Arthur D Little

Viewpoint

Can Group 1 base oil come back?

The impact of the lower crude prices on the global base oil markets

The global lubricants and base oil markets have had a challenging start to the new millennium. Annual growth has, on average, been well below global GDP growth due to technology improvements in transportation and industry. Furthermore, changing standards are leading to a gradual replacement of Group I-based products to Group II- and III-based products, resulting in plant closures around the world.

However, the lower oil prices might lead to temporary relief for Group I producers and an additional boost for the entire industry.

The global economy is benefiting from declining oil prices due to the higher economic multiplier in the typically poorer oil-importing countries. Consequently, base oil consumption in the transportation sector, as an example, will increase through both growing purchasing power (new and second-hand car sales) and increasing car usage. Even though transportation fuel is a commodity with a low elasticity of around 0.1, the current steep drop in oil prices implies a demand increase of up to 5% over the next few years. This boost is expected to be especially prominent in developing countries, and could potentially (temporarily) curb the decline in Group I base oil demand. It could also mean the "rebirth of Europe", which will not only benefit from much lower oil prices, but also see the export of Group I products rise.

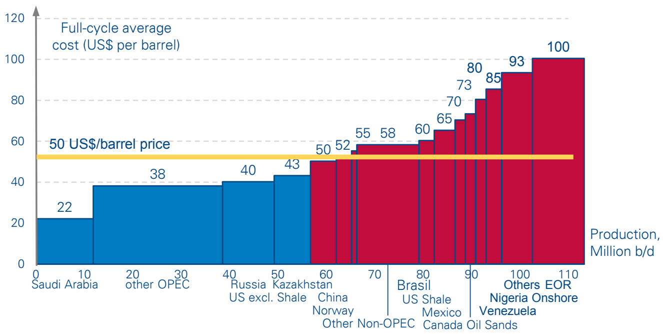
What is the global oil market outlook?

Many factors balance the supply-and-demand equation for oil price. Some have permanent impact (e.g. EOR, alternative resources), while others have temporary effects (e.g. geopolitical events, global economic status). Some can be controlled (e.g. investments in infrastructure, field development), while others are uncontrollable (e.g. natural disasters, oil reserves). The recent overproduction of oil led to the price decline: prices halved within a few months at the end of 2014 and dipped below the 30-year average (52 USD per barrel), with a slight recovery during Q2 2015.

Oil reserves have never been as high as they currently are (1.7 trillion barrels in 2014). Although conventional oil reserves have been declining since 2005, this decline has been continuously offset by the rise of unconventional resources; in 2014, one-third of the oil supply was provided from unconventional sources. The drop in conventional oil and the increased dependability on more expensive, unconventional resources are pushing the marginal prices of oil higher.

On the other hand, with 2008 being an exception, global oil demand has witnessed a continuous increase (CAGR of 1.3% since 2000). The growth of emerging markets and their thirst for oil have been partially offset by the successful efforts introduced by the OECD countries to lower their consumption (i.e. alternative energies, public awareness campaigns – OECD demand reduction of -0.5% since 2000 [CAGR]). More specifically, the growth of the transportation sector and the further development of the petrochemicals industry are the main drivers of this demand surge in the developing world.

Figure 1: Full-cycle average production costs



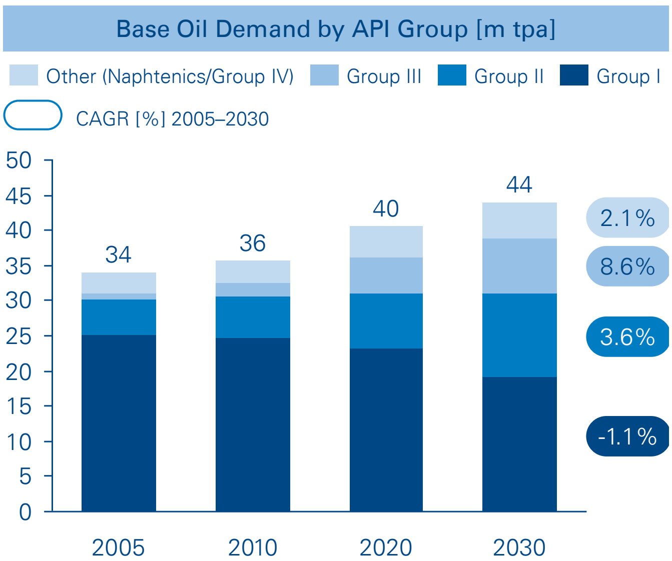
Source: Arthur D. Little including published data from IEA

Current oil prices are below the average marginal production costs for more than one-third of the total oil produced daily. Consequently, in order to enable profitable production, prices are expected to crawl back to higher levels and remain between 60-80 USD per barrel for the next several years. This has occurred during the first half of 2015, although the picture is volatile and further supply shocks could push the prices below this value.

Recap of global base oil trends

Since the early 20th century, base oil production has been dominated by Group I. This dominance is now entering its final stage as a significant drop in demand is expected, mainly in Europe and North America, due to the shift towards Groups II and III. Nevertheless, Group I will remain the dominant base oil for lubricant blending until at least 2020, and demand for Groups II and III combined is forecast to exceed Group I demand by 2030.

Figure 2: The future focus on Groups II and III is justified by the drastic changes observed in demand patterns – Group I is forecast to decline at ~1%, while Group III is expected to grow at ~9% YoY



Source: Purvin and Gertz, Arthur D. Little analysis

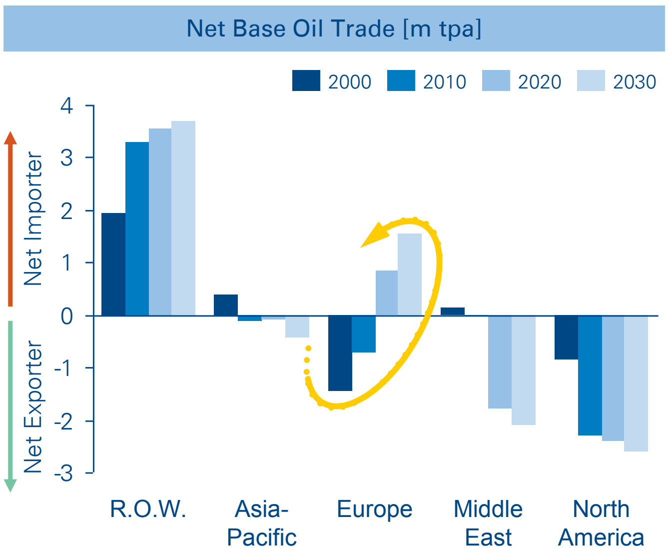
The substitution of Group I is driven by the need for better-quality products in the transportation sector. Governments are pressuring for increased concern about the environment and better fuel economy. Technologies in the automotive sector and in base oil production are fulfilling the regulations: efforts are being invested in the transportation sector to multiply exhaust gas treatments and roll out advanced engine technologies. Similarly, lubricant producers are also increasingly manufacturing cleaner and better-quality base oil with lower SAPS, higher viscosity and lower volatility.

Therefore, despite Asian demand offsetting the situation slightly, the declining demand for Group I will lead producers to operate well below acceptable utilization levels (currently maintained around 70%). This, coupled with an increase in the production costs per barrel due to higher allocations of fixed costs, will result in lower margins and create significant pressure for rationalization of Group I capacities.

This evolving trend is further confirmed by the fact that all (announced) future base oil capacity additions are exclusively in Groups II and III, as observed mainly in the Middle East, and the expected rationalization of Group I capacity in Europe and North America, as exemplified by the planned plant closures (e.g. for 2015, Stanlow [England], Colas [France], Total (Gonfreville) [France]) in Europe.

In summary, Europe is shifting its position from a net exporter to a net importer, due to suffering directly from lower demand for Group I oil. At the same time, the Middle East and Asia will become major base oil exporters due to their new Group II and Group III capacity.

Figure 3: Europe is therefore shifting from net exporter to net importer, replaced by the Middle East, which is aggressively marking its territory in this industry



Source: Purvin and Gertz, Arthur D. Little analysis

How will the current oil prices impact the dynamics of the base oil industry?

Triggered by the declining oil prices, the global economy will witness enhanced growth due to a higher economic multiplier in oil-importing countries.

The end market of base oil will experience several changes, mainly pertaining to the transportation sector, as the growth of oil consumption will accelerate as a result of both an increased number of automobiles (new and second-hand) and a higher average per capita usage of vehicles. This will happen on the back of, firstly, wealth transfer from oil-exporting to oil-importing countries, which will push global car demand – car sales forecasts show an additional 5 to7 million units in a short time frame, precisely due to this effect. Secondly, car usage will increase due to lower concern over fuel prices and substitution of public transportation kilometers with car kilometers. The normally low elasticity of transportation fuel will, in this case, driven by the steep, sustained decline in oil prices, result in substantial increase of fuel usage, and hence the use of lubricants.

All API groups are expected to benefit from the declining prices in the medium term. Group I will be boosted in non-OECD countries, in which the numbers of used cars, mainly consuming Group I, will rise with the increased purchasing power. Group II and III consumption will benefit from the increase in purchasing power and the sale of new cars that require higher-quality lubricants.

In addition to the growth of ground transportation, the aviation, commercial road transport and other transportation sub-sectors will also experience slight positive effects (lower cost, higher GDP).

Leading oil-exporting countries, on the other hand, have started to experience significant revenue shortfalls and launched revisions of their growth forecasts. Meanwhile, long-term low oil prices could force them to make difficult economic, social and political tradeoffs. Those countries might consider making use of their cheap access to oil to create substantial advantages downstream.

In summary, the wealth transfer from oil-exporting to oil-importing nations will boost demand for lubricants and base oils of all groups, and the so-called "death of Group I" will be "postponed until further notice". European base oil producers will benefit from additional export of Group I products and delayed plant closures.

Doubts and uncertainties regarding the attractiveness of base oil in the era of low oil prices are therefore mostly misplaced. IOCs, NOCs, investors and oil and gas-associated sectors should consider the pursuit of opportunities in this field, and depending on their capabilities and expertise, set long-term plans to ensure that market fluctuations play in their favor more frequently than not.

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Arthur D. Little

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