



EU-OPEC Study and Workshop on Oil Refining **Brussels, 15 January 2008**

Summary and Conclusions

A study on OIL REFINING AND OIL MARKETS was commissioned early 2007 and financed by the EC, with technical participation of OPEC in the framework of their cooperation

The aim of the joint study was to provide historical background and examine likely future developments in the oil refining industry up to 2020, with emphasis on investment needs in the refining sector, the role of the oil refining industry in oil markets and to assess the relationship between crude oil and product prices and developments in the refining industry as well as the impact of potential future policies.

Below is a summary of the main findings of the study.

Summary

Oil demand, supply outlook

- Crude oil continues to lead international energy balances with increasing consumption in particular in developing economies.
- Middle distillates are expected to constitute the bulk of change in product consumption.
- Non-crude supplies, such as natural gas liquids, gas- and coal-to-liquids and biofuels, are also steadily increasing.
- The average quality of the crude slate remains practically the same during the study period up to 2020.
- Rising costs of production have become a critical factor.

Trade flows

- Europe remains reliant on trade flows to balance refinery production with demand.
- Europe is a net exporter of gasoline and heavy fuel oil and a net importer of jet/kerosene and gasoil/diesel.
- Despite additional refinery investment and though the average refinery utilisation is approaching operable maximum, the imbalance of net European trade flows is increasing, resulting in a growing dependence on US gasoline market for exports and Russia/CIS for gasoil imports.,

Refining Capacity

- For the period 1995-2007, \$385 billion have been invested; in the US and Europe for improving product quality, in Asia and the Middle East for expanding capacity. Actual global capacity remains tight but the tightness is expected to moderate in the mid term with increasing investments.
- Increased level of investments in the past several years has put pressure on the engineering, manufacturing, construction and services sectors, leading to sharp increase in construction costs.

- Most of capacity requirement by 2012 is already scheduled to be met by announced projects (except for China).
- For the period to 2020, an additional 6.3 million barrels/day of refining capacity needs to be constructed.

Factors affecting pricing

- Long-term prices are ultimately determined by costs of finding and developing oil reserves and bringing them to market. The average figure of \$70/b towards end 2007 is expected to increase sharply as the cost of finding and developing reserves increases.
- A combination of factors maintained the real price at a high level, including the sustained decline in the US dollar compared with the Euro and other world currencies.
- However, decline in crude oil prices in the medium term is assumed to occur as extra crude oil production capacity and refinery conversion capacity becomes available.
- Considerable amount of refining capacity under development is expected to reduce refinery margins from current levels. However, construction bottlenecks are slowing project schedules.
- The light-heavy crude price differentials have been increasing as refinery conversion capacity is operating close to full capacity utilisation. Any shortfall in complex refinery capacity will show up in the wider light-heavy differentials.
- The increase in crude oil prices is considered to be due to a perception of the market of the tighter crude supply/demand balance, shortages of conversion capacity in the refining industry.

Policy areas

Study assessed the impact of three main EU policy areas:

- Impact of taxation on patterns of fuel consumption such as:
 - Phasing-out of leaded gasoline.
 - Switching to ultra low sulphur fuels in Sweden and UK.
 - Early introduction of low sulphur diesel in Germany and others.
 - Lower diesel taxes in many countries have encouraged a faster uptake of diesel cars. However, such policies have also some potential affects on the downstream sector by creating significant imbalance in gasoline and diesel demand.
 - High fuel taxes in Europe encouraged the development of more efficient vehicles.
- Refined product quality
 - Product quality legislation in Europe has been set well in advance to allow refining industry to invest.
 - Changes have been costly for the refining industry but advances in technology have helped to reduce the costs.
 - European example being widely followed around the world.
 - Need to factor CO₂ emissions impact into future policy changes and also to review existing specifications in light of developments in vehicle technology and to promote greater efficiency in the refining industry. However, these measures have to be well thought through as they could significantly affect the refining industry in Europe and in the Atlantic basin in general.

- CO2 emissions limits and the impact on refining
 - Vehicular CO2 emissions are reduced through the voluntary agreements.
 - Refinery emissions fall under the National Allocation Plans.
 - Study highlights the impacts on trade and the global nature of the CO2 business.
 - If investment in Europe is made too costly products will be imported, possibly with an adverse impact on global emissions as the supplier will be less efficient.

Overall it is positive that policies have an impact on demand pattern but this impact should be transparent and known to producers/refiners (predictability) well in advance in order to direct investments and production.

Next steps for the period of 2009 and 2010

The two parties have agreed to pursue joint examination as from 2009 of various aspects as follows:

- Impact of biofuels on refining industry and on fuels specifications taking into consideration international developments, in particular in the US market.
- Impact of policies aiming at reducing vehicle CO2 emissions and improving car efficiency.
- Impact of taxation on consumption patterns.

Selected topics could be covered with in-depth studies and roundtables during 2009 and 2010.