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Navigating Through Challenging Times with Innovation as a Compass

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While writing these lines, growth is healthy in the US and Great Britain. However in the Euro zone, the world's second most important economic area, GDP rose only by 0.7% and economy in Japan also performed badly due to a new sales tax that has reduced consumption. But growth has also been disappointing in emerging markets.

Brazil's economy is stagnating and economic sanctions hitting Russia have negatively impacted its economy. Even in China, where growth reaches an enviable 7% a year, worries about a credit bubble and a decline in productivity remain. On the other hand India's economy is recovering and its ability to withstand external shocks has improved. It looks promising as the budget has set the GDP growth target at 8-8.5%.

The common perception is that global growth should strengthen in 2015 as the recent economic weakness should be temporary and global GDP growth should rise to 3.8% in 2015.

The differential of GDP growth between advanced economies and emerging markets as well as the global crude and natural gas markets will continue to shape the refining and petrochemical landscape industries. In 2014, for the first time, non-OECD countries' oil demand overtook the OECD, and represented 50% of the global oil demand. According to the IEA, non-OECD market share is forecast to continue to rise and reach 55% by 2020.

This article will perform an overview of the global downstream field.

In Europe since 2008, 15 refineries have been shut down to reduce over-capacity, to reach a total of about 2.0 million b/d. Pressure remains to make more cuts and adapt supply to a decreasing demand. The remaining refineries will require additional investments to stay competitive and adapt their product mix. The European Nelson complexity index is at a 8.0 average, compared to 11.7 in the US. To increase their competitiveness, European refiners will have to invest in bottom of the barrel technologies to convert residue into cleaner fuels, especially middle distillates. The impressive dieselisation of the European vehicle market has left Europe short in diesel and long in gasoline. At the current pace, gasoline surplus, about 30 million t/y, could further increase. Europe will have to find new markets to sell its surplus since the US is becoming a net exporter of gasoline volumes to South America and Africa where both compete.

Regarding diesel, the 50 million t/y European deficit shows little improvement. The FSU, Europe's traditional supplier, could keep filling the diesel deficit but the US and the Middle East would become increasingly important suppliers. Axens provides a wide range of technological solutions that allows the conversion of residue into clean fuels, but also technologies such as PolyFuel and FlexEne, which increase diesel production and balance the product mix.

Energy costs represent more than 50% of operating expenses in Europe, so any related improvement will improve refinery margins. Axens' energy efficiency and revamping offers help improve and upgrade existing assets in order to increase competitiveness. Another proven way to improve refinery margins is catalysts management.

In North America, refiners benefit from cheap shale gas supplies and low energy prices. This recent game-changer was a turning point for US petrochemicals and renewed interest in Fischer-Tropsch technologies to produce fuels from natural gas. In that field, Axens offers its own Gasel technology. Surging of US shale oil, light tight oil and condensate leads to an excess of distillates that will be exported to Latin America and Africa for gasoline, and Europe for diesel.

Regarding a US refinery fed with dilbit or synbit, with discounted prices compared to WTI and benefiting from cheap hydrogen, the addition of an ebullated bed residue hydrocracker ahead of an existing delayed coker enables the debottlenecking of the refinery and improves its profitability.

New refinery projects coming on stream in the Middle East exceed current regional demand growth, resulting in increasing exports - in particular of middle distillates to Europe. Regarding petrochemicals, the Middle East could experience shortage or higher marginal cost of ethane that could lead to a comeback of naphtha for steam cracking additional capacity purposes.

Difficulties in bringing new refinery projects on stream will continue to leave Africa and Latin America with large product import requirements.

The Asia-Pacific region will concentrate the major part of future investments that will notably include mega-scale integrated refining and petrochemical complexes, allowing the production of valuable products from low value heavy feeds to reach higher profitability. If the Asia-Pacific region should be long in middle distillates and self-sufficient in gasoline, it will be short in naphtha, the main component for the development of its petrochemicals. China could also rely on its vast coal resources. In India, BS IV & BS V Specification will be implemented in the coming years and the new projects will focus on residue conversion.

Innovation will continue to be the best tool to overcome current challenges. Axens strives to provide its customers with the best technologies to respond to market changes and maximize profitability.

(PolyFuel, FlexEne and Gasel are trademarks of Axens.)

"Through hard work and education, we can deliver a strong economy and opportunity for all."

~Julia Gillard