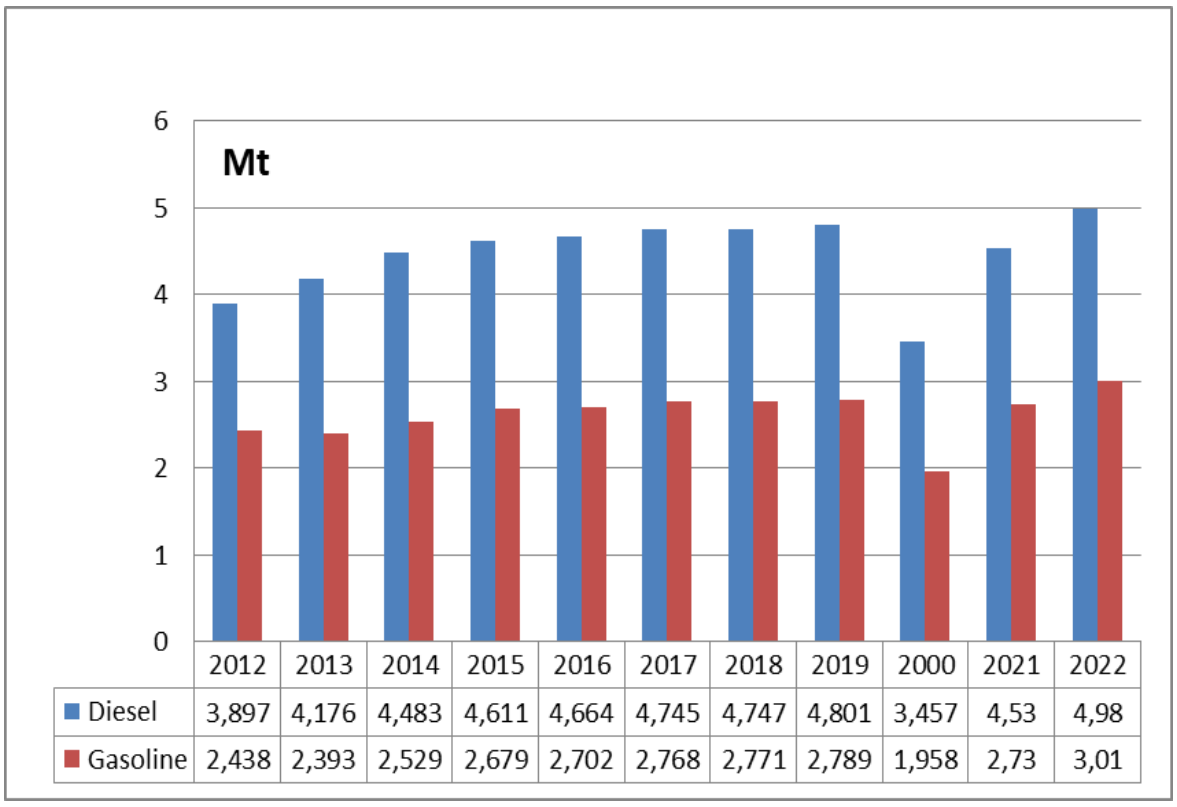
The oil and gas sector is considered the backbone of the Algerian economy, with energy industries accounting for over 95% of the country's exports. Algeria ranks tenth globally in terms of oil and gas reserves, with enormous potential for producing liquid fuels.

However, the production of liquid fuels in Algeria is affected by several obstacles, including the sharp decline in global oil prices and the challenges

faced by international energy companies in operating in the country. These challenges include bureaucracy, government restrictions on investment and operation, as well as logistical difficulties and inadequate infrastructure in some areas. (AEI, 2020, p. 69)

Currently, the Algerian government is seeking to attract more foreign investments in the energy sector, improve the business environment, facilitate administrative procedures, and enhance cooperation with foreign companies, in order to boost the productivity of liquid fuels in Algeria and maximize its natural potential in this field.

***Figure 04**: Evolution of the volume of liquid fuel production in Algeria 2012-2022*



	2012	2013	2014	2015	2016	2017	2018	2019	2000	2021	2022
Diesel	3,897	4,176	4,483	4,611	4,664	4,745	4,747	4,801	3,457	4,53	4,98
Gasoline	2,438	2,393	2,529	2,679	2,702	2,768	2,771	2,789	1,958	2,73	3,01

***Source** : bp, Statistical Review of World Energy June 2022*

The previous table illustrates the total production of gasoline and diesel in Algeria during the period from 2012 to 2022. The data shows that the total production increased progressively during the mentioned period, particularly in regards to diesel production.

In 2012, gasoline production in Algeria was approximately 2,438 thousand barrels per day, while diesel production was around 3,897 thousand barrels per day. Subsequently, gasoline production slightly declined in the following years, while diesel production continued to increase steadily.

Looking at the recent years, gasoline production increased again starting in 2017, reaching around 2,768 thousand barrels per day, and in the following year, production was announced to have slightly increased to 2,771 thousand barrels per day. In 2019, gasoline production was around 2,789 thousand barrels per day.

On the other hand, diesel production continued to increase steadily during the mentioned period, reaching around 4,176 thousand barrels per day in 2013 and continuously increasing to 4,747 thousand barrels per day in 2018. In the following year, production was recorded at 4,801 thousand barrels per day. (Bp, 2022, p. 52)

This growth reflects the continuous demand for diesel in Algeria, which is commonly used in industry, transportation, and agriculture.

Based on the previous analysis, it can be said that the production of gasoline and diesel in Algeria has experienced slight fluctuations over the past eight years. The years were characterized by a slight increase in the production of gasoline and diesel, except for the year 2013 which witnessed a slight decrease in gasoline production. It is also clear that the highest production of gasoline and diesel was in 2019, reaching 2.789 and 4.801 thousand tons respectively.

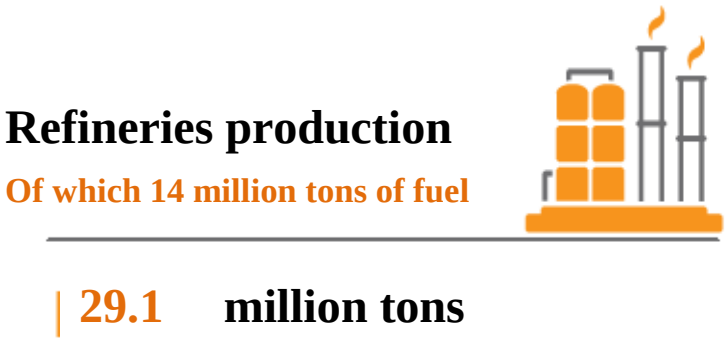
It is important to note that diesel production in Algeria consistently exceeds gasoline production, with approximately 1.5 times the production of gasoline annually. This may reflect the value of demand for diesel in the Algerian market.

Overall, the data shows that the production of gasoline and diesel in Algeria has not changed significantly in recent years, which can be partially explained by the obstacles facing the energy industry in Algeria, as well as fluctuations in oil prices at the global level, which have a significant impact on the fuel industry in Algeria.

5-1- Total fuel production in refineries (refining activity)

The total refining activity in the main refineries in Algeria in 2022 amounted to more than 29.1 million tons, of which 14 million tons were fuel (diesel, gasoline and jet fuel).

Figure 05: *The total production of liquid fuel refineries in Algeria 2022*



Source*: Sonatrach, 2022 Achievements Report, Preliminary Results, p. 20.*

The oil sector is considered one of the most important sectors in Algeria, as the country is one of the largest producers of oil and natural gas in Africa. Algeria has many refineries and processing stations that produce all types of fuel, including gasoline, diesel, liquid fuel, and liquefied natural gas.

According to official statistics, the total fuel production in Algerian refineries and processing stations amounted to about 14 million tons in 2022. This production level has a significant impact on the Algerian economy, as many of these products are exported to neighboring and international countries. (Sonatrach, 2022, p. 20)

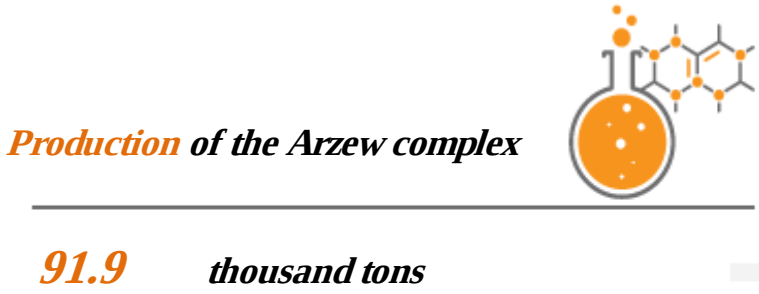
It is important to note that fuel production in refineries and processing stations is affected by many factors, including international oil and gas prices, fuel production costs, domestic and global demand for fuel, and other economic and political factors. Therefore, caution should be exercised when analyzing any changes in fuel production in refineries and processing stations, and a comprehensive study should be conducted to understand the reasons behind these changes.

4.2- The production capacity of the Skikda and Arzew refineries

Skikda and Arzew refinery are among the most important refineries in the production of fuel in Algeria (diesel, gasoline and liquefied petroleum gas)

The production capacity of these refineries increased by more than 45% during the last ten years, which led to an improvement in the supply of fuel to the internal market and coverage of domestic consumption by more than 74%.

***Figure 06**: Production of the Arzew complex (2022)*

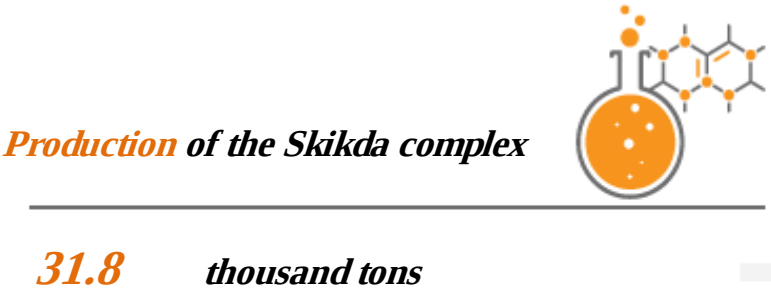


***Source**: Sonatrach, 2022 Achievements Report, Preliminary Results, p. 20.*

Skikda and Arzew refineries are among the most important refineries in Algeria, playing a crucial role in fuel production and refining in the country.

Located on the eastern coast of Algeria, Skikda refinery was established in 1972 and has recently been renovated and expanded to increase production capacity. The refinery produces a wide range of petroleum products, including gasoline, diesel, liquid fuel, and liquefied natural gas, which are distributed to stations in Algeria and exported to neighboring and international countries. (Sonatrach, 2022, p. 21)

***Figure 07**: Production of the Skikda complex (2022)*



***Source**: Sonatrach, 2022 Achievements Report, Preliminary Results, p. 20.*

Meanwhile, Arzew refinery is located on the western coast of Algeria and was established in 1978. The refinery also produces a wide range of petroleum products, including gasoline, diesel, liquid fuel, and liquefied natural gas. These products are also exported to neighboring and international countries.

5- The status of fuel production and marketing activity in Algeria

Fuel is supplied in Algeria by the Algiers refineries, the Skikda and Arzew refineries, the Hassi Messaoud refinery and the Adrar refinery.

The annual fuel production capacity of these refineries is estimated at 14 million tons, including: (Minister of Energy, 2022, p. 02)

- 3.5 million tons of gasoline

- 10.5 million tons of fuel oil (diesel).

Thus, this production covers more than 74% of the national demand for fuel for the year 2021

Based on the price of crude oil entering the refineries at $40 per barrel, the cost of fuel production, including compensation (storage and marketing) and taxes, is about:

- 66.10 DZD / liter of gasoline

- 37.22 DZD / liter for diesel

It should be noted that the current fuel prices applied in service stations are lower than the cost price, and this is compensated by state subsidies.

As for the domestic consumption of fuel, it increased during the past ten years (2012-2022), from 11.3 million tons in 2012 (gasoline and diesel) to 14.4 million tons in 2020, which justified resorting to imports to cover the production deficit.

In the year 2022, fuel consumption amounted to 12.59 million tons, i.e. a decrease of 10% compared to previous years (3.36 million tons of gasoline and 9.23 million tons of diesel), which reduced the import bill, and the reason is due to the stability and decrease in the number of cars in the national park during the last four years. The past swat due to the closure of imports and the cessation of activity of agents. (Minister of Energy, 2022, p. 03)

As for fuel imports, they reached their peak in 2013, reaching 4.32 million tons (gasoline and diesel) at a total cost of $4.21 billion.

- Fuel imports decreased in 2019, reaching 1.49 million tons, compared to $897 million.

- During the year 2020, the amount of imported fuel (gasoline and diesel) decreased by 676 thousand tons, with an estimated bill of 357 million dollars, of which 285 thousand tons of diesel fuel, and 392 thousand tons of unleaded gasoline.

- Since July 2021, no import of gasoline without bullets and diesel has been carried out, according to the statistics of the Ministry of Energy.

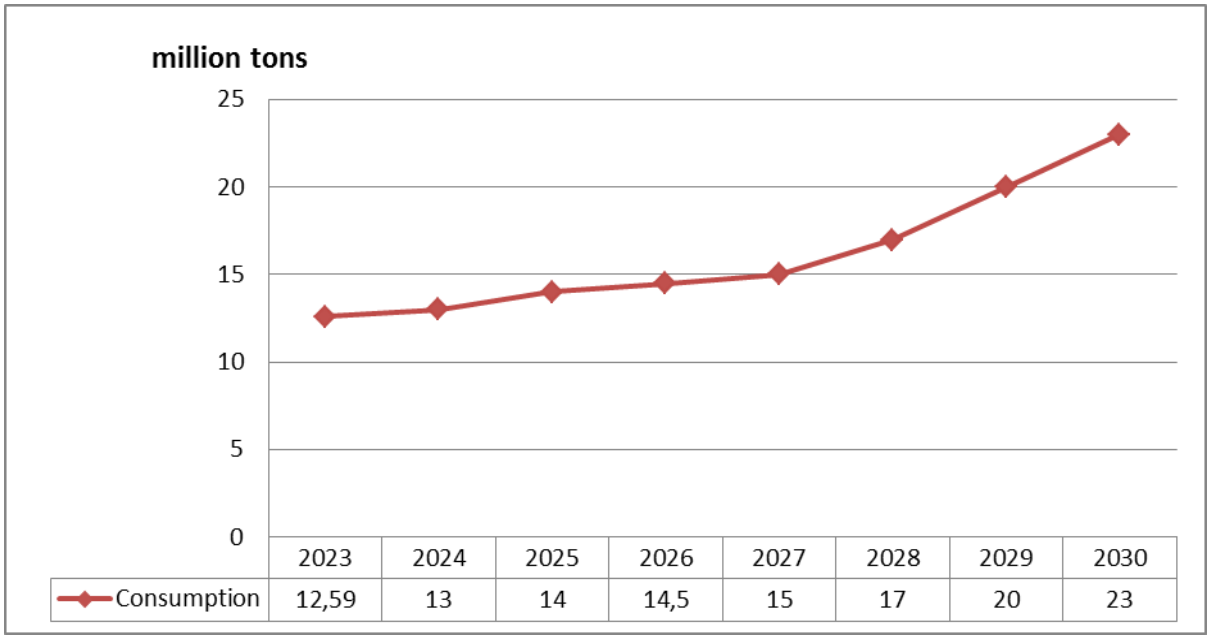
- It should be noted that the import cost, by calculating fees and taxes, is estimated at 105.61 DZD / liter for unleaded gasoline, and 103.65 DZD / liter for diesel fuel, which is two times more expensive than gasoline and three times more expensive than locally produced diesel. (Minister of Energy, 2022, p. 05)

From the foregoing, it is clear that the production of fuel at the level of local refineries is economically better than resorting to importing it. That is why the state has drawn up a program to enhance the production of the Arzew, Skikda and Hassi Messaoud refineries, which entered into service with their new reinforcements, which led to a decrease in imports starting from the year 2021 with the registration of Zero import bill in 2022.

6- Forecasts of national demand for fuel

It is expected that the national demand for fuel will increase during the period 2023-2030 by more than 40%, and the following figure shows this.

***Figure 08**: Outlook for fuel demand in Algeria 2023-2030*



***Source**: Based on:*
- iea, World Energy Outlook 2022, p.159.
- bp, Energy Outlook: 2022 edition, P.142.
- Sonatrach, the annual report for different years, 2020, 2021, 2022.

Through the above figure, we expect an increase in the demand for fuel of all kinds (diesel, gasoline, liquefied petroleum oil), as the demand will increase from 12.59 million tons in 2023 to about 23 million tons in 2030, and this is due to the expected expansion of the national park of cars with the entry of the car

import activity. As well as the policy of the state destined to manufacture cars locally, as well as the increasing demand by industrialists in the various operations and production. (IEA, 2022, p. 26)

It should be noted that expectations indicate a decrease in demand after the year 2030 due to the global trend to reduce the rates of thermal fuel consumption and the trend towards the use of hybrid and electric cars, which is the approach adopted by the government with an expectation to enhance this starting from the year 2030. (Oxford Institute for Energy Studies, 2022, p. 96)

It is expected that the demand for fuel in Algeria will grow during the period from 2019 to 2030 due to population growth and economic development in the country. At the same time, demand for fuel is expected to increase even more in the transportation and industrial sectors.

It is important to note that Algeria is trying to diversify its economy and reduce its dependence on oil and gas exports. The government encourages investment in renewable energy, such as solar and wind energy, which could lead to a reduction in dependence on fuel.

Overall, a slight increase in demand for fuel in Algeria can be expected during the mentioned period, but this growth is expected to slow down if the Algerian economy develops faster than expected.

After the COVID-19 pandemic, it is expected that the determinants of fuel demand in Algeria will be affected by several factors, including:

Restrictions on movement and transportation: Border closures and movement restrictions may reduce the need for fuel in sectors that rely on transportation and mobility.

Economic recession: A decline in economic activity may reduce the demand for fuel in the industry and transportation sectors.

Transition to remote work: A shift towards remote work may reduce the need for fuel for commuting between home and work.

Fuel price increases: Higher fuel prices may reduce the demand for fuel in Algeria.

It should be noted that these factors may lead to a short-term reduction in fuel demand, but they may change in the long term and the need for fuel may return to previous levels. (Oxford Institute for Energy Studies, 2022, p. 103)

Conclusion

The prices of liquid fuel in Algeria are relatively low compared to international prices, primarily due to the government's support for this sector. However, the demand for liquid fuel in Algeria is continuously increasing, reflecting the growth of the economy and the rising demand for transportation.

Forecasts indicate that the demand for liquid fuel in Algeria will continue to rise in the coming years, opening up opportunities for the government to increase investment in this sector, upgrade existing refineries, and build new ones to meet the growing demand.

However, the Algerian government must face the economic and environmental challenges related to the increasing demand for liquid fuel and work towards transforming the Algerian economy into one that relies on renewable and alternative energy sources to fossil fuels.

In general, the reality of the demand for liquid fuel in Algeria indicates significant opportunities for investment in this sector, but the economic and environmental challenges must be addressed decisively, and measures taken to achieve sustainable development in Algeria.

Based on the current situation and prospects related to the demand for liquid fuel in Algeria, several recommendations can be proposed to the Algerian government to promote and develop the fuel and energy sector in general, as follows:

- Enhancing energy transition: The government should promote energy transition by supporting renewable energy and investing in new development projects to meet future energy demand.

- Improving infrastructure: The government should focus on improving the infrastructure of the fuel and energy sector, expanding transportation and distribution networks, and upgrading fuel stations to improve efficiency and meet the growing demand.

- Strengthening international partnerships: The Algerian government should strengthen international partnerships in the energy sector and cooperate with other countries to exchange technology and knowledge and enhance investments in the sector.

- Improving production and refining efficiency: The Algerian government should work on improving fuel production and refining processes to increase productivity and reduce costs.

- Promoting environmental awareness: The Algerian government should promote environmental awareness and encourage the use of clean and renewable fuels to preserve the environment and reduce pollution.

- Developing local capabilities: The Algerian government should develop local capabilities and enhance training and education in the fuel and energy sector to improve its use efficiency.

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