Asia – Pacific region to drive refining growth to 2016 – Jeffrey Kerr, Managing Analyst – Downstream Oil & Gas, GlobalData

Through 2016, the Middle East and Africa region will see the largest amount of new build capacity growth, contributing around 44% of the total net capacity additions globally, followed very closely by the Asia – Pacific region at 36%. Global refining capacity will grow at an average annual rate of 3.2% until 2016 as these new refineries come online, according to a study published by business intelligence provider GlobalData (www.globaldata.com). As a consequence of this developing market growth, the share of North American and European refining capacity growth will actually shrink by about 5%, due to closures, consolidations and cancelled projects.

The Asia – Pacific region is seeing a rapid increase in refined petroleum products demand. Countries such as China, India, Indonesia, Malaysia and Vietnam are seeing large – scale increases in motor fuels demand, as well as industrial fuels demand as each of these countries sees growth in its nascent middle class. Although economic headwinds, brought on by declines in economic activity in Europe and North America, have delayed or cancelled some previously announced newbuild refinery capacity additions in the region, the bulk of this project look likely to go ahead.

Product demand growth has been so significant that the Asia – Pacific region has become the world's motor fuel demand leader, eclipsing the US. This rapid demand growth is one of the key drivers behind many countries in this region electing to build large – scale, newbuild refineries. In this way, these countries can trade in their higher – cost crude oil import bills, one the costs of building the new plants are factored out. China National Petroleum Corporation (CNPC), Sinopec, Sinochem and China National Offshore Oil Company (CNOOC) are all building new refining capacity, with the bulk of the build due to be finished by 2016. All is not rosy in the Asia – Pacific refining sector, however, as smaller disadvantaged refineries face closure either due to a loss of market share or changing environmental regulations. Caltex announced recently that it was closing one of its two refineries in Australia at kurnell (124,500b/d) and Cosmo Oil has announced it will close its 140,000b/d refinery at Sakaide in Japan in 2103 due to low demand. Australian and Japanese oil company executives believe they will be able to cover refined product needs either through domestic supplies or through spot market purchases as regional refining capacities ramp up.

Other regions

The Middle East and Africa region, home to many of the world's major oil – exporting countries and OPEC members, is also building many new refineries, but for different reasons than those that are prevalent in the Asia – Pacific region. While domestic demand for refined projects is on the upswing throughout the region and a growing middle class seeks more access to goods and services within these countries, a chief driver for the newbuild refinery construction in this region is refined product exports.

This is especially true in the Middle East, where countries like Saudi Arabia, the United Arab Emirates, Oman, Kuwait and Iran have projects on the books through 2016 and beyond geared towards producing exportable gasoline, naphtha, diesel fuel, asphalt, fuel oil and lubricants to markets in Europe, Africa and the Asia – Pacific region.

The Middle East refiners with newbuild construction projects underway have focused their efforts on building complex refineries that will have the flexibility to process the heavier, more sour crude slates that make up the bulk of their crude sales, especially to the West. The margins on these slates will be

higher, allowing these state – owned oil companies, and their partners, to recoup their investments much quicker. The clear leader here is Saudi Aramco, with 800,000b/d of new capacity coming online.

The African refineries under construction or planned do not really fit into an overall trend and tend to be more domestically – oriented. In North Africa, refinery construction projects in Egypt, Algeria and Morocco are geared towards meeting growing domestic demand, while a potential project in Uganda will satisfy domestic demand and provide refined products for exports to the surrounding region, if the government can find a satisfactory partner to help build and operate it.

Several refineries have been proposed for Nigeria, but will likely not come to fruition if history is any guide, as funding problems will plague these projects. Angola has a refinery under construction that will be used to meet domestic and export demand, while South Africa's big project at Coega Bay has been delayed to outside the 2011 – 2016 window.

While the bulk of the newbuild refineries under construction are in the Asia – Pacific and Middle East and Africa regions, there still is some newbuild underway in the Americas, with Brazil leading the way. Brazil, through partially state – owned oil company Petrobras, has newbuild refinery construction at Comperj and Pernambuco that will lift its total refining capacity to 121.5mn t/y (or 2.44mn b/d). In 2011, Brazil's total refining capacity was 101.8mn t/y (2.05mn b/d)/

Meanwhile, Venezuela's PdVSA has several refinery projects under construction or planned to be built in the Caribbean, Central America, South America and China during the 2011 – 2016 timeframe. However, many of them have been plagued by funding problems and construction delays, so it is doubtful that these projects will add much new capacity to the regional total by 2016.

The challenges faced by the refining industry in Europe and North America include an uncertain economic environment and increasing cost pressures. The situation is especially difficult in Europe, as the region is facing a sovereign dept crisis which has resulted in a decline in demand for petroleum products. The costs of refining operations remain high as oil prices and other operational costs remain high, and reining companies need to invest continuously to meet stringent environmental regulations. The situation has led to at least one high – profile bankruptcy (Petroplus) in the last few years, where refineries were either sold to third parties or were shut down permanently.

Stringent environmental regulations have hindered the development of newbuild refineries in Europe and North America, as well, although some companies have persevered against these headwinds. Pemex, the state – owned oil company of Mexico is building a new 300,000b/d refinery at Tula in Hidalgo State that will satisfy local demand for refined products once it is complete in 2016. The refinery will boast that latest hydro treating technology to reduce sulphur content and emissions. Falling just outside this window is the 400,000b/d Hyperion Resources refinery in South Dakota, which might start construction in the spring of 2013 if it can clear up a court challenge to its air permits.

Although it is not a newbuild refinery project, it bears mentioning that Motiva started a 325,000b/d expansion of its Port Arthur, Texas, refinery in May 2012, raising the nameplate capacity of the refinery to 600,000b/d. However, an accident at the site caused enough damage at the new atmospheric distillation unit to have to be shut for repairs for much of the rest of the year, although most of the new secondary units continued to operate. Motiva is a joint venture of Saudi Aramco and Shell.

Governments the world over are imposing far more strict regulations on sulphur content and emissions on petroleum products. Environmental regulations in the US, coming from the Clean Air Act and its many amendments, along with regulations issued by the European Union (EU), seek to decrease smog and carbon concentrations in the air. In order to be in compliance with these regulations, US and European refiners have made costly investments in hydro treating technology over that last several years, while also changing crude slates to maximize profit potential.

Strong underlying crude oil prices and strict environmental regulations in the EU have has the effect of sharply reducing the demand for refined products in the region. Refiners are responding to the decrease in demand for oil products by cutting costs, reducing capacity utilization and closing facilities, or making the necessary investments to keep the product supply moving. One such company is Total, which is investing heavily in hydro treating capacity at its Antwerp refinery in Belgium. The implementation of the Fuel Quality Directive in the EU is expected to increase costs for the refining industry further, as it provides EU member countries with two options – either import refined products into the region or produce locally by purchasing permits and paying for a restricted amount of greenhouse gas and carbon dioxide emissions.

Another EU environmental regulation, the Renewable Energy Directive, is expected to increase environmental – associated costs by 2020, due to plans to use renewable energy at a level of at least 10% in the transportation sector, in the form of biofuels. Increase biofuels penetration in the US, mandated by congressional action, has resulted in sharply lower gasoline demand in North America, too.

Asia – Pacific growth

The on –going economic turbulence has resulted in a period of restructuring for integrated oil companies and independent refiners alike. In 2011 and 2012, major integrated oil companies and independent refiners started divesting their refining assets or shutting them down completely, especially in North America, the Caribbean and Europe. BP has announced sales of refineries in Texas and California, while plants on the markets. This trend looks likely to continue as companies strive to divest underperforming assets and concentrate on assets where they have scale and access to advantaged crude oil streams.

As the middle of the second decade of the 21st century rapidly approaches, the global refining business will be centred on the Asia – Pacific region, moving away from the Atlantic Basin, where it has been focused for most of the last 100 years. This will mark a sea – change in the global energy business.