



An uncertain outlook for the refining sector in the GCC

Plans for greenfield projects and refinery expansions across the GCC countries are entering a critical phase. The region is leading the drive in the Middle East with 1.5m b/d of new refining capacity expected online by 2021. Substantial investments in the refining sector were made to tackle increasing domestic demand and diversify away from crude to more specialised product exports. At the same time, these refinery additions are changing global trade flows, with the region exporting more refined products, particularly to Europe. As global capacity rises and fuel standards improve, competition will become more intense meaning a more uncertain outlook awaits the region's refineries.

The GCC refining sector has seen tremendous growth over the past few years, mainly driven by significant government investments during a period of high oil prices. Governments have prioritised the expansion of the downstream sector for several reasons. First, the region has witnessed rapidly rising demand for gasoline and diesel in the transportation sector, as well as diesel and fuel oil in the power sectors of Saudi Arabia and Kuwait. Second, governments are seeking to diversify away from crude exports towards more specialised refined products. Third, they are also committing to create more value in their economies by integrating the crude, refining and petrochemical industries.

The last few years saw the expansion of refining capacity due to the commissioning of several projects. The completion of the two Saudi refineries - Yasref and Satorp - in 2014 and the expansion of the Ruwais facility in the UAE added approximately 1.2m b/d of new and cleaner refining capacity. Built with an eye on supplying the growing Asian market, these new refineries have contributed to turning the GCC countries into a net exporter of refined products in 2016, particularly in the diesel segment. As they ramped up to reach full capacity in 2015, GCC economies slowed and governments introduced limited pricing reforms, slowing domestic demand growth and, in some cases, reversing growth. This was particularly the case for diesel in Saudi Arabia. The slowdown in the rate at which demand had been growing in the region is freeing up more refined products for export, competing with Asian refineries in a more congested products market.

Refining capacity in the GCC region

	2016 capacity	2017-2021 additions
	(k b/d)	(k b/d)
Bahrain	267	100
Oman	222	311
Qatar	292	0
KSA	2,907	400
UAE	1,124	70
Kuwait	936	615

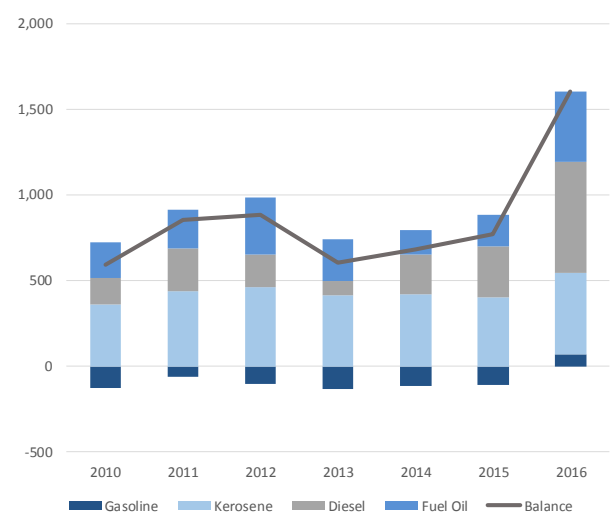
Source: APICORP Research

The latest additions to the refining sector in the region have concentrated on condensate splitters, particularly in Qatar and Iran. However, in the medium term, GCC countries are expected to add further capacity by 2021, adding up to an impressive 1.5m b/d. The new capacity will be dominated by the two major additions in Saudi Arabia and Kuwait, as well as clean fuel projects in the region. They will adhere to stringent European requirements for cleaner fuels, and will thus provide GCC refineries with a competitive edge in a tough market.

Refinery additions have shifted trade flows

Of the recent 1.2m b/d of additional capacity, diesel represents over half, while gasoline and jet fuel output stood at around 350k b/d and 140k b/d. These additions have had a measurable impact on trade flows, particularly in the diesel market. Prior to the recent ramp ups, Kuwait and Bahrain had been the only two net diesel exporters in the region. As for gasoline, refineries in GCC countries were built to meet domestic demand.

GCC net product balance (k b/d)

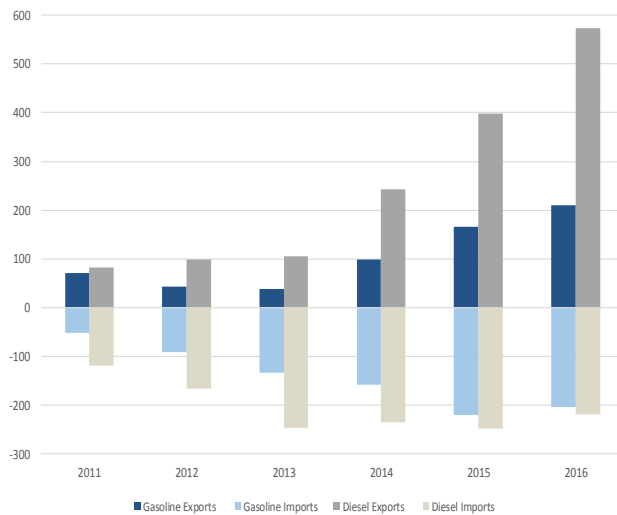


Source: Jodi, APICORP Research

As a result, Saudi Arabia has become a net exporter of diesel, with cargos competing in the European market. Thanks to the GCC region's geographical position between Europe and Asia, its refineries have turned into competitors to their Asian counterparts, especially in the overcrowded diesel segment. For example, Saudi Arabia had historically been a net importer until

2014; however, by 2016, the country had evolved into a net exporter of over 300k b/d. This surge in diesel exports is attributed to the mainly diesel-oriented refineries that were recently built and geared towards increasing production in anticipation of rising demand in Asia, particularly China. As for gasoline, Saudi Arabia became a marginal net exporter of gasoline in 2016 after historically having been a net importer. In 2016, the Kingdom exported 5k b/d, coming from an average net import level of 55k b/d and 60k b/d in 2015 and 2014.

Saudi Arabia net product balance (k b/d)



Source: Jodi, APICORP Research

The impact of this is mostly felt in the Asia Pacific region and in India, which used to be major exporters of refined products - and particularly diesel - to the Middle East and Europe. Saudi exports in particular have a competitive edge in ultra-low sulphur diesel which meets European standards, while also offering less transportation cost and travel time than their Asian counterparts.

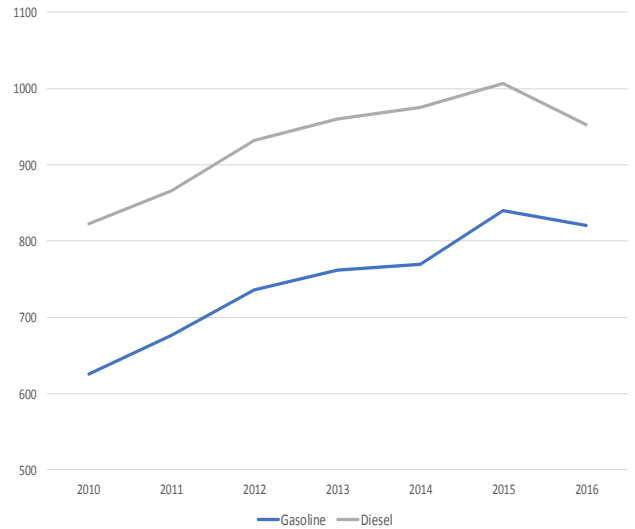
Price reform in the GCC region affects gasoline and diesel demand

Gasoline and diesel demand has been growing robustly in the GCC region, driven by factors such as high GDP growth, population increase, and heavily subsidised prices. However, the picture has slightly changed since oil prices began to fall in 2014. In early 2016, GCC governments introduced limited energy price reforms and increased prices. Although prices remain very low compared to international prices, there has been a decline in energy demand growth, and in some instances, a negative growth. However, the slowdown in energy demand growth cannot be attributed to price increases alone. GDP growth and economic activities in the region have slowed significantly since mid-2014. For instance, Saudi Arabia's GDP growth shrank to 1.4% in 2016 and is expected at 0.1% in 2017 - down from 3.7% and 4.1% in 2014 and 2015.

The UAE was the first country in the GCC region to liberalise gasoline and diesel prices. Although the government sets prices on a monthly basis, prices in the Emirates are directly linked to the international ones. In Saudi Arabia, the government increased the price of higher-grade unleaded petrol to SAR0.90/litre (\$0.24) from SAR0.60/litre, and for lower-grade petrol to SAR0.75/litre from SAR0.45/litre. Households in KSA are likely to feel the main impact of the increase in gasoline prices given their reliance on personal transport and the limited public

transport alternatives. The price of diesel, mainly consumed by the power sector and industry, was raised to \$14/b, while diesel for commercial transport was raised to \$19/b. Other GCC countries have followed suit and introduced limited pricing reforms.

GCC gasoline and diesel demand (k b/d)



Source: Jodi, APICORP Research

Diesel demand in Saudi Arabia was hit hardest. After having peaked at 779k b/d in 2015, diesel demand declined to 701k b/d in 2016, representing a decline of 10% in one year. In the first quarter of 2017, demand stood at around 586k b/d, although this number will likely increase as demand rises during the summer months. The fall in diesel demand was seen in both the power sector where SEC is increasingly relying on gas and in transportation where higher prices and a slowdown in economic activities in the Kingdom is weighing on demand. Gasoline demand, on the other hand, has fared better. Demand increased from 529k b/d in 2014 to 568k b/d in 2015, where it also remained in 2016. In the first quarter of 2017, a further rise to 590k b/d was observed. Sources suggest that there has been a shift in demand patterns as most households switched from high to lower grade gasoline.

Second wave of expansion in the GCC region

Despite the oil price collapse since mid-2014, the region is still seeing significant investments in its refining sector. The main additions that came online in the past 12 months were condensate splitters in Qatar and Iran, which are geared towards producing gasoline and naphtha. In 2016, the Ras Laffan 2 condensate splitter added approximately 150k b/d of capacity. This will reduce the country's condensate exports from 500k b/d to 350k b/d, allowing the country to refine domestically before exporting. The splitter will mainly produce naphtha (60k b/d) and jet fuel (53k b/d), with the remaining being small amounts of gasoline and LPG.

In the period 2017-21, the region will continue its expansion plans with the 600k b/d Al Zour refinery in Kuwait and the 400k b/d Jazan project in Saudi Arabia being the major additions. The Jazan refinery is expected to commence operation in 2018-19 while the Al Zour refinery is expected towards the end of the decade. The rest of the additions will come from the Duqm refinery and the Sohar expansion in Oman.

The 230k b/d Duqm refinery - a joint venture between Oman Oil Company and Abu Dhabi's International Petroleum Investment Company (now merged with Mubadala) - is likely to come online in 2020. In addition, Bahrain's plans to expand the Sitra Refinery, which aim to add 100k b/d to the existing 260k b/d, are ongoing. In total, the GCC countries are expected add 1.5m b/d of refining capacity between 2017-21, although the recent shutdown of the 200k b/d Shuaiba refinery in Kuwait means that net additions in the medium term will be 1.3m b/d.

Regional focus is on clean fuels

In addition to increasing refining capacity, countries in the region are following the worldwide trend towards cleaner fuels. The global refining sector has made large improvements in the quality of refined products over the past decade - namely the reduction of sulphur content in diesel and gasoline. This has mostly been driven by European-led new regulations and fuel standards. GCC refineries are investing heavily to meet European standards of low sulphur and cleaner fuels, including Euro 4 and Euro 5. The GCC countries will continue to invest in upgrading their refineries as the region diversifies away from crude towards refined product exports. The refineries that came online more recently and the ones scheduled to become operational in the next few years are more complex and include capabilities such as hydrocracking, hydrotreating, and catalytic cracking to maximise high quality gasoline and diesel.

Most clean fuel projects are taking place in Saudi Arabia and Kuwait. The Jazan refinery will produce high quality transportation fuels including ultra low sulphur diesel as the Kingdom aims to reduce sulphur content to 10 ppm and benzene amount to 1% in gasoline. The recent refinery additions in the Kingdom represented a major shift in fuel grades. Prior to 2012, the Kingdom's sulphur level in diesel exceeded 500 ppm. Other refineries such as Ras Tanura and Riyadh are also being upgraded to meet higher standards. In Kuwait, ambitious plans are underway to upgrade and expand its refining sector with investments expected to surpass \$20bn in the medium term. The Al Zour refinery is expected to be one of the largest in the world, with high specifications allowing it to produce clean fuels. Projects to upgrade Mina Abdullah and Al-Ahmadi refineries will significantly reduce sulphur and benzene content - from 500 ppm to under 10 ppm in gasoline and from 4.5 ppm to 1 ppm in fuel oil.

Uncertain longer-term outlook

The surge in refining capacity in the past decade was mainly a response to rising domestic demand but also an effort to diversify away from crude exports and integrate the crude, refining, and petrochemical industries. It is also having an impact on trade flows. The year 2016 marked a milestone for the GCC region as it became a net exporter of all refined products, although a marginal exporter of gasoline. On the other hand, diesel exports are expected to lead the way, having reached over 500k b/d in 2016, up from 310k b/d in 2015. The slowdown in economic activity and the limited price reforms that were introduced in early 2016 have already impacted demand growth in the region, with diesel demand in Saudi Arabia hit particularly hard. Further price reform will likely have a more significant impact on domestic demand, possibly freeing up more refined products for exports.

In the medium term, there are plans to further increase refining capacity, but the outlook beyond 2021 is less certain. The Al-Zour project in Kuwait as well as the Sitra expansion program faced financing challenges which caused delay for several years, before finally reaching financial closure. On the other hand, tough competition in the products market and weakening demand is putting further pressure on the refining industry.

The recently commissioned projects, as well as the ones expected online in the next five years, are in the process of turning the region into a leading hub for exports of refined products. As elsewhere, the new refineries in the Middle East have been configured mainly to produce diesel to cater for the anticipated increase of diesel demand from Asia, particularly from China. However, China's economic rebalancing away from manufacturing towards consumer goods and services has changed demand patterns within the country: diesel demand, related to heavy industry and transport of goods, is flat-lining, while gasoline demand related to personal transportation continues to grow. This has turned China into a net exporter of diesel. With US exports of distillates surging to record levels, Russia upgrading its refineries to produce more distillates, and Indian refineries ramping up their production, the competition in the products market, particularly in the diesel segment, has become more intense. However, GCC export-oriented refineries might stand to benefit from the recent International Maritime Organisation rules which would alter demand patterns as fuel oil is replaced by diesel in 2020.

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