3.3 Industrial Oil & Gas and Downstream Chemical Production Sector

Sector Overview

Kuwait Vision 2035 Development Plan envisions a diversified economy away from the dependence on oil. However, the implementation of the vision and its materialization are expected to take time. Until then, the dependence on oil and discovery of new reserves of oil is vital for the State of Kuwait. Hence, Kuwait continues to explore for new oil and gas reserves as part of the 2040 KOC strategy. Further, a lot of importance is placed on the clean fuel projects in the country and the processing of oil is expected to be environmentally friendly.

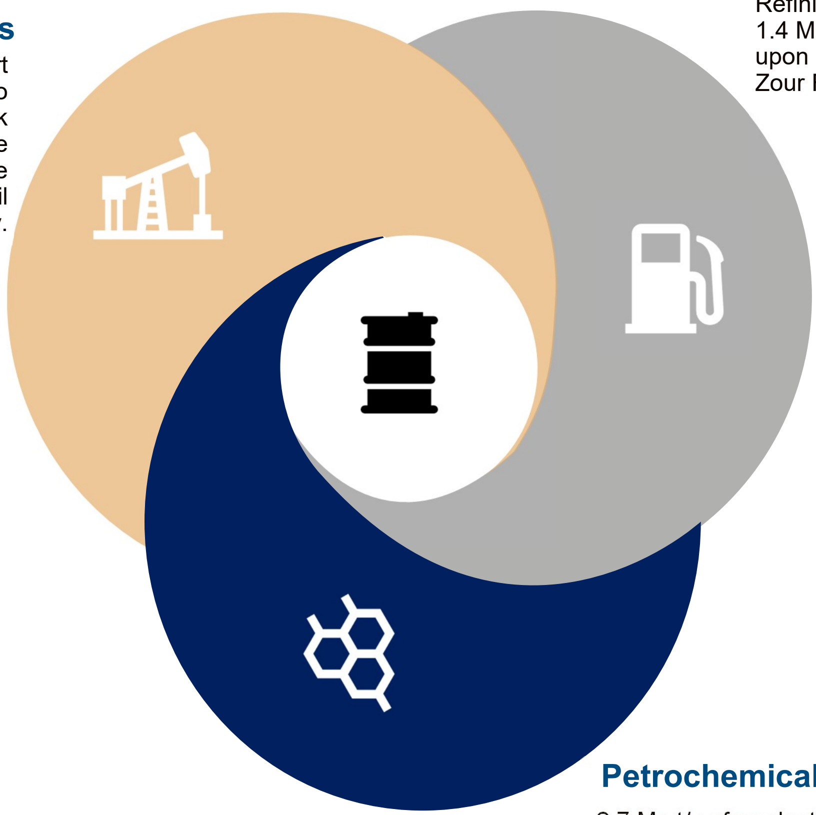
SUBSECTORS

Oil and Gas support services

Oil and gas support services are expected to have an uptick considering the implementation of the 2040 Kuwait Oil Company strategy.

Downstream Refining

Refining capacity to reach 1.4 Mn b/d of clean fuel upon completion of the Al Zour Refinery Project.



Petrochemical

2.7 Mn t/y of products comprising of aromatics, polyethylene polypropylene expected under Olefins 3.

The Clean Fuel Projects and Oil and Gas Service Projects are an attractive opportunity for international investors with specialized skills to provide their services.

3.3.1 Downstream Refining

In the oil and gas industry, downstream refining is the process of converting crude oil and gas into finished products such as petrol, diesel, kerosene, jet fuel, diesel oil, heating oil, fuel oils, lubricants, waxes, asphalt, and natural gas.

OVERVIEW AND FACTORS INFLUENCING THE MARKET

- In 2020, Kuwait produced 2,686 thousand b/d of crude oil and 15 Bn cubic meters of natural gas.[1]

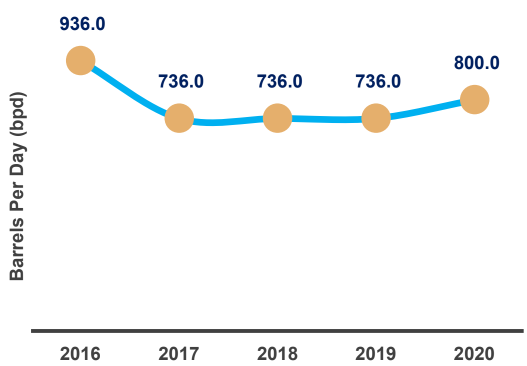
- The country's refining infrastructure is controlled and managed by the government through Kuwait National Petroleum Company (KNPC).

- Construction on the country's first refinery, i.e., Shuaiba Refinery was started in 1966 and was commissioned in April 1968 with a production capacity of 95,000 b/d.[1] This was the world's first all hydrogen refinery, which could process crude that contained high sulfur. The refinery was closed in 2017 to shift to more cleaner means of refining.

- Fuel is currently refined through two refineries in the country namely Mina Al-Ahmadi (MAA) Refinery and Mina Abdullah (MAB) Refinery. The total refining capacity of the refineries is currently 736,000 b/d and the total gas processing capacity is 2,485 mmscfpd (MAA 4 gas trains). MAA has a refining capacity of 466,000 b/d and MAB has a refining capacity of 270,000 b/d. The refined output at MAA includes gasoline, Kerosene, Gasoil (Diesel), Bitumen, Naphtha, LPG, and Sulfur. The refined output at MAB includes Naphtha, Kerosene, Low-Sulfur Gasoil, Coke, Fuel Oil and Sulfur.[1]

- As part of Kuwait Vision 2035 Development Plan, the government launched the Clean Fuels Project at a total cost of USD 15.5 Bn.[2] This project envisages the upgrade/ expansion of MAA and MAB to integrate the refining system into one complex with full conversion operation. The overall refining capacity in 2020 increased to 800,000 b/d from 736,000 b/d, i.e., MAA refinery capacity to 346,000 b/d and MAB refinery capacity to 454,000 b/d while the sulfur content of the petroleum products produced will be lower by 5%.[3] A number of international companies were involved in the project management, engineering design, procurement, and construction of the projects. The output of the refineries is expected to be fuel that is environmentally friendly and graded at levels that are acceptable in the US and Euro markets.

Refining Capacity[4]



- Another mega project is also being developed as part of the development plan at Al-Zour as an integrated refining and petrochemical zone. The project, when completed, is expected to have the ability to produce 215,000 b/d of fuel oil and refine 615,000 b/d of clean fuel. It will also have a Liquid Gas Import Infrastructure storage facility of 3,000 Bn heating units per day.[5] The Al Zour Refinery is expected to be constructed at a cost of USD 16.2 Bn. Kuwait Integrated Petroleum Industries Company established in 2016 is the main sponsor appointed by the government for developing this project. It will by far be the largest clean fuel refinery in the country when it is commissioned. The engineering, procurement, and construction (EPC) contracts for its development were awarded to a number of international companies in 2015.

- Kuwait has recently discovered oil and gas reserves in the Neutral Zone area and offshore with KSA which will provide future opportunities for development of new infrastructure and facilities for tapping into the reserves for both local consumption as well as exports.

OPPORTUNITIES AND INVESTMENT CONSIDERATIONS

- Although Kuwait is trying to diversify its economy away from oil, it will still depend to a large extent on oil until that point of time whenever diversification is achieved. In this regard, it continues to compete against regional competitors for a presence in the petroleum market.

- Kuwait had previously announced plans for two new oil refineries with a capacity of 300,000 b/d to be completed in 2025 and 2035.[5]

- A fifth gas train in the country is currently being undertaken at a cost of USD 1.45 Bn and there are studies for undertaking a sixth and seventh train by 2025 to take the total gas processing capacity to 3.7 Bn cf/d.[6]

- Considering the above projects, the petrochemical refining sector provides an excellent opportunity for international investors experienced in the petrochemical industry for participating in the sector specifically in engineering, procurement, and construction.

Source: [1]KNPC, [2]Kuwait Vision 2035 Development Plan, [3]Fluor Corporation, [4]British Petroleum, [5]Hydrocarbons Technology, [6]MEED

3.3.2 Petrochemicals

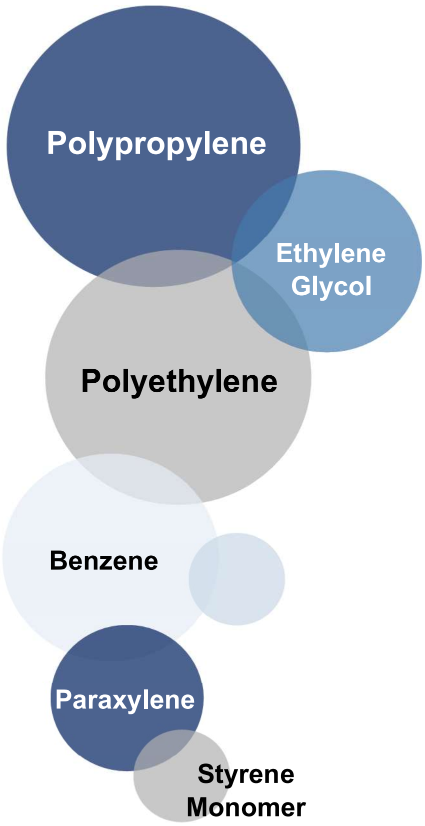
Petrochemicals are a byproduct of oil and involve a process of extracting different chemicals from refined petroleum feedstocks. They include chemicals of the nature of ethylene, polyethylene and benzine. These chemicals are mainly used in the preparation of plastics, soaps and detergents, solvents, drugs, fertilizers and pesticides among other materials.

OVERVIEW AND FACTORS INFLUENCING THE MARKET

- The petrochemical infrastructure of the country is controlled and managed by the government through the Petroleum Industries Company (PIC) established in 1963.[1]

- The petrochemical products of Kuwait primarily include Ethelene, Polyethylene, Urea, Ethylene Glycol, and chemical catalysts.

- There is limited demand for petrochemical products from the local market and most of the demand is derived from exports to the Chinese and the Indian markets.



- PIC operates in Kuwait through a wide range of subsidiaries and Joint Ventures, with local and international companies for the production of petrochemical products, some of which include the below[3]:

Name of the Company	Year of incorporation	Main products produced	Ownership
PP Plant	1997	Polypropylene	100%
Equate Petrochemical Company	1995	Polyethylene & Ethylene Glycol	42.5%
The Kuwait Olefins Company	2004	Ethylene Glycol	24.5%
The Kuwait Aromatics Company	2004	Paraxylene & Benzene	20%
Kuwait Paraxylene Production Company	2004	Paraxylene	100%
The Kuwait Styrene Company	2004	Styrene monomer	57.7%
Qurain Petrochemical Industries Company	2004	Petrochemicals	10%

- Equate is owned by PIC at 42.5%, US-based Dow Chemicals (Dow) at 42.5%, Boubyan Petrochemical Company (BPC) at 9% and Al Qurain Petrochemical Industries Company (QPIC) at 6%.[3] Equate today produces 5 Mn tons of petrochemicals a year and contributes to over 60% of Kuwait's non-oil export.[2]

- PIC has also entered into a similar ownership structure as that of Equate for the establishment of The Kuwait Olefins Company (TKOC). Details of plants operated under the company include the below[3]:
  - The Olefins II ethylene plant was set up as a Joint Venture with the Dow Chemical Company in Shuaiba in 2008

and has a total production capacity of 850,000 tons annually.

- The Olefins III plant is being implemented by Kuwait Integrated Petrochemical Industries Company (KIPIC), a subsidiary of Kuwait Petroleum Corporation (KPC) and will be an integration between Petrochemical Refinery Integration Al Zour (PRIZe) project, the Aromatics 2 complex and the Al Zour Refinery. It will produce nearly 2.7 Mn t/y of products comprising of aromatics, polyethylene and polypropylene. It is expected to be commissioned at the end of 2024.
- The Olefins IV plant is currently under study and will include the development of a petrochemical complex to produce ethylene, polyethylene, ethylene glycol as well as specialized petrochemical products. The JV Partner is yet to be selected. The complex will utilize the Ethane feedstock from Kuwait. The commissioning of the project is planned in 2028.

- The Kuwait Aromatics Company (TKAC) which owns the Kuwait Paraxylene Production Facility is owned by PIC at 40%, Kuwait National Petroleum Company (KNPC) at 40%, and QPIC at 20%.[3]
- TKAC owns a 57.5% stake in a joint venture with Dow called The Kuwait Styrene Company. It produces styrene monomer from benzene feedstock procured from TKAC and ethylene from TKOC.[3]
- BPC and QPIC were established by PIC in 1995 and 2004 respectively, however they were sold off through initial public offerings with the intention of forming joint ventures. PIC continues to own a 10% stake in QPIC[3]. Today, both BPC and QPIC operate in petrochemicals and have diversified stakes in other non-oil companies.

OPPORTUNITIES AND INVESTMENT CONSIDERATIONS

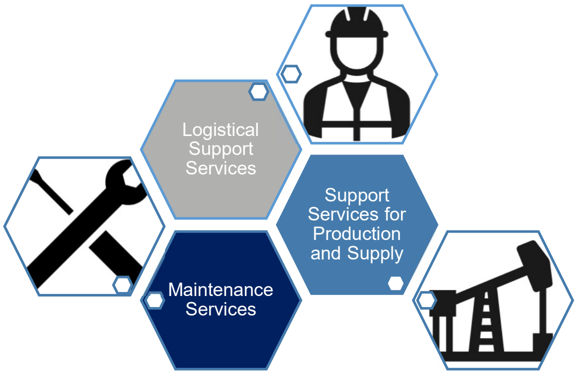
- The Asian market is growing and there is a huge demand from that region for petrochemicals to meet their developmental requirements. This provides an excellent opportunity for Kuwait to cater to that region.
- The government has been actively pursuing the implementation and expansion of oil refinery projects. The output of the oil refinery projects is expected to rise significantly and cross the threshold of about 1.5 Mn b/d.[4] This output will further support the petrochemical industry by providing them with feedstocks for the chemical processes
- Local demand for petrochemicals is also expected to rise with the growing number of infrastructural projects and the diversification of the economy, specifically the industrial sector and the number of vehicles in Kuwait.
- Considering the above, international investors can participate in the sector particularly in the field of design and construction of prospective plants.

Source: [1]PIC, [2]Equate, [3]OBG, [4]Kuwait Vision 2035 Development Plan

3.3.3 Oil and Gas Support Services

Oil and gas support services include maintenance services, support services for production and supply as well as logistical support services for both onshore and offshore drilling.

OVERVIEW AND FACTORS INFLUENCING THE MARKET



- In line with Kuwait Oil Company (KOC) 2040 strategy, KOC intends to drill more than 750 wells in Kuwait. This strategy is considered by KOC as one of its main projects for the future progress of the country and will create a great demand for oil and gas support services.[1]

- In 2021, Kuwait discovered two new oil fields and reserves at the Great Burgan Oilfield. One of the discoveries was in the Houma oil field, which has a production capacity of 1,452 b/d of light oil and the second is in Al-Qashaniya field 1,819 b/d. Further 2.78 Mn cubic feet of associated gas a day (scf/d) was also discovered.[2]

- A number of maintenance contracts for oil refineries are being tendered by the private sector. Some of them include:
    - KNPC's request for expression of interest from contractors related to the maintenance of Mina Abdullah Refinery.
    - KIPIC is expected to tender a contract for maintenance services related to the Al Zour oil refinery for a period of 5 years.[3]

- There is a large number of prominent local listed and unlisted companies that provide oil and gas support services in Kuwait. Many international companies such as Halliburton, Schlumberger, Weatherford already have a presence in the region as well as Kuwait to provide Oil and Gas support services.

OPPORTUNITIES AND INVESTMENT CONSIDERATIONS

- The middle eastern oil and gas support services market is expected to grow at a CAGR of 3.5% between the period 2020-2025. Oil drilling services account for approximately 20% of all the oil and gas services provided in the region.[4]

- Oil and gas exploration is essential in the short run to support Kuwait Vision 2035 Development Plan and transform the country into a diversified economy. Oil and gas exploration will require expertise from companies in drilling maintenance and other support services.

- The rising oil infrastructure of the country will create opportunities for companies to provide maintenance services as most of these services are outsourced by the government to specialists.

- The presence of large number of foreign companies in the oil and gas sector in the region should encourage other foreign investors of the attractive opportunities on hand in this sector.

Source: [1]KOC, [2]Kuwait Times, [3]Hydrocarbons Technology, [4]Mordor Intelligence