

Gulf refiners expand capacity and opportunity

By Bassam Fattouh

Director, Oxford Institute for Energy Studies



Refining capacity in the six Gulf Cooperation Council (GCC) states is set to increase by at least 2 million barrels a day (b/d) by 2018, an expansion that will have important implications for global trade flows in petroleum products.

This will constitute an additional source of competition for Asian and European refineries that could weigh down on refining margins, especially in Europe. While this represents an export marketing challenge for refineries in the GCC states – Saudi Arabia, Kuwait, Qatar, UAE, Oman and Bahrain – it also opens up opportunities for regional national oil companies to build their trading capability in product markets and diversify their export base.

The GCC has a well-developed refining sector. In 2012, the GCC had 18 refineries and two gas-to-liquid (GTL) plants with total capacity of around 4.6 million b/d. Saudi Arabia is the biggest refining centre in the region with a total capacity of around 2.1 million b/d, followed, a long way behind, by Kuwait with a total refining capacity of 940,000 b/d. In 2012, GCC refineries produced 3.1 million b/d of the four key petroleum products: gasoline, diesel, kerosene, and fuel oil.

Overall, diesel accounted for the highest share of the GCC's refinery output, followed by fuel oil, kerosene, and then gasoline. But these aggregate figures hide some very different dynamics between countries. In the case of the UAE, more than 47 per cent of the combined output of the three refineries is kerosene, which contributes to the UAE's surplus of kerosene available for Dubai International Airport and for export markets. In Qatar, kerosene accounts for the largest share, followed by gasoline and diesel, while fuel oil constitutes a small proportion of the fuel mix. Similarly, in Oman, the share of fuel oil in the product mix is quite low. This reflects the fact that the power sectors in Oman and Qatar rely heavily on natural gas (entirely in Qatar's case), while in Saudi Arabia and Kuwait liquid fuels constitute an important share of the fuel mix of the power sector.

In the 1970s and 1980s the GCC's refineries were able to meet domestic demand and establish an important position in the trade of petroleum products. However, in the last three decades, refining capacity has failed to keep pace with the rapid growth in demand for petroleum products. According to the US Energy Information Administration, GCC demand for

petroleum products increased more than five times, from 840,000 b/d in 1980 to 4.2 million b/d in 2012, making the region an increasingly important source for global oil demand growth.

Rapidly expanding population, robust economic growth, and improved living standards have contributed to increased car ownership and higher electricity consumption. But a key factor is low prices of petroleum products. In countries such as Saudi Arabia, heavy fuel oil and diesel are supplied to the power sector at a fraction of the prices prevailing in international markets. Such low, subsidised, prices distort pricing signals, and result in a misallocation of resources, wasteful consumption and smuggling of petroleum products into neighbouring countries. Government initiatives to reform these subsidies have moved at a very slow pace. Following the political shockwaves in the aftermath of the Arab Spring, many governments in the region have been reluctant to undertake a comprehensive reform of energy pricing.

While there has been a reduction in the demand for fuel oil, its share in the demand mix is still quite high. Despite the increasing penetration of natural gas into the power sector, liquid fuels are widely used for electricity generation in some GCC countries. For instance, Saudi Arabia relies heavily on crude oil, diesel, and fuel oil for its power generation – in 2012, the share of these liquid fuels accounted for 54 per cent of the power sector fuel mix. Similarly, in Kuwait 36 per cent of power demand is met through fuel oil and 24 per cent by crude and diesel burn, with the combined peak summer demand for liquid fuels around 270,000 b/d.

Surging domestic demand, which has outpaced the growth in refining capacity over the last decade, has eroded product export capacity by most GCC producers, while others have become increasingly dependent on imports of products, mainly gasoline. For instance, Saudi Arabia continues to export kerosene and fuel oil, but it has been importing increasing volumes of gasoline and diesel. Overall, Saudi net exports of the four main petroleum products almost halved between 2005 and 2012, from 320,000 b/d to 160,000 b/d.

In terms of gasoline, the GCC was a small net importer for most of the last decade, while in terms of diesel it is a net exporter, although the volume of diesel exports has declined rapidly in the last decade from around 340,000 b/d to 160,000 b/d. In contrast, exports of kerosene have



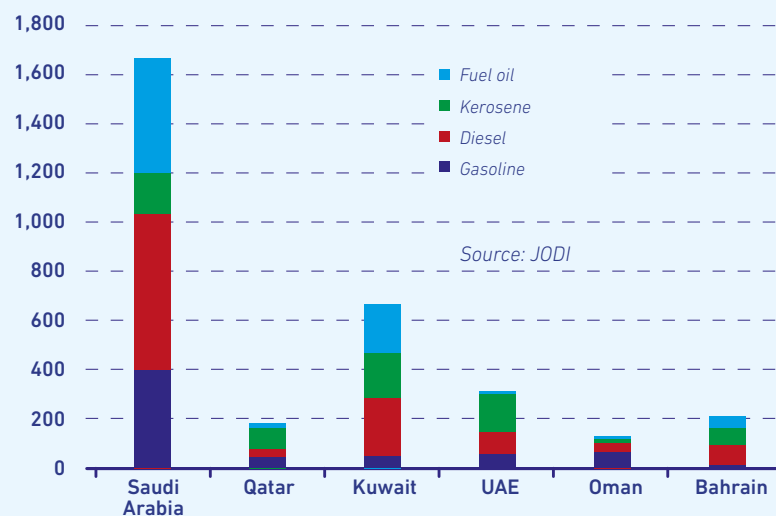
seen some growth in the last few years, while exports of fuel oil have been quite volatile, depending on its domestic use in the Saudi and Kuwaiti power sectors.

Pressure from domestic demand

Mainly due to pressure from domestic demand, the GCC governments have announced new refining projects, which if all implemented on time, would increase refining capacity of more than 3 million b/d by 2018. However, some of the announced projects will face delays or even cancellation. For instance, in Kuwait, the political context remains highly volatile and the country has seen several years of political wrangling between the government and the parliament over the downstream expansion plans. In Bahrain, uncertainties about financing could delay the expansion of the BAPCO Sitra refinery, and there is also the risk that pushing back the proposed completion date could undermine Bahrain's downstream objectives, as other regional rivals expand their own refining capacity. In Oman, the Oman Oil Company (OOC) and Abu Dhabi's IPIC (owned by the government of Abu Dhabi) are looking to build a new refinery, which is expected to be completed by 2017. However, there has not been a tender for the Front End Engineering Design (FEED) and the award of the EPC contract has been delayed. With all this in mind, it is reasonable to expect total refining capacity to increase by around 2 million b/d by 2018.

This will still be a considerable expansion. This will result in a healthy rise in refineries' output in the next five years. In terms of gasoline, this would increase capacity from around 650,000 b/d in 2012 to just above 1 million b/d, but the most rapid increase will be in diesel capacity, expected to double from around 1.1 million b/d in 2012 to close to 2 million b/d. Kerosene and fuel oil output will also rise by 170,000 b/d and around 400,000 b/d, respectively. Overall, across these four products, the GCC is expected to increase its output by more than 1.8 million b/d.

GCC's Refinery Output in 2012 (thousand b/d)



A key question is how much of this growth will find its way to international markets, and that largely depends on domestic demand trends such as the rapid growth of gasoline consumption in Saudi Arabia and the role of fuel oil in Kuwaiti power. It is likely that the impact on gasoline markets of the new refinery expansions will be felt mainly through a reduction of imports (or maintenance at the current level), rather than through an increase in gasoline exports.

In terms of diesel, the picture is different. While the region is likely to witness an increase in diesel consumption during this period, the GCC is expected to increase its exports of diesel almost four-fold between 2012 and 2018. Most of the increase will come from Saudi Arabia and the UAE, with Abu Dhabi National Oil Company (ADNOC) becoming the first Gulf producer to export ultra-low sulphur diesel, mostly for Europe. The growth in net kerosene exports is likely to be more modest, mostly from Saudi Arabia and the UAE as well as Kuwait. Gulf countries will also increase net exports of fuel oil. The UAE will account for the bulk of this increase, establishing itself as a major regional bunker fuel hub competing with Singapore and Rotterdam and providing an export market for the GCC producers with a surplus of fuel oil.

A fairly large proportion of the increase will continue to head to Asia. But this is happening at a time when



the Asian refinery landscape is also undergoing some major transformations. Asian refining capacity has risen sharply in recent years and is mainly biased towards hydrocracking. This is most evident in China, where a massive increase in refining capacity has helped boost product exports – including diesel. Furthermore, as China rebalances its economy towards domestic consumption away from energy-intensive exports, domestic diesel demand growth has started to slow down, and last year China became a net exporter of diesel.

New trade flows

As demand growth for diesel falls and net exports from Asia increase, a significant portion of GCC diesel exports is likely to head to Europe, a region where the diesel deficit is still rising despite stagnant to falling demand, as refineries in Europe remain largely gasoline and naphtha biased. But all major export refining hubs with a diesel bias are earmarking Europe as their top destination, especially as Europe, Latin America, and parts of Africa are the only regions in the world that will be left with a growing appetite for diesel imports. India currently exports around half a million b/d of diesel mostly to Europe and Africa, but the GCC,

with the advantage of lower shipping costs to Europe, is likely to give India stiff competition. Russia, too, is firmly committed to raising diesel exports to Europe in the coming years.

Furthermore, export capacity growth in the US refining industry, fuelled by cheap domestic feedstock thanks to the shale revolution, has seen US diesel exports surge to over 1 million b/d and a large proportion of these have started to reach Europe. So the new and expanded GCC refineries might be competing in a very crowded export market, and they may have to find new markets for their diesel in Latin America and Africa.

These changes in trade flows of oil products and stiffer competition represent a challenge for GCC refineries. But they also present an opportunity for the region to step up its game in the area of oil products trading by creating trading hubs, establishing committed trading arms (as Saudi Aramco has done with Aramco Trading), and enhancing its expertise in the marketing of petroleum products. This will be more challenging than trading crude oil, given the different specifications of the products and evolving regulations in international markets.

In the medium to long term, the refining sector in the GCC will continue to be shaped by local dynamics,

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particularly by the ability of some of the countries to expand and upgrade their refining capacity and, more importantly, by the evolution of domestic demand. In the absence of any serious energy pricing reform that could rationalise the growth in demand for refined products, the race between expanding refining capacity, satisfying rising demand, and maintaining exports will continue. It is the outcome of this race which will ultimately determine the region's position in global products markets in the next decade. ■