

The global refining industry adapts to new realities

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Rarely has the contrast between “winners” and “losers” in the refining world been more pronounced than in 2013 and 2014, when new global players disrupted the traditional order. Refiners in mature economies in Europe and the Pacific continue to confront challenging market environments, while those in the US are profiting from the region’s supply-side revolution. In less than a decade, the US has gone from being one of the world’s largest product importers to its largest product exporter. Investment plans are being drawn up to further take advantage of regional supply growth. By contrast, outside the OECD, the tides are turning against the refining industry. A marked slowdown in Chinese apparent demand growth has prompted a large-scale reassessment of refinery expansion plans in the very region where most of the growth had been coming from in the last 10 years, and which until recently had been expected to contribute most of it in the medium term. While the fortunes of Asian refiners are waning, a new era in Middle Eastern oil history commenced with the start-up of Saudi Arabia’s Jubail refinery last year.

For the last decade, the refining story largely mirrored underlying developments in the broader economy and global oil demand. As both economic growth and oil demand shifted towards emerging markets, so did investments in the downstream sector and in turn refinery capacity and crude oil throughputs. Mature OECD markets saw both their oil demand contract and their refining industry consolidate, while the non-OECD, and in particular Asia, experienced unprecedented growth. Due to the long lead time of refining expansion projects, emerging-market economies tried to anticipate future demand growth by aggressively investing in the downstream sector. Thus global refining capacity has been migrating even faster than end-user demand from one half of the global economy to the other. While non-OECD economies are only expected to overtake the OECD in oil demand some time this year, in the downstream sector the shift already occurred in 2011.

While the overall trend of declining oil demand in the OECD came to an abrupt halt in 2013, with demand inching up 75 thousand barrels a day (kb/d) year-on-year, OECD refiners continued to cut capacity and curb utilisation levels. A further 0.8 million barrels a day

(mb/d) of capacity was closed last year, most of it in Europe and OECD Asia Oceania, bringing total refinery closures since the 2008 financial crisis to 4.5 mb/d. A further 0.8 mb/d has already been committed to shut for 2014. The capacity reductions have not been enough to lift margins, however, resulting in significant industry losses and low utilisation rates. While benchmark margins in key refining hubs in Europe and Singapore remain in the doldrums, US refiners have fared much better.

As widely publicised, the US refining industry has rebounded over the past five years, thanks largely to the surge in regional shale gas and light, tight oil supplies. Access to discounted oil and gas compared with international benchmarks provided a windfall to domestic refiners. Cheap natural gas, used as refinery fuel and the largest contributor to operating costs, has also provided an important boost to US refinery margins – especially relative to those of international competitors. Surging US light, tight oil supplies and heavy Canadian crudes have led to significant price discounts to international benchmarks, providing further value. US and Canadian crude oil has at times been discounted by more than US\$25 a barrel for WTI and US\$55 a barrel for WCS (Western Canadian Select) compared with Brent, as the crude has been stranded by both pipeline capacity constraints and export restrictions in the US. As a result, US refinery throughputs have increased, lifting crude runs by 0.3 mb/d year-on-year (y-o-y) in 2013 and by an even more impressive 0.7 mb/d y-o-y in the first quarter of 2014. As a consequence, US product exports surged to a record high of 3.5 mb/d in December 2013, with Mexico and Latin America as key destination markets, though increasing volumes of distillate are flowing to Europe.

As US refiners ride the wave of surging regional crude and liquids supplies, investment plans in the sector are being scaled up to accommodate rising light, tight oil production. More than 500 kb/d of new refinery capacity, most in the form of simple topping units or condensate splitters, have recently been proposed for the next few years. A relaxation of current condensate export restrictions currently being discussed could derail some of these plans quickly.

America’s gain has been Europe’s loss – at least up to a point. While the European refining industry



troubles have been brewing for some time, they intensified in 2013. Regional throughputs sank to 25-year lows in October last year. Despite a slight recovery since then, European crude runs plummeted by 650 kb/d year-on-year for 2013 as a whole, with annual contractions in the second half of the year amounting to more than 1 mb/d. Yet regional benchmark margins failed to improve.

Not surprisingly, chronically dismal and structurally weakening throughputs and margins have encouraged European refiners to shed capacity. Since the recession of 2008, 1.7 mb/d of refining capacity has been closed in Europe. In the same period, demand contracted by a steep 1.9 mb/d. The threat of more closures looms.

The adverse effects of the US refining boom are not limited to Europe. Even in China, until recently the main driver of refinery expansions and investments, both national champions and international players are rethinking and scaling back ambitious plans.

Surging Middle Eastern capacity is accelerating this retrenchment. The start-up in Saudi Arabia in 2013 of the state-of-art Jubail refinery, set to reach full capacity some time this year, opened a new chapter in global refining, in which the Kingdom joins, at least for now, the club of global oil product players. Middle Eastern products are starting to hit international markets, albeit in small volumes so far. Saudi Oil Minister Ali Al Naimi announced in January that another 400 kb/d plant, the Yanbu refinery which it is building with China's Sinopec on the Red Sea, is on track to be completed by the third quarter of 2014. Meanwhile, the UAE's new 420 kb/d Ruwais refinery could also be commissioned before year end, adding to the product glut out of the region.

In the medium term, several other large-scale projects are set to be completed. While these refineries are largely intended to meet rampant regional demand, they are also expected to export part of their output.

Demand and supply continue to surprise

Hence the scaling back of Chinese expansion plans. Only a year ago, a whopping 4.3 mb/d of incremental refinery capacity had been expected to come on stream in China over the five-year period to 2018, though the IEA cautioned even then that some of those projects may not be sufficiently supported by Chinese demand growth forecasts of 2.4 mb/d over the same period. Indeed, a year later, the project list has been

drastically scaled back, with only a fraction of projects firmed up or confirmed. National oil companies CNPC and Sinopec have both voiced concerns over a looming surplus capacity. CNPC has delayed two projects, while Sinopec's Chairman and CEO said in March he was concerned about surplus capacity. And Sinopec's latest business plan, released in early 2014, only includes one refinery in its major project list, the Guangdong integrated refining and petrochemical project, including a 300 kb/d refinery, due on stream in 2017. Shell last year pulled out of the 400 kb/d Taizhou refinery project, which it was developing with CNPC and Qatar Petroleum International, and BP has decided against investing in a Chinese refinery with CNPC. Also, Rosneft, which was planning to build a 400 kb/d plant with CNPC in Tianjin, said recently that a final investment decision will only be taken in 2017. Corruption scandals and increased public outrage over pollution have helped slow the expansions. Shandong province put a halt to the approval of all new projects in a move to tackle overcapacity and increasing air pollution.

Other Asian emerging economies have also been slowing somewhat recently. For the first time in over a decade, Indian refinery activity contracted for four consecutive months around the New Year. Ebbing demand, in particular for diesel on the back of subsidy reductions and a temporary lull in new capacity build, underpinned the slowdown. The imminent start-up of the much delayed Paradip refinery, around mid-year, will lift Indian capacity by another 300 kb/d however. Nagarjuna's 120 kb/d Cuddalore plant will follow. While still some way off, Petronas' board of directors finally approved the 300 kb/d Rapid refinery and petrochemical plant in Malaysia due in 2019.

Regardless of the specific timing of refinery expansion plans around the world, one fact remains: the sector is rapidly evolving from a regionally and locally oriented industry, in which each plant is primarily intended to supply its surrounding market, to a more globalised and geographically integrated one, characterised by the emergence of large international refining hubs with a global reach. Demand and supply side factors continue to surprise, and the global refining industry is constantly adapting to new realities. ■

For a full update on the implication of these developments on investment, crude and product trade and balances, see the Medium-Term Oil Market Report 2014, <http://www.iea.org/publications/medium-termreports/>