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A.4 - Economic analysis and Financial instruments

Summary of the first expert meeting of the EU Refining Forum
Brussels, 1 December 2017

The first expert meeting of the EU Refining Forum, organised by DG Energy, took place on 1 December 2017.

Some 100 participants from 16 EU Member States, the oil refining industry, the European Commission, the European Parliament as well as other stakeholders gathered to discuss policy and market developments of relevance to oil refining in the EU.

Tom Howes, acting head of the economic analysis unit of **DG Energy**, opened the meeting of the Forum and welcomed speakers and participants. He explained the rationale for the new "expert meeting" format: while previous meetings of the Forum had proved successful in bringing together a wide range of stakeholders and enhancing the visibility of refining and the important role it plays in Europe's energy sector, they provided limited opportunity to discuss in more detail some specific issues. Therefore, it was decided to hold two meetings of the Forum every year: a high-level, political event and a more technical session, the latter of which would enable an in-depth discussion at expert level of a limited number of topics relevant to the sector.

Michiel Nivard, researcher at the **Clingendael International Energy Programme (CIEP)**, presented the main findings of two recent studies published by CIEP, looking at the challenges faced by the refining sector in Northwest Europe and in the entire EU, respectively. Between 2008 and 2016, 2 million barrels per day (mb/d) of refining capacity was closed in Europe but this is not a new phenomenon: declining demand and refining overcapacity were already experienced in Europe in the 1970s. Over the years, EU product imports have steadily increased, putting competitive pressure on refineries; this has been exacerbated by underinvestment and the ageing of the refinery stock.

CIEP looked at the various structural factors that can contribute to the resilience and long-term competitiveness of individual refineries, including the existence of captive market, petrochemical integration, upstream integration and surplus coking capacity. It was found that most of the resilient refineries are found along the "Rhine-Danube-Line": these are mostly inland refineries, sheltered from import competition and typically have integrated petrochemical operations. In contrast, refineries in Northern Europe and the Mediterranean are very much exposed to competition. Exposure does not necessarily mean closure: certain factors can and do constrain exposure and non-competitive sites may be also mothballed or converted (e.g. into a bio-refinery or a terminal), or can get a new "lease of life" if purchased by a new type of operator (e.g. a trading house or a local government). Considering different business optimisation strategies, one company's exposed refinery could be a business opportunity for another.

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Finally, CIEP presented a vision of refineries being parts of industrial clusters in the future, closely integrated with other sectors including heat, electricity, hydrogen and potentially even CCS.

In his comment, **Alessandro Bartelloni (FuelsEurope)** welcomed the insightful study and appreciated the simple but effective methodology. He noted that the study highlights the importance of refineries to EU's security of supply and to the economy, both at EU and local level. On the other hand, the study seems to overstate the role of government intervention. He also highlighted the importance of refiners' capability to innovate and be part of the energy transition.

Representatives from six Member States took the floor and reported on recent developments and expressed their views on the most relevant issues for the international competitiveness of the refining industry. They underlined the importance of the sector for the economy while also noting the efforts of refiners to cut emissions and improve energy efficiency. The role of innovation, research and development was emphasised, mentioning specific technologies (alternative fuels, green hydrogen, carbon capture and utilisation).

The Commission's recent industrial policy strategy was raised by some delegates, highlighting the need for a long-term perspective, a balance between industrial and environmental policy and the importance of investment and innovation. Some Member States also called for a follow-up of the fitness check, in order to assess the impact of new legislation (e.g. the Clean Energy for All Europeans package) on the refining sector. The revision of the emissions trading scheme and the need to address the risk of carbon leakage were also mentioned.

Giovanni Perrella (Italy) presented the new Italian National Energy Strategy, focusing on transport and refining issues. In the strategy, Italy set a 28% target of renewables share in total final energy consumption to be achieved by 2030, including a 21% share in transport. For energy efficiency, the objective is to reduce energy consumption by 10.2 million tons of oil equivalent (Mtoe) in 2021-2030, with a strong focus on the residential and the transport sectors. While the consumption of oil products is projected to decrease significantly in the long run, existing energy infrastructure (including refineries) remains critical until alternatives become available. In the last 10 years, five Italian refineries (20% of total refining capacity) were converted into fuel depots or bio-refineries. In order to keep refineries operating in the medium term, Italy promotes the integration of existing plants in one or more refining systems/consortia, thereby making them more competitive and sustainable. It is also possible that additional sites would be converted into bio-refineries.

Siim Meeliste (Permanent Representation of Estonia to the EU) reported on the progress on the "Clean energy for all Europeans" package (which was adopted on 30 November 2016) under the Estonian Presidency of the Council. Many elements of the package, including renewables, energy efficiency and governance are relevant for the refining sector.

A general approach was agreed already under the Maltese Presidency on two initiatives, the Energy Performance of Buildings Directive and the Energy Efficiency Directive. Trialogues are ongoing on the Energy Performance of Buildings Directive and should start in the first semester of 2018 on the Energy Efficiency Directive.

There has been good progress on the Renewable Energy Directive and the Governance Regulation although some political issues are still to be addressed. These initiatives are to be discussed in COREPER and then in the Council in December 2017. In case of governance, the Council is more ambitious than the original proposal. The Renewable Energy Directive changed a lot compared to the original proposal. Some important issues related to transport fuels are still open, in particular the capping of first generation biofuels (there is concern about investments already made) and the level of ambition on advanced biofuels (a binding target is needed to solve the "chicken and egg problem").

There was also major progress on another file which is extremely important for the refining industry: on 9 November 2017, after more than 2 years of intensive negotiations, the co-legislators reached an agreement on the reform of the ETS for the period after 2020. The carbon leakage list will be discussed in a separate procedure.

The second part of the meeting was devoted to the topic of air quality, in particular the impact of internal combustion engines thereon. In her introductory comments, **Megan Richards**, Director for Energy Policy at the **DG Energy**, underlined the work carried out by the Commission in this field over the years, highlighting the improvements brought about by the Air Quality Directive and the first Clean Air Forum which was held in November 2017.

Nick Powell, manager of technology strategy at **Ricardo**, a UK-based engineering and environmental consultancy, spoke about emissions from Euro 6 diesel passenger cars. The Euro 6 emission standard is being introduced in stages in 2014-2021and aims to reduce the difference between legislated emissions levels and real-world levels (by gradually implementing the Worldwide harmonized Light vehicles Test Cycle and the Real Driving Emissions cycle). Euro 6 emissions limits for diesel cars are comparable to those for gasoline-engine cars.

Using real-world emissions data from both public domain sources and its own tests, Ricardo found that modern diesel cars are able to meet Euro 6d standards both in terms of nitrogen oxides (NOx) and particulate number (PN), thereby delivering substantial reductions in emissions.

Chris Boocock, senior research analyst at **Aeris Europe**, a consultancy specialising in air quality, presented an analysis of future urban air quality compliance under different scenarios. Based on actual Euro 6 performance data provided by Ricardo, Aeris carried out case studies for ten European cities under two scenarios: one where Euro 6 cars progressively replace older cars and one where the replacement is done with zero emission vehicles. Even in the Euro 6 scenario, current air quality regulated emission limits will be largely achieved by 2025-2030.

It was found that the difference in emissions between the two scenarios is rather low, especially for particulate matters (PM) where non-exhaust (brake and tyre) emissions are dominant. Beyond 2020, NOx emissions for Euro 6 cars would be higher than for zero emission cars but significantly lower than today. When it comes to ambient air quality, the percentage of measuring stations in compliance with NOx thresholds is not expected to show any significant improvement in the zero emission vehicle scenario. It is important to look at the sources of pollutants, to identify the most effective corrective measures for remaining "hot spots".

Dirk Bosteels, the executive director of the **Association for Emissions Control by Catalyst (AECC)**, an industry association of European companies making technologies

for engine exhaust emissions control, elaborated on the capabilities of emission control technologies and their impact on air quality. He argued that diesel technology has evolved dramatically and the newer diesel vehicles are much cleaner than old ones. Low emissions were demonstrated by test programmes using the Real Driving Emissions cycle, carried out by AECC. In a well-to-wheel context, internal combustion engines can, in the long term, continue to be a key contributor to climate-friendly mobility. With the introduction of Euro 6 vehicles, NOx exceedances of monitoring stations will strongly decline.

Filip Lenders, head of Energy and Environment in the **City of Antwerp**, reported on the recent introduction of a low-emission zone (LEZ). He explained that transport is an important source of local emissions, especially of NOx (Antwerp is still not compliant with the NOx thresholds), leading to premature deaths. Therefore, the LEZ was set up in 2017 with access restrictions for cars depending on their emission standards and with a clear, pre-defined timetable. From 2025, only Euro 6 diesel cars will be admitted to the LEZ. Antwerp will closely monitor the impact of the zone, both on the car fleet and on air quality. A shift of the fleet towards cleaner vehicles can already be observed.

Mr Lenders emphasised that the Antwerp LEZ is not unique; over 200 such zones exist across the EU.

Eurobitume, the European association of bitumen producers, underlined that the condition of infrastructure can influence fuel consumption and hence emissions. Low rolling resistance road surfaces can reduce fuel consumption and emissions by up to 6%.

John Cooper, the director general of **FuelsEurope**, noted that the European economy will continue to need clean molecules (liquid fuels), not just clean electrons in the future. There is a need to integrate oil refining with other technologies (carbon capture, utilisation and storage, biofuels etc.). He echoed the comments of Member States about using the fitness check to assess the impact of new legislation on the sector.

Regarding air quality, he highlighted that the choice of a new car (with any powertrain) has little impact on air quality but there is a need to address the emission from older cars and also emissions from other (non-transport) sources. He called for a technology-neutral, well-to-wheel approach, looking beyond tailpipe emissions.

Megan Richards concluded by saying that refining remains an important industrial sector in the EU. The sector needs certainty and by submitting the numerous legislative proposals in 2016, in particular in the Clean energy for all Europeans package, this is exactly what the Commission strives to achieve: regulatory certainty and stability for the investors. Tackling air quality is a complex and systemic challenge that requires concerted action across different stakeholders.

The regular discussion between the Commission, Member States, the refining industry and other stakeholders remains crucial and the EU Refining Forum should continue to have a pivotal role in this respect. The next "high-level" Forum should take place in the first half of 2018.