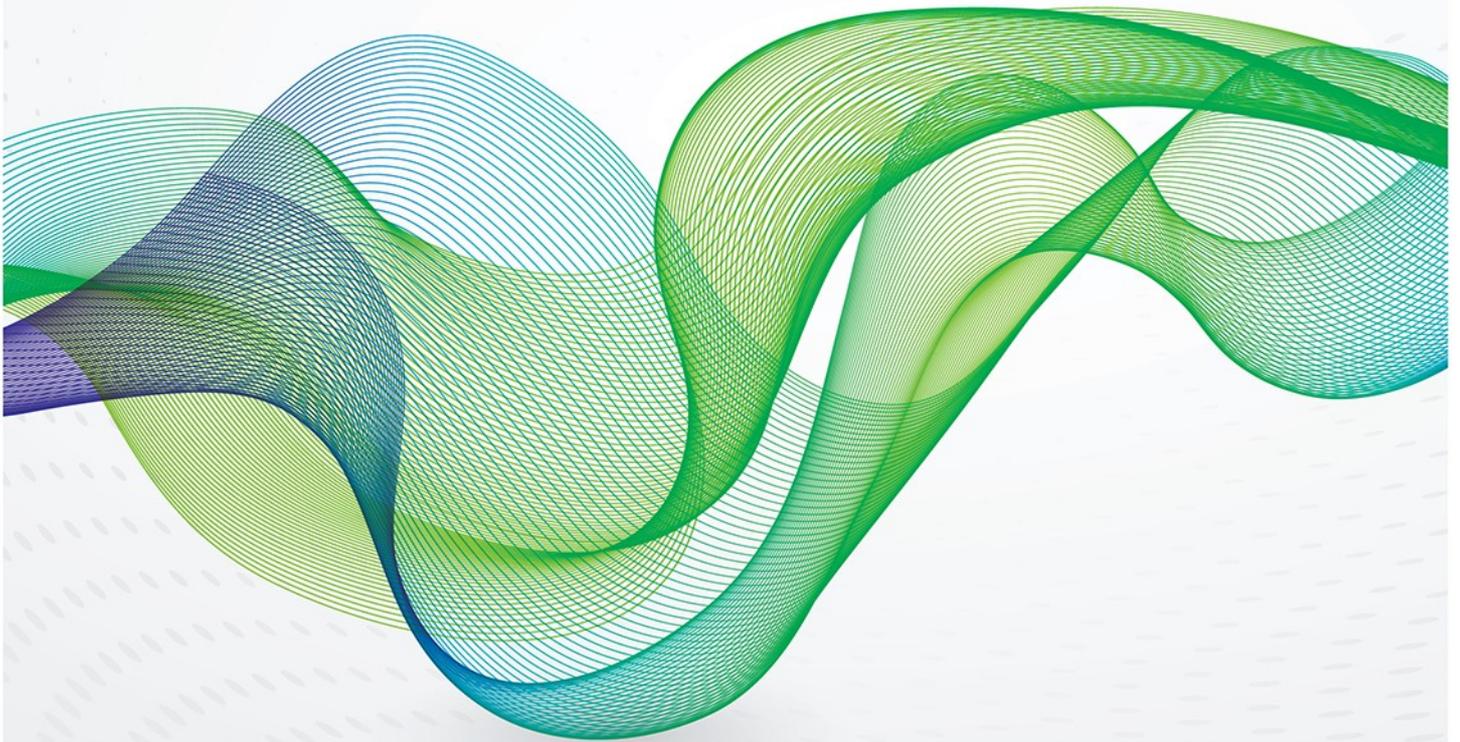


December 2013

# Refining Dynamics in the GCC and Implications for Trade Flows





## 1. Introduction

Following the wave of nationalizations in the oil sector in the 1970s, many national oil companies (NOCs) in the Middle East adopted a strategy of vertical integration, through building export refineries.<sup>1</sup> During this period, regional NOCs such as Saudi Aramco and Kuwait Petroleum Corporation also invested in refining and marketing assets abroad to secure market outlets in the major consumer countries.<sup>2</sup> Investment in refining was (and is) still considered by many policymakers and analysts as a key step towards achieving the broader goals of diversification and job creation. This is not simply because refining creates added value by converting crude oil into refined products, but also because refining establishes the link between the upstream sector and petrochemicals, which in turn provides opportunities for diversification and downstream integration into the full value chain, including the development of new industries.<sup>3</sup>

Between 1973 and 1990, the Middle East's refining capacity increased at a rapid pace, almost doubling from 2.7 million b/d to 5.2 million b/d.<sup>4</sup> However, following this rapid increase, growth in refining capacity stagnated in many Middle East countries for most of the 1990s. This stagnation was a result of many factors including: falling government revenues due to weak oil prices and lower production, low refining margins, the low profitability of downstream compared to upstream, and low petroleum product prices in the domestic market which reduced the incentive for NOCs or state-owned refineries to invest in new refining capacity. Since the early 2000s, however, a sharp increase in domestic demand, together with an improvement in refining margins, have shifted the attention of many Middle East oil producers back to refining. Consequently investments in new refineries, and expansion of existing ones, have picked up, especially in the six Gulf Cooperation Council (GCC) countries.<sup>5</sup>

Many factors can account for this new drive towards expanding refining capacity; the most important motivation is that some of the largest GCC oil producers have been forced to import expensive petroleum products, as domestic demand has outstripped refining capacity in certain petroleum products such as gasoline and diesel. Another factor relates to the shift in strategy towards integrating refineries with petrochemical plants.<sup>6</sup> Some GCC countries are increasingly encouraging their petrochemical industries to diversify the feedstock mix away from ethane towards refined products such as naphtha, butane, and propane.<sup>7</sup> In addition to increasing feedstock availability, the use of refined products provides opportunities to produce more sophisticated petrochemical products that are needed to extend the value chain and generate employment opportunities.

Some of the other drivers are purely technical, being related to factors such as maximizing the yield of high-value products, producing cleaner fuels, meeting more stringent environmental regulations, and reconfiguring refineries to changing patterns in petroleum product demand. A further consideration is

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<sup>1</sup> Al-Moneef, M. A. (1998). 'Vertical integration strategies of the national oil companies', *The Developing Economies*, XXXVI(2), June, 203–22.

<sup>2</sup> This trend has consolidated in recent years. For instance, Saudi Aramco has invested heavily overseas in downstream assets both in traditional markets such as the US, Japan and South Korea and in growing markets such as China. The biggest overseas investment has been in the Motiva refinery in Port Arthur and Convent and Norco in Louisiana in the US. Given the recent shift in global oil demand dynamics towards the non-OECD, Saudi Aramco has also been expanding its activities in Asian markets. The strategy is to partner with local downstream-integrated players to secure market outlets in these growing markets. The investment in the Fujian Refinery and Petrochemical Company with Sinopec and ExxonMobil in China is a typical example.

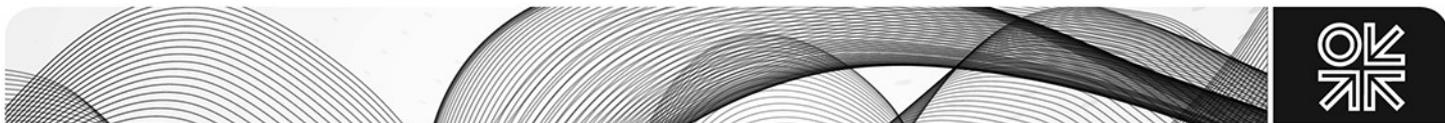
<sup>3</sup> Luciani, G. (2007). 'The GCC Refining and Petrochemical Sectors in Global Perspective', in Eckart Woertz, (ed.), *Gulf Geo-Economics*, Dubai: Gulf Research Center,

<sup>4</sup> BP Statistical Review 2013.

<sup>5</sup> Knott, D. (2013). 'Gulf Refineries Set for Major Crude Distillation Capacity Boost', *MEES*, Volume 56, Issue 1, January.

<sup>6</sup> Fattouh, B. (2011). 'The Saudi Gas Sector and its Role in Industrialisation: Developments, Challenges and Options', in Bassam Fattouh and Jonathan Stern (eds.), *Natural Gas Markets in the Middle East and North Africa* OIES/OUP, Oxford.

<sup>7</sup> Samba (2009). 'Saudi Petrochemicals Sector: Current Situation & Future Prospects', *SAMBA Report Series*, August.



the limited availability of gas for use in the power sector, and in some cases the lack of gas infrastructure, meaning that some GCC countries have no choice but to continue to rely on liquid fuels for power generation, further increasing domestic demand for liquid products. For instance, Saudi Arabia relies on crude oil, diesel, and fuel oil for power generation, with peak temperatures in the summer requiring high volumes of diesel and fuel oil imports.<sup>8</sup> Similarly, in Kuwait, both fuel oil and diesel are used in the power sector, albeit at declining rates as the share of gas in Kuwait's power mix has risen since the country began importing LNG in 2009 on a seasonal basis.<sup>9</sup>

This comment analyses the recent refining dynamics in the GCC and their implications on local and global petroleum products markets and trade flows. We argue that local factors, and particularly the rise in domestic demand, will continue to be the key influence on shaping refinery dynamics in the GCC. Nevertheless, the increase in the region's refining capacity is likely to have important short- and medium-term implications on global products trade flows and refining margins. While the region is expected to continue to be a net importer of gasoline in 2018, GCC exports of diesel could increase almost four-fold between 2012 and 2018. The combination of GCC reduced gasoline imports, together with increased GCC exports of diesel and kerosene, is likely to put pressure on global refining margins, particularly for diesel and on European refining margins where competition from other product exporters such as the USA, Russia, and China is set to intensify. For NOCs in the region, stiffer competition in export markets represents a challenge, but also an opportunity to establish and develop their trading arms and to play a bigger role in the global petroleum products markets by opening new markets, enhancing their expertise and skills in the trading of petroleum products and creating trading hubs.

## 2. The GCC Refining Dynamics

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 (see Table 1 below). 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 0.94 million b/d.

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8 Fattouh, B. (2013). 'Summer Again: The Swing in Saudi Oil Demand', OIES Comment, July.

9 MEES (2013). 'Kuwait Ponders Long-Term Power Fuel Supply Options', MEES Vol.56, Issue 24, June.

**Table 1: GCC Refineries and Refining Capacity, End of 2012**

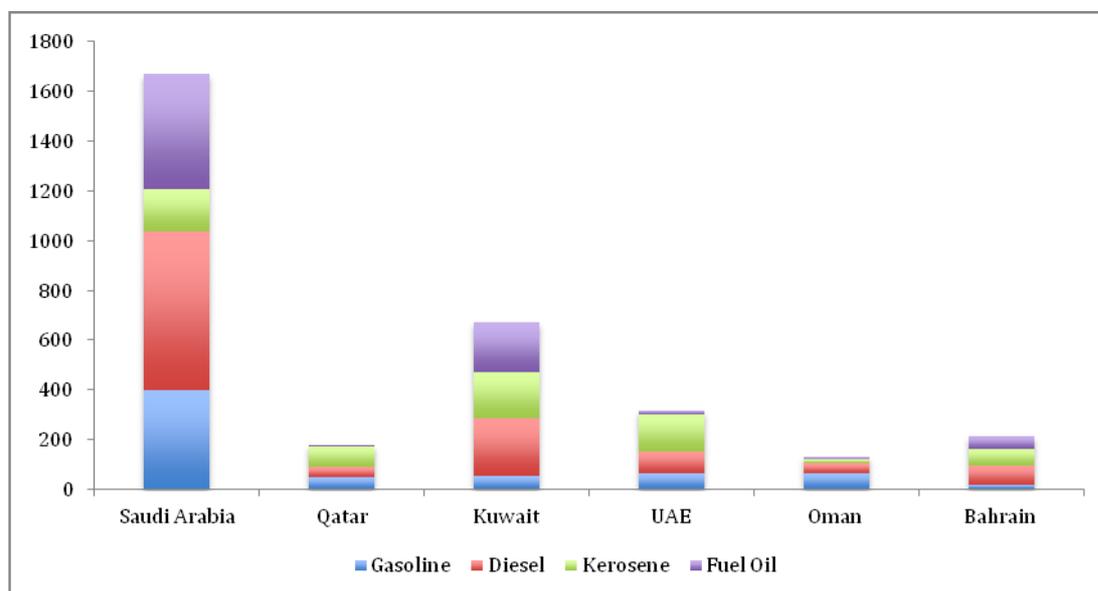
	Owners	Capacity (1000 b/d)
<b>Saudi Arabia</b>		
Riyadh	Saudi Aramco	120
SASREF-Jubail	Saudi Aramco/Shell	305
SAMREF-Yanbu	Saudi Aramco/ExonMobil	400
Yanbu	Saudi Aramco	235
Petro Rabigh	Saudi Aramco/Sumitomo	400
Jeddah	Saudi Aramco	88
Ras Tanura	Saudi Aramco	550
<b>Qatar</b>		
QP Refinery	Qatar Petroleum	137
Laffan	Qatar Gas	146
ORYX GTL	Qatar Petroleum/Sasol	34
Pearl GTL	Qatar Petroleum/Shell	140
<b>Kuwait</b>		
Mina Al-Ahmadi	KNPC	466
Mina Abdullah	KNPC	270
Shuaiba	KNPC	200
<b>UAE</b>		
Ruwais	ADNOC	400
Abu Dahbi (Umm Al-Narr)	ADNOC	90
Jebel Ali	ENOC	120
<b>Oman</b>		
Mina al Fahl	Oman Refinery Company	106
Sohar	Oman Refinery Company	116
<b>Bahrain</b>		
Sitra	BAPCO	265
<b>Total Capacity</b>		<b>4588</b>

Source: Authors' Compilation.

In 2012, GCC refineries produced 3.1 million b/d of the four key petroleum products: gasoline, diesel, kerosene, and fuel oil (Figure 1). 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. These low shares of fuel oil are to be expected, given that the power sectors in Oman and Qatar rely heavily on natural gas (Qatar relies entirely on natural gas). In contrast, in Saudi Arabia and Kuwait, where liquid fuels constitute an important share of the fuel mix of the power sector, the share of fuel oil output is much higher, reaching almost a third in the case of Kuwait.

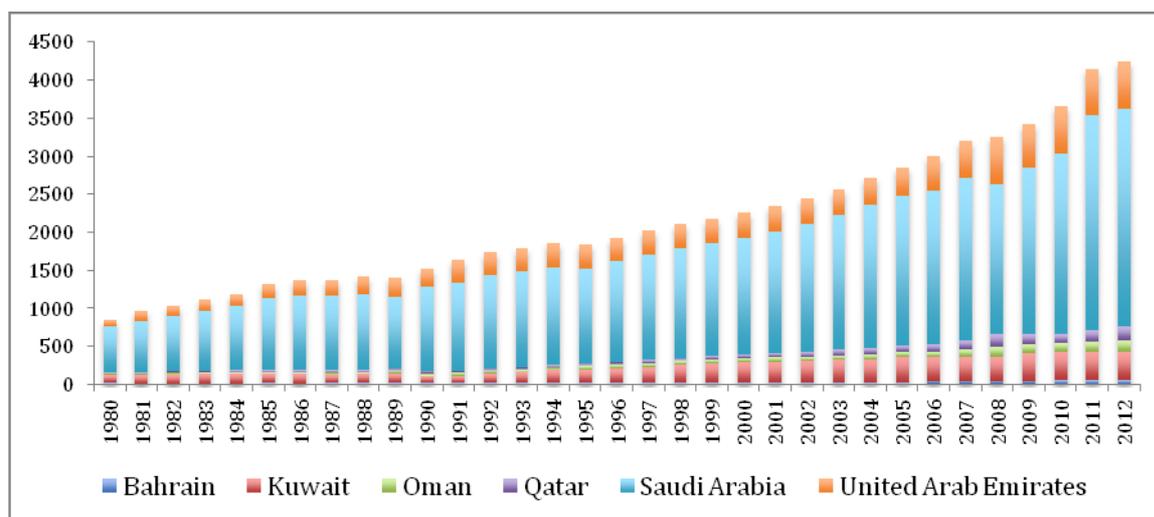
**Figure 1: GCC's Refinery Output in 2012, thousand b/d**



Source: JODI

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, their position started to change as refining capacity failed to keep pace with the rapid growth in demand for petroleum products. The EIA suggests that GCC demand for petroleum products increased more than five-fold, from 0.84 million b/d in 1980 to 4.2 million b/d in 2012 (Figure 2).

**Figure 2: Total Petroleum Consumption in GCC (1980–2012), thousand b/d**



Source: EIA

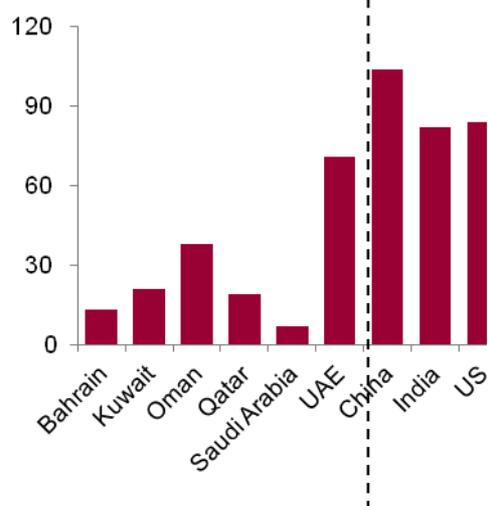
GCC demand has also made up an increasing proportion of total non-OECD demand, rising from less than 4 per cent in 1980 to almost 10 per cent in 2012, which makes the region an increasingly important source for global oil demand growth.<sup>10</sup> Many factors have been responsible for this growth: rapidly expanding population, robust economic growth, and improved living standards – all of which have contributed to increased car ownership and higher electricity consumption. But low prices of petroleum products are perhaps one of the key factors. As Figures 3a and 3b below show, gasoline and diesel prices in the GCC are low even by regional standards. 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, subsidized, prices distort pricing signals, and result in a misallocation of resources, which in turn prevents the country from optimizing the use of its natural resource endowment. Low prices also encourage wasteful consumption and smuggling of petroleum products into neighbouring countries.<sup>11</sup> There have been some government initiatives to reform these subsidies, but 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 – which if successful would help put a dent in oil demand growth.<sup>12</sup>

<sup>10</sup> EIA Website, International Energy Statistics (Accessed September 2014).

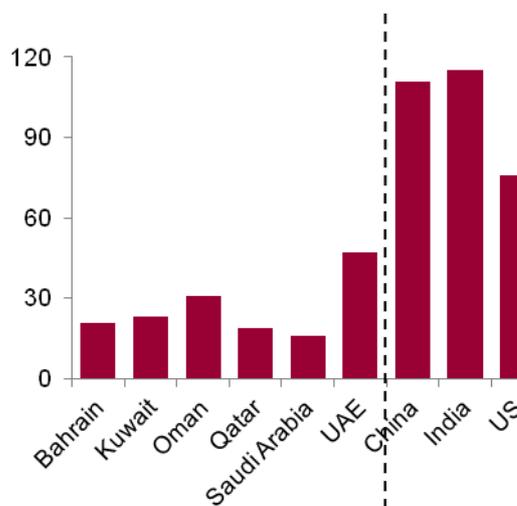
<sup>11</sup> Fattouh, B. and El-Katiri, L. (2012). *Energy Subsidies in the Arab World*. Arab Human Development Report Research Paper Series, United Nations Development Programme.

<sup>12</sup> Darbouche, H. and Fattouh, B. (2011). 'The Implications of the Arab Uprisings for Oil and Gas Markets', Working Paper MEP2, Oxford Institute for Energy Studies.

**Figure 3a. 2010 diesel prices, cents/litre**



**Figure 3b. 2010 gasoline prices, cents/litre**



Source: BMZ

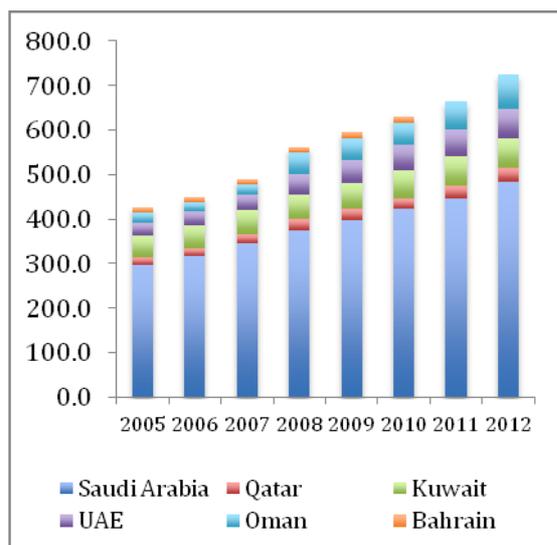
Figures 4, above, show the evolution of demand for the main four products – gasoline, diesel, kerosene, and fuel oil – over the period 2005–12 in the GCC. As can be seen from these figures, the fastest growth has been in light and middle distillates, particularly diesel and gasoline. During this period, the region’s gasoline demand increased from around 0.4 million b/d to over 0.7 million b/d, while that of diesel increased from around 0.5 million b/d to over 0.9 million b/d. What is interesting, however, is that 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 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.<sup>13</sup> 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 0.27 million b/d.<sup>14</sup>

<sup>13</sup> ECRA (2013). Annual Statistical Booklet for Electricity and Seawater Desalination Industries.

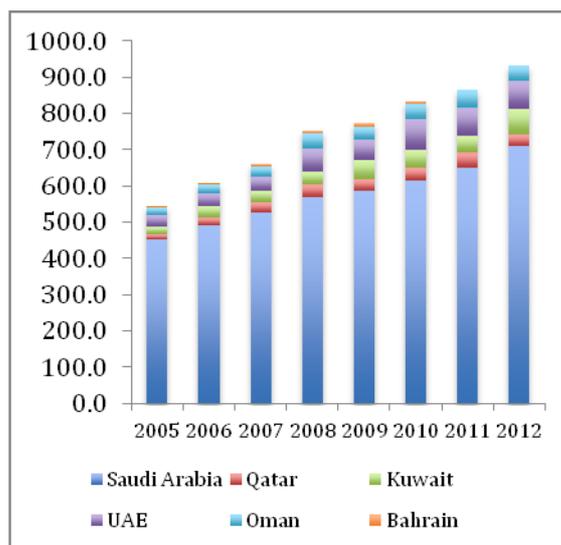
<sup>14</sup> MEES (2013). ‘Kuwait Ponders Long-Term Power Fuel Supply Options’, *MEES*, Vol.56, Issue 24, June.

**Figures 4: Evolution of Gasoline, Diesel, Kerosene, and Fuel Oil Demand (2005–12), thousand b/d**

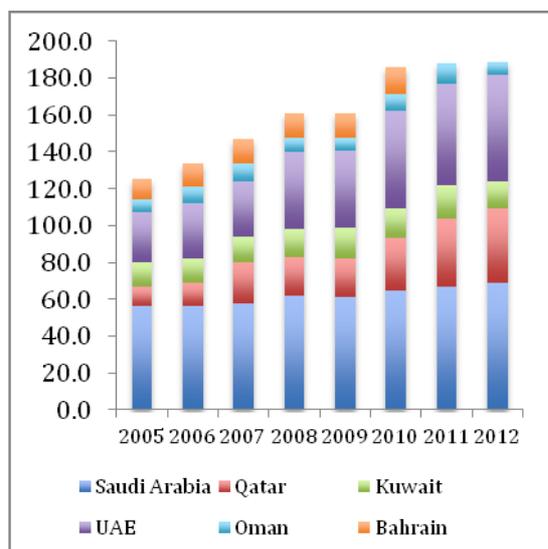
*Gasoline*



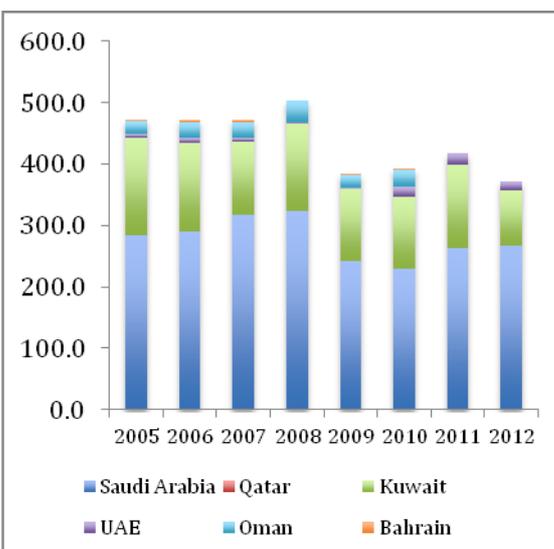
*Diesel*



*Kerosene*



*Fuel Oil*



Note: Data for Bahrain and Oman (fuel oil) are not available for 2011 and 2012

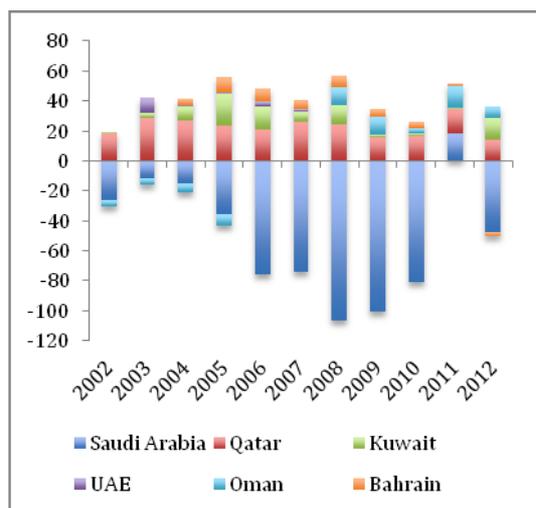
Source: JODI and EIA.

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 (see Figures 5a–5d, below). 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 0.32 million b/d to 0.16 million b/d. Figures 5 also show different dynamics across products. 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 0.34 million b/d to 0.16 million b/d. In contrast, exports

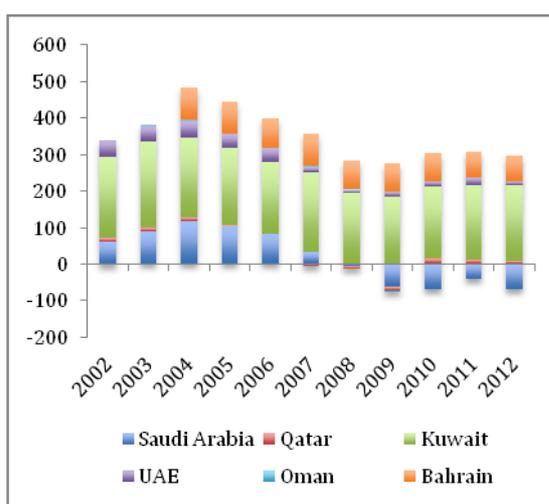
of kerosene have seen some growth in the last few years, while exports of fuel oil have been quite volatile, depending on its domestic use in the Saudi and Kuwaiti power sectors.

**Figures 5: Evolution of Net Exports/Imports of Gasoline, Diesel, Kerosene, and Fuel Oil (2005–12), thousand b/d**

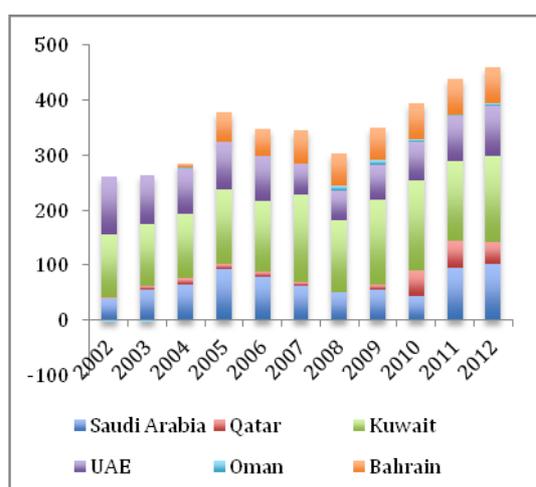
**Gasoline**



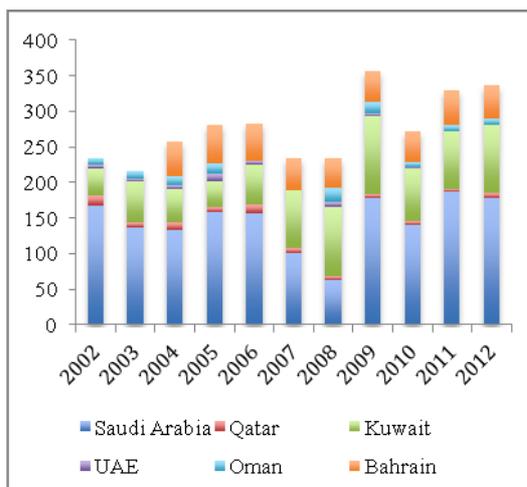
**Diesel**



**Kerosene**



**Fuel oil**



Note: Bahrain data are not available for 2002 and 2003; Oman data are not available for 2006 and 2007, Source: JODI

### 3. Refinery Expansion in the GCC

Mainly due to pressure from domestic demand, the GCC governments have announced new refining projects. If all the announced projects were to be implemented by the target dates, the overall effect would be an increase in refining capacity of more than 3 million b/d by 2018. However, these targets are highly ambitious and some of the announced projects will face delays or even cancellation, for a variety of reasons. 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. There have also been reports that OOC has yet to secure the financing for this project.<sup>15</sup>

**Table 2: GCC Refining Expansion Capacity Plans**

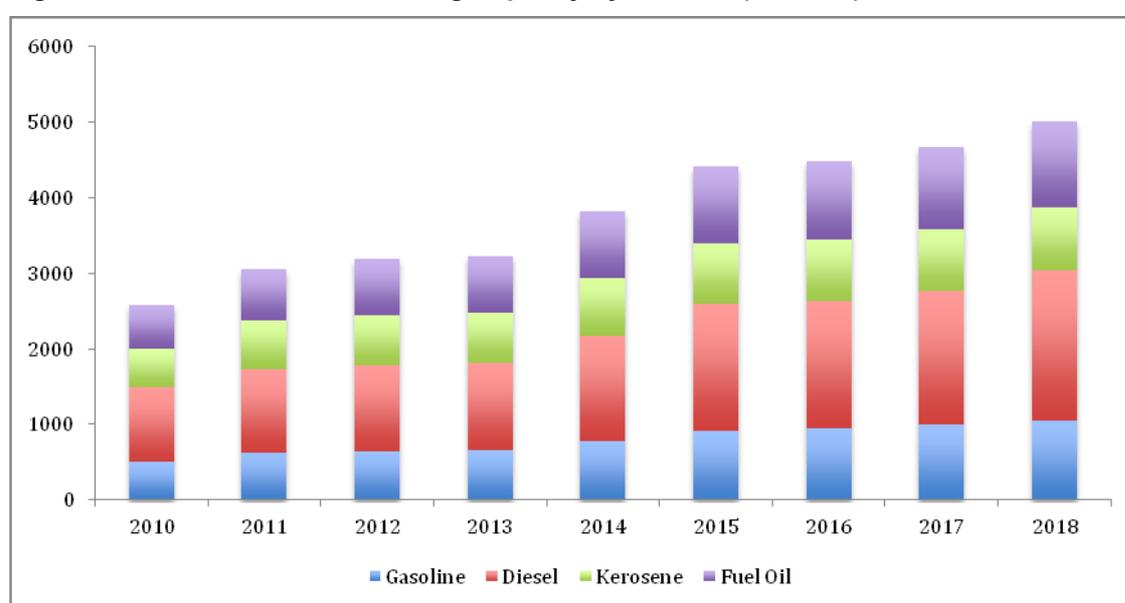
Refinery	Operating Company	Target Date	Estimated Completion	Capacity 1000 b/d
<b>Saudi Arabia</b>				
Jizan	SA	Q4 2016	2017	400
YASREF-Yanbu	SA/Sinoprec	Q4 2014		400
SATORP-Jubail	SA/Total	Q4 2013	Q4 2013	400
<b>Qatar</b>				
Laffan LR2 Exapnsion	QP	2016	2016	146
<b>Kuwait</b>				
Al-Zour	KNPC	Q2 2018	2019	615
Mina Al-Ahmadi Expansion	KNPC	Q2 2018	2019	120
Mina Abdullah Expansion	KNPC	Q2 2018	2019	186
Shuaiba Closure	KNOC	end 2018	2019	-200
<b>UAE</b>				
Ruwais	ADNOC	Q1 2014	2014	417
Fujairah	IPIC	2017	2018+	200
Jebel Ali Exapnsion	ENOC	Q2 2014	2014	20
<b>Oman</b>				
Sohar Expansion	ORPIC	Q2 2016	2016	81
Duqum	ORPIC	2017	2020+	230
<b>Bahrain</b>				
Sitra expansion	BAPCO	2018	2020+	93
<b>TOTAL</b>				<b>3108</b>

Source: Authors' Compilation.

<sup>15</sup> Reuters, 'Oman seeks \$4 bln loan for Duqm refinery, eyes foreign investment', 30 April, 2013.

Allowing for potential delays and cancellations of some of the projects, total refining capacity in the GCC is expected to increase by around 2 million b/d by 2018.<sup>16</sup> While this is 1 million b/d less than the governments' targets (see Figure 6 below), it is still a considerable expansion. This will result in a healthy rise in refineries' output in the next five years. In terms of gasoline, the GCC is expected to increase its output capacity from around 0.65 million b/d in 2012 to just above 1 million b/d, which represents an increase of almost 0.4 million b/d. The most rapid increase, however, will be in diesel capacity, which is expected to double from around 1.1 million b/d in 2012 to close to 2 million b/d in 2018. Kerosene and fuel oil output will also increase by 0.17 million b/d and around 0.4 million b/d respectively. Overall, across these four products, the GCC is expected to increase its output by more than 1.8 million b/d.

**Figure 6: Evolution of GCC Refining Capacity by Product (2010–18), thousand b/d**



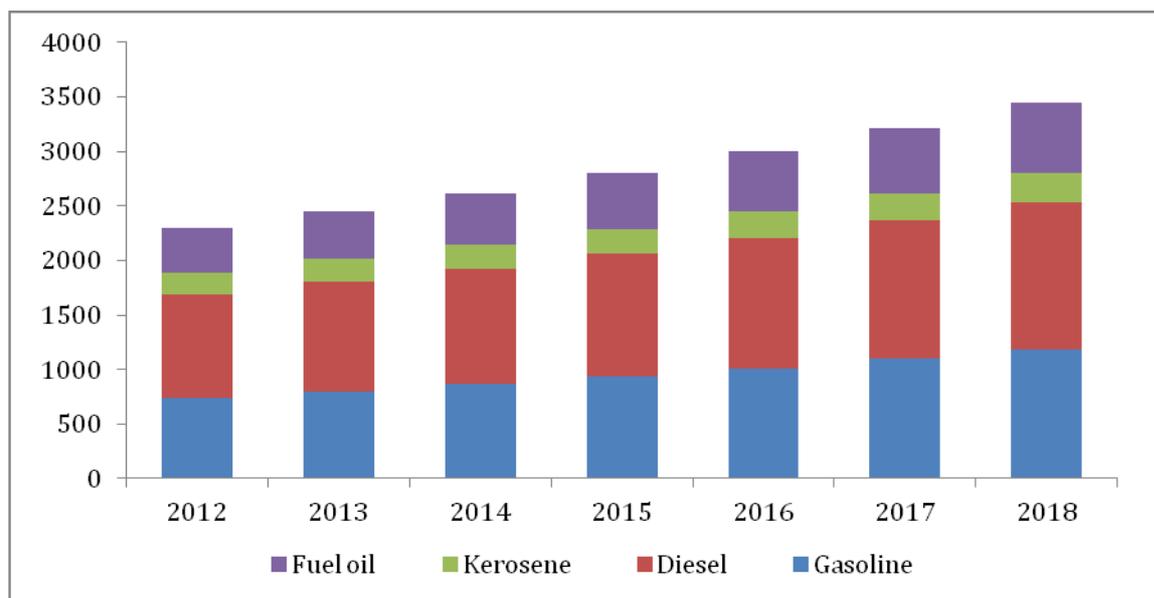
Source: Authors' own calculations.

A key question remains as to how much of this growth in the output of refined products will find its way to international markets. Figure 7 below shows the estimated growth in GCC demand for the four products for the period 2010 to 2018. These are based on an estimate of the income elasticity of petroleum demand in each GCC country and IMF forecasts for GDP growth between 2012 and 2018. Specific trends in growth, for instance the rapid increase of gasoline consumption in Saudi Arabia and the role of fuel oil within the Kuwaiti power sector, have also been factored into the projections.<sup>17</sup> As can be seen from Figure 7, gasoline demand is expected to increase by around 0.45 million b/d while that of diesel to increase from 0.94 million b/d to 1.35 million b/d between 2012 and 2018.

<sup>16</sup> The biggest uncertainty regarding the GCC's refinery capacity expansion is Kuwait: if the planned refineries come online within the government's target date of completion, then the impact on products balances will be substantial.

<sup>17</sup> For more details, see Energy Aspects (2013). 'Middle East Refining: Changing dynamics and global implications', *Middle East Quarterly*, September Issue.

**Figure 7: Petroleum Demand Growth in the GCC (2012–18), thousand b/d)**



Source: Authors' own calculations.

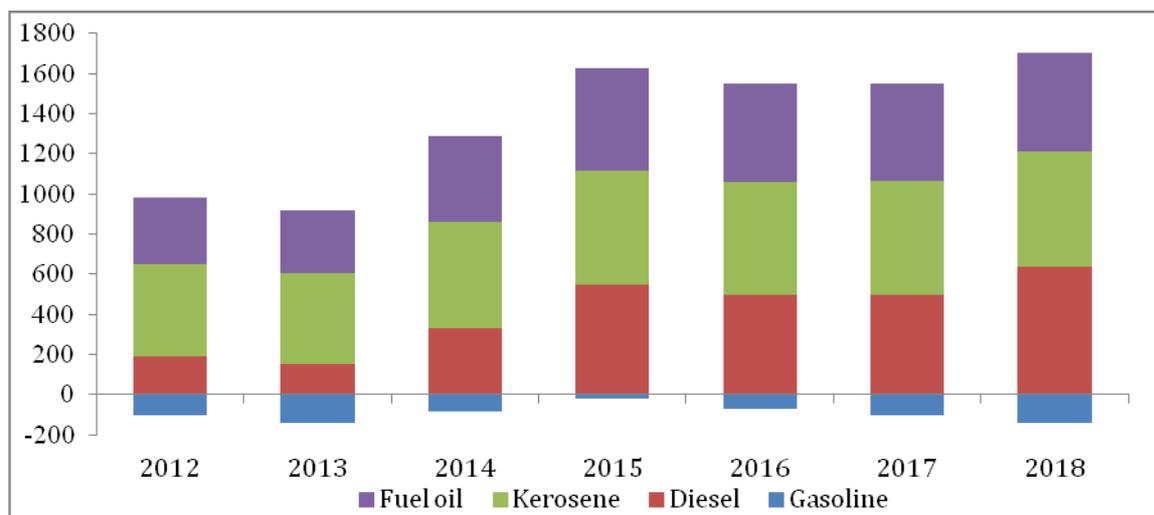
Based on the above estimates of domestic demand, the region will continue to have a deficit in gasoline, though the deficit will be small, at below 0.15 million b/d, for which Saudi Arabia is largely responsible. Therefore, the impact on gasoline markets of the new refinery expansions will be felt mainly 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) planning to offer diesel with a sulphur content of 10 ppm for 2013 contracts, making it the first Gulf producer to export ultra-low sulphur diesel on a term basis, with most of the shipments expected to reach Europe.<sup>18</sup> Other GCC countries will also remain net exporters of diesel. A similar picture also emerges in terms of kerosene, though the growth in net exports is likely to be more modest – around 0.1 million b/d between 2012 and 2018 – with most of the increase originating from Saudi Arabia and the UAE, while Kuwait would also remain a key net exporter of the product. In terms of fuel oil, the GCC will continue to be an important net exporter, increasing its net exports by around 0.15 million b/d during the projection period. The bulk of the increase will be accounted for by the UAE, helping the country to establish 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.<sup>19</sup>

<sup>18</sup> Reuters (2012). 'ADNOC to Offer Cleaner Diesel Fuel Exports', Reuters, 17 October.

<sup>19</sup> New York Times (2013). 'Blessed by Geography, Fujairah Flexes New Clout', New York Times, 1 October 2013.

**Figure 8: GCC net Petroleum Product Flows (2012–18), Thousand b/d**



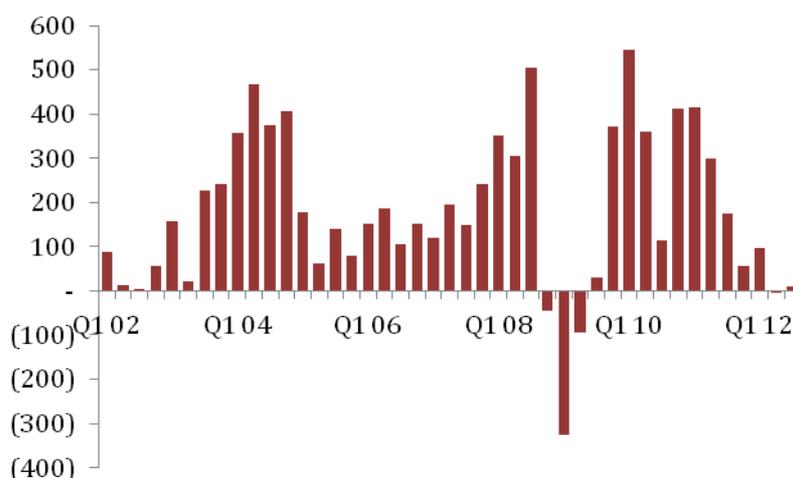
Source: Energy Aspects; Authors own calculations.

#### 4. Local and Global Implications for Trade Flows

Reduced imports of gasoline and increased exports of diesel, kerosene, and fuel oil from the GCC are likely to have a big impact on global products trade flows for the rest of this decade. Upgrades to existing refineries are already allowing the GCC to produce low-sulphur diesel and as new capacity comes online, 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 (Figure 9); combining this with the rise in refining capacity, China became a net exporter of diesel in 2013.<sup>20</sup> The net surplus of diesel in China is likely to continue to rise in the coming two to three years as the rebalancing continues, given that it takes a long time to build new, or change the configuration of existing refineries.

<sup>20</sup> 'Flush with fuel, China targets new markets from Africa to Australia', Reuters, 13 November, 2013.

**Figure 9: Quarterly Chinese diesel demand, year-on-year growth, thousand b/d**



Source: China Customs, Reuters

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 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. Thus, the growth of GCC diesel biased refineries has direct implications for refineries in other parts of the world. In particular, India currently exports 0.4–0.55 million b/d of diesel (see Figure 10), mostly to Europe and Africa, but the GCC, with the advantage of lower shipping costs to Europe, is likely to give India stiff competition in the future.

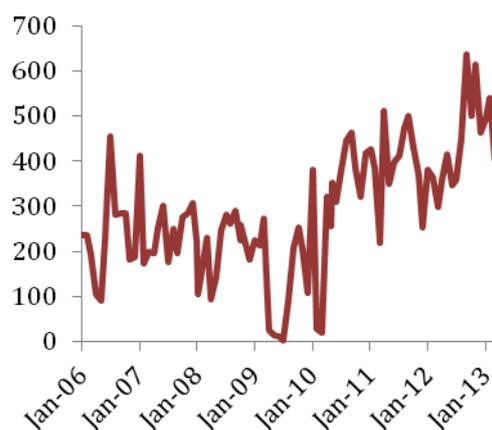
Meanwhile, the Russian government's firmly stated commitment to the regeneration of its refining industry, including the introduction of the 60:66 tax, indicates that Russian fuel oil output will decline while that of diesel will increase during this decade.<sup>21</sup> Although the exact timing of the reduction in fuel oil production remains unclear, as it will depend on when Russian refinery projects are completed, Russia 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 (see Figure 11), and a large proportion of these have started to reach Europe. These shifts in trade flows indicate that the new and expanded GCC refineries might be competing in a very crowded export market, and at times they may have to find new markets for their diesel in Latin America and Africa.<sup>22</sup>

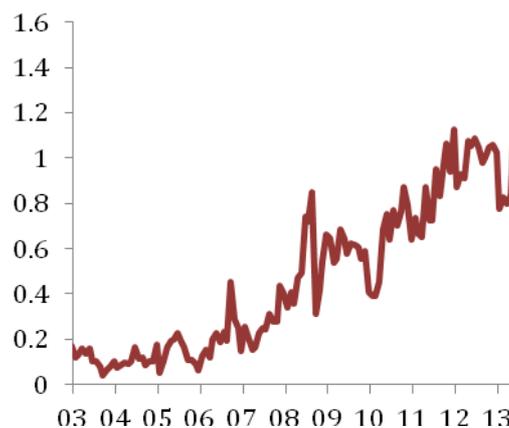
<sup>21</sup> Fattouh B. and Henderson J. (2012). The Impact of Russia's Refinery Upgrade Plans on Global Fuel Oil Markets. Working Paper WPM 48. Oxford Institute for Energy Studies.

<sup>22</sup> The shipping industry could fundamentally transform the dynamics for diesel demand. From January 1, 2012, the International Maritime Organization (IMO) has mandated that ships' global sulphur emission cap be reduced from 4.5% to 3.5%. By 2020, the global sulphur cap may be reduced further to 0.50%. In Emission Control Areas (ECAs), the requirements are more stringent. On 1 July 2010, the sulphur cap in ECAs was reduced from 1.50% to 1.00% and by 1 January 2015 it must be reduced further to 0.10%. The implications of such regulatory changes on the products market still remain unclear. The shipping industry could respond to more stringent regulations by shifting to distillate fuels such as Marine Gas Oil (MGO) and Marine Diesel Oil (MDO) as it is very costly to change fuel oil from 3.5% to 0.1%.

**Figure 10: Indian net diesel exports, Figure 11: US distillate exports, million b/d thousand b/d**



Source: PPAC



Source: EIA

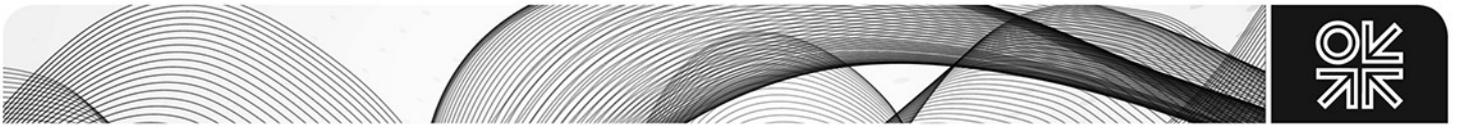
Gasoline trade flows are likely to follow different dynamics, where the GCC will continue to be a small net importer of gasoline. This is both due to the pace of demand increases as demand for private transport continues on its strong upward trend, and because much of the increase in refinery output is geared towards the middle of the barrel, with Europe likely to be the primary provider of gasoline blendstocks, which would be blended with regionally produced naphtha. Nevertheless, the new refineries coming online will help moderate the rise in net imports of gasoline.

Overall, the GCC is in a similar position to that of Asian consumers. For instance, China is expected to be net short gasoline by 2015 as gasoline demand outpaces existing refining capacity, particularly as the economic rebalancing takes effect and the demand for private transport continues to rise.<sup>23</sup> The wider Asian region is already short gasoline as a result of rising income and growth trends in countries such as Indonesia, Malaysia, and Vietnam. Both Asia and the GCC will be relying on growing gasoline imports from Europe, which may provide some limited relief for European refineries that have been faced with substantial declines in exports to their main consumer, the USA, and increasingly struggle with competition in Latin American and African markets, as US refineries continue to capture market share for gasoline as refinery utilization has been at record levels over the past three years.

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, and enhancing its expertise in the marketing of petroleum products – more challenging than trading crude oil, given the different specifications of the products and evolving regulations in international markets. This is already underway. For instance, Saudi Aramco has established its trading arm, Aramco Trading, to represent the company's interest in sales and purchases of refined petroleum products. Once Saudi Arabia's new refineries are up and running, Aramco Trading will be handling higher volumes of products. In addition, the company is the sole entity supplying the Kingdom's large and fast-growing needs. In Oman, state-owned Oman Oil Company has entered into a joint venture with Swiss-based trader Vitol to establish Oman Trading International (OTI), with the aim of expanding its trading activities into Asia.<sup>24</sup> Such bodies as Aramco Trading and OTI could grow in size and expertise and

<sup>23</sup> 'Chinese Drivers Push Up Gasoline Demand', *The Wall Street Journal*, May 1, 2013

<sup>24</sup> 'Oman trading company seeks Asia expansion', *Gulf Daily News*, 21 May 2012.



could potentially rival some of the established trading houses. In the UAE, Fujairah has become an oil products trading hub, leading to increasing international trade flows from the GCC and growing demand for storage and blending. The emergence of such trading hubs may also result in the region developing its own pricing points and benchmarks.

## 5. Conclusion

The recent expansion plans in the GCC will have important implications on global petroleum products trade flows, constituting an additional source of competition for Asian and European refineries that could weigh down on refining margins, especially in Europe. While this represents a challenge for GCC refineries, it can also open up new opportunities for regional NOCs to build their trading capability in products markets and diversify their export base by increasing the export share of petroleum products and opening new markets. However, in the medium to long-term, the refining sector in the GCC will continue to be shaped by local dynamics, 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 rationalize 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.