FONDATION TUCK
Paris Energy Club

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Autumn (Virtual) Meeting

Summary of Discussion

About the Webinar

The Paris Energy Club virtual meeting was kicked off with welcoming remarks by Pierre-Franck Chevet, CEO IFPEN, the new President of the Paris Energy Club. The meeting was structured around two sessions, reviewing energy markets development in 2020 (session 1) and assessing the impacts of the COVID-19 pandemic on energy transition dynamics (session 2).

Session 1: Energy markets dynamics in turbulent times

Session 1 discussed recent oil and gas markets development, looked at the related impacts of the COVID-19 pandemic, and drew some prospects for the medium term.

Oil markets

Oil markets were heavily hit by the COVID-19 pandemic. In March-April 2020, lockdowns sent global oil stocks up by some 300 Mb (+4,4 Mb/d on average), raising concerns about global storage capacity to absorb such large stockpiles, with floating storage also filling up.

China's oil stocks built up rapidly following the lockdown of the Chinese economy. The easing of lockdown measures across the country and the resulting demand recovery translated into massive imports and rising refining runs, and China acted as a sink for surplus oil until October 2020. Chinese oil stocks have jumped by 20% compared to the period before the spread of COVID-19. Over the same period, oil stocks in the rest of the world are only 4% above before COVID-19 levels. Overall, China's share in the world stocks has increased from 29% (before the spread of COVID-19) to 33% today.

China's firm demand and imports contributed, to a large degree, to the stabilization of the global oil market. Stocks built up in China has however slowed due to lower availability of storage capacity while higher oil prices reduced the interest of oil buyers. As several Chinese tank farms have been nearing maximum operating capacity[1], any new wave of lockdown restrictions in China and elsewhere will leave the global market to rely heavily on demand recovery and supply cuts.

[1] Oil stocks in Weifang and Shandong storage facilities has build-up rapidly during recent months, with 76.5% of these spots capacity already used.

In terms of supply, the largest supply cut in history implemented by OPEC+ countries, some 10 Mb/d, helped curtailing the floor supply. US tight oil registered a sharp drop following the spreading of lockdown restrictions but it is bouncing back a bit. The US shale industry has been spared by the pandemic though it is being dramatically transformed, through wave of M&A, with large players jumping in.

The COVID-19 pandemic also exacerbated refining sector difficulties in mature markets such as Europe and US where further closures of refineries were recorded. On the contrary, refining capacities continue to increase in China, thanks to more dynamic demand.

Global oil demand took the biggest hit in history but was less deeply slashed than many analysts had initially thought. Hit hardest were mobility-related fuels (jet fuels and road transportation fuels[2]). Demand for petrochemicals (disposal plastics, etc.), on the other hand, remained robust. Despite the huge supply cut, oil demand did not fully recover once lockdown restrictions were eased in many countries. Consequently, stocks drawn during last summer was below average; over the last 6+ months, global oil stocks declined by only 2.5% from early May peaks (-80 Mb or -400 kb/d).

Looking forward, demand recovery is however projected to continue making the COVID-19 second wave a speed bump rather than a nail in the coffin, although the recovery in OECD countries is much slower than expected.

The present environment remains challenging for oil markets, but oil prices are actually firmer than stocks would suggest. The question is what conclusion to draw from such observation where high stocks are concomitant to "firm" oil prices; are we moving to a new normal? One participant suggests that deglobalization of the world economy, the surrounding uncertainty, optimism about the imminent availability of vaccine which will provide a support to demand recovery, can explain such observation.

COVID-19 has also exacerbated pre-existing challenges to the O&G industry, pressured revenues and fueling debate about peak oil demand, with investors fleeing from O&G.

The key challenge is climate change calls for action by the industry. O&G is a leading emitter of methane, a primary cause of climate change, and need to be removed along with CO2 if the Paris target of keeping temperature rise below +2 °C is to be met. While CO2 emissions have decreased during the pandemic, those of methane have continued to increase.

The O&G industry needs to address the methane emissions issue so it can keep its license to operate. Technologies are available to help monitoring O&G industry methane emissions. There are also ways of rewarding good players in this regard.

Gas markets

Natural gas consumption was falling over the first months of 2020 in major markets, even before the COVID-19 pandemic, mainly due to historically mild temperatures in the northern hemisphere. In comparison to oil demand, global natural gas demand was more resilient (it is projected to decline by 3% in 2020 compared to 2019).

[2] Especially gasoline while diesel demand was supported by the e-commerce.

Natural gas demand in Asia shows a stable profile, while growth in demand growth from China is offsetting some of the decline in more mature markets such as Japan and Korea. In Europe, gas demand in the industrial and power sectors has been severely affected[3].

Gas markets have responded to declining demand drop in many ways;

1) The strong growth of global LNG market, particularly during the first quarter of 2020, supported the global 2020 demand;
2) Pipeline trade registered some growth in many parts of the world (North African exports to Europe, the start-up of Power of Siberia, etc.). In Europe, pipeline trade increased by 16% compared to 2019;
3) Some LNG importing countries (Israel, Thailand, ...) have seized the opportunity to import and store cheap gas, instead of using domestic gas;
4) Storage has filled up rapidly in Europe, US and Asia. In addition, there has been some precautionary storage such as gas stored in Europe in case Russia and Ukraine failed to renew their transit agreement. A mild winter had also contributed to diverting some of the imported gas into storage;
5) Lower gas prices helped to sustain demand, particularly in the power sector which had also to face competition from renewable energies.

Looking ahead, gas demand could return to 2019 levels if the economic recovery is strong enough. In the medium term, LNG projects reaching the FID in 2019 are expected to come on stream over the 2024-2027 period. This additional infrastructure will produce a volume of gas equivalent to the LNG import needs of the entire European Union in 2019.

Decarbonization policies, if implemented, will strongly support the demand for natural gas, in the wake of reduced demand for coal and uncertainty about the future of nuclear energy. Indeed, many major gas consuming countries had pledged to zero net carbon emissions around the middle of this century. However, the penetration of gas in the zero net carbon emissions scenario will require further expansion of CCS.

Session 2: Impacts of the COVID-19 pandemic on energy transition dynamics

While some of the ongoing changes in energy policies and business strategies were already in action before the outbreak of the COVID-19 pandemic, the pandemic and the challenges it brings make the shaping of outlooks a more complex and challenging task. Indeed, COVID-19 has had an impact on the prospects for accelerated energy transitions, although major uncertainties remain in the short term (duration and severity of the pandemic, its economic implications, etc.).

The post COVID-19 recovery plans adopted by governments in many regions make green ambitions a core target. Major energy corporations have revealed that their medium- to long-term strategies are changing radically in response to public pressure and shareholders' injunctions to decarbonize activities. International oil companies reduced their hydrocarbons spending while keeping energy-transition plans on track, with some

[3] For example, demand declined in Italy by 40% in the industrial sector in March and April 2020.

leading IOCs announcing net-zero reduction strategies, and others openly questioning whether oil demand will ever return to pre-COVID-19 levels.

Session 2 discussed drivers of the energy transition and assessed domestic energy policies in major regions and companies' strategies in this regard. The introduction to the discussion was based on the findings of IEA's 2020 World Energy Outlook.

The pandemic will leave lasting scars, but it remains to be seen whether it represents a setback for a more secure and sustainable energy system, or a catalyst for accelerating the pace of change. COVID-19 brings huge uncertainty for the economy and energy. Controlling the pandemic in 2021 would allow energy demand to return to pre-crisis levels by early 2023. A delayed recovery, according the IEA's Delayed Recovery Scenario (DRS) will delay the return of demand to pre-crisis levels by 2025. A longer pandemic would usher in the slowest decade of energy demand growth for a century.

The pandemic has reinforced pre-crisis trends in the energy mix. After a 5% drop in energy demand in 2020, renewable energies are leading the rebound, while coal never recovered to pre-crisis levels; a delayed recovery puts energy at a standstill, prolonging today's over supply. Oil demand could be 2 Mb/d lower in 2030 under the Stated Policies Scenario (STEPS).

Renewable energies are taking over, with solar leading the way and becoming the 'new king' of electricity. Solar PV is now the cheapest source of electricity in most countries, thanks in part to low-cost financing. It is set to triple before 2030 under current and proposed policies, with much faster growth potential. It is stressed that the slowdown in improving access to electricity and under-investment in grids are warning signs for the future.

Grids are the bedrock of a clean & secure electricity future. Electricity transformations require accelerated grid expansion to ensure that electricity remains reliable, affordable and secure, however falling revenues create risks for timely investments. One participant pointed to the complexity of regulatory frameworks that makes grid development more difficult to achieve in some countries/regions, while another stressed that grid integration at regional and global levels enhances energy security but can also be sources of risk. The need to work towards more efficient electricity markets was also stressed, given the importance of adequate prices in securing the necessary investments in the electricity sector.

Without a more significant shift in policies, there will be no rapid decline in oil. In the IEA's STEPS and DRS scenarios, oil demand reaches a plateau in the 2030s as transport fuels are no longer a reliable engine for growth (petrochemicals will take this role in global oil demand);

The crisis has reduced revenues and investment in oil and gas, forcing producers to reassess their strategies to align with technology and policy shifts. Diversification is the key watchword for oil and gas producers. A lower price and demand outlook, due to the short-term impact of COVID-19, adds to the strain on countries that rely on oil & gas revenues.

The pressure for changes in business strategies and models is even stronger in the IEA's Sustainable Development Scenario (SDS).

Even with full implementation of 2050 net-zero pledges in the main consuming regions (e.g. EU, UK, China, etc.), the world is still far from a decisive decrease in emissions. Global emissions are set to bounce back more slowly than after the financial crisis of 2008-2009, but the world is still far from a sustainable recovery.

Achieving net zero emissions means ramping up the deployment of clean technologies while continuing to reduce costs, especially through innovation in hydrogen and other low-carbon fuels, battery storage & CCUS.

In conclusion, profound changes, guided by good policies, are required if the world is to have a better energy future.

The Club members also discussed the deployment of low-carbon hydrogen, which is expected to play a key role in the ongoing energy transition. Many countries (Canada, US, Australia, Korea, Japan, Germany, France, etc.) announced hydrogen strategies and roadmaps in 2019, in many cases establishing targets for the deployment of hydrogen technologies. Such a policy for the use of hydrogen is critical for the progress of hydrogen technologies and markets, since climate change ambitions remain the main driver for widespread low-carbon hydrogen use.

Following the European Union's (EU) announcement last July of its Clean Hydrogen Plan, European Member States have put hydrogen at the top of their investment priorities for post-COVID-19 economic recovery. France and Germany, in particular, have announced plans to devote €7 and €9 billion respectively of public funds over the next ten years to the creation of a hydrogen industry.

One participant felt that the EU's Hydrogen plan far too ambitious at a time when the focus should be clean electricity not hydrogen (the use of which should be limited to uses where it makes economic sense). The EU commission strategy aims at 40 GW of electrolysers by 2030, equivalent to 10 billion tons of clean hydrogen production. The cost of the plan is 400 billion USD over the coming decade but less than 10% of this amount will be devoted to electrolysers. The bulk of the plan's cost will be used to expand renewables capacity required for clean hydrogen production, adding some 30% to the already planned investment in renewables in the EU.

The cost of green hydrogen remains very sensitive to the cost of electricity, which accounts for two thirds of the total. Therefore, an adequate carbon price is essential for the deployment of green hydrogen; however, a higher CO2 price may impact the cost of electricity generated from fossil fuels.

One participant raised the issue of energy security by recalling that 80% of the hydrogen used in the EU by 2030 will be imported, and that one third of these imports is expected to be sourced from non-EU countries, some of which are subject to political instability.

Nuclear energy and natural gas have not been included in the EU's hydrogen strategy, a shortcoming of the EU plan according to one participant, who stressed the importance of neutrality in the technology selection process. This should be left to the markets once all conditions are in place to ensure that these markets function properly.

The participants concurred on the fact that CCS is needed, particularly in industry (oil refining, steel, etc.). Another participant pointed out that CCS deployment may not be taken for granted, given the existing hurdles that have prevented the take-off of this technology, not least public acceptance. The steel industry is critical to the economic strength and independence of the EU given its role in supporting many other sectors (car manufacturing, etc.), but decarbonization of steel sector will be challenging. One participant suggested that the sector should have the opportunity to offset its carbon emissions, rather than being forced to engage in costly decarbonization of its processes.

While the measures announced in the EU's hydrogen plan focus on supply, it should be remembered that there will be also a need to scale up demand in parallel. One participant indicated that during hydrogen deployment phase, all forms of hydrogen (including green hydrogen) should be welcomed as they contribute to demand build-up.

The new gas infrastructure built should be of dual nature, handling both natural gas and hydrogen, thus preparing the transition from one to the other in the long term.