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The workshop 2 on Energy and Climate focused on the new era characterising our energy markets today, as well as on the challenges and progress towards the decarbonisation of our energy systems to achieve the targets set in Paris in December last year.

The workshop was chaired by Donald Johnston, Former Secretary General of the OECD. The panel was composed of Olivier Appert, Senior Advisor, Center for Energy, Ifri, Tatsuo Masuda, Visiting Professor at the NUCB Graduate School, Former Vice President of Japan National Oil Corporation, Daniela Lulache, CEO, Nuclearelectrica, Ladislav Paszkiewicz, Senior Vice President Strategy and Climate, Total, Lee Hye-Min, G20 Sherpa, from Korea.

We started the workshop by highlighting that the oil market has entered in 2014 a new era of oversupply, with the development of the light tight oil in the US and the slowdown in the oil demand growth of China, resulting in a dramatic drop of the oil prices. All eyes are now turned towards OPEC, and the oil market is holding its breath until 30 November, waiting for an action from OPEC to reduce its output. But there are still many uncertainties here: will the reduction be enough to rebalance the market? Will Iran, Iraq and Russia agree to contribute to the effort? What will be the reaction of US producers? And will the OPEC countries comply with their commitments on the long run?

Beyond these immediate challenges, the oil market has also to deal with longer term challenges. While peak oil supply threats were dominating the debates 10 years ago, today we are more talking about the peak oil demand which will probably be the outcome of energy transition policies. But this will take time, as shown by several scenarios, notably those of the IEA revealing that fossil fuels will still occupy 75% of our energy mix in 2040. Several participants argued that despite the decreasing costs of renewables, the switch towards a decarbonised economy is slow. It was mentioned that coal, the elephant in the room, will still be a significant part of the energy mixes of countries such as China or India in the near future, which means that we are very far from being on the right trajectory to achieve the 2°C target.

Will technologies help us achieving our decarbonisation target? There is actually a wide range of technologies available today with different maturity levels. We talked during the workshop about Carbon Capture Storage and advanced power storage, which is key to mitigate intermittency of renewable. We also mentioned power electronics, which if installed could help us save huge volumes of energy. We also talked about Advanced Nuclear Reactors, which are smaller reactors, safer and have an improved waste profile comparing to the current ones. But for all these technologies to materialize, the main obstacle remains their cost, and they need huge investments and financing.

Some speakers stated it will not be possible to reach the 2°C target without nuclear. It is a stable and mature technology, and at the same time a competitive and low carbon source of energy. But we need to develop a different approach to nuclear energy today, taking into account one of the main obstacles which is related to public acceptance.

The discussions during the workshop confirmed however the trend of a global progress towards a low carbon world. Comparing to 10 years ago, we have today much more initiatives coming from the private sector, such as those of the O&G companies. We talked about Total, which is taking several actions to reduce its carbon footprint: focusing more on natural gas, as gas emits less than 50% CO₂ emissions than coal in power generation, focusing on lowest cost oil



projects, applying an internal CO₂ price between \$30 to \$40 per tonne, limiting methane emissions but also investing in RES and even striking to be a leader in this sector. The O&G climate initiative, gathering several oil and gas companies, was also mentioned, which aim is to cooperate on finding solution for climate change.

On the international scene, and beyond the Paris agreement, there are some political actions taken at the G20 level in this direction. The G20 has agreed to reduce another source of greenhouse gas emissions (HFC emissions). Last October, the International Civil Aviation Organization has also adopted a resolution to reduce CO₂ emissions in the airline industry, making it the first industry ever to adopt a global carbon market. On the other hand, the progress towards removing inefficient fossil fuel subsidies remains slow as the G20 discussions did not result in a commitment to the elimination of subsidies by 2025. It was mentioned that all these three issues were actively driven by the US leadership until now, and there are doubts now on how progress can be further achieved in the future in the absence of this US leadership.

Participants agreed finally that there is no easy path for the decarbonizing revolution. Beyond those political actions, the response to the climate challenge will actually have to come from the private sector, as the major obstacle to low carbon transition is financing. A participant from the industry concluded that to achieve the 2°C target and the scaling up of national commitments, we need to work on the clarification of the rules for the private sector. We need to continue working on carbon pricing, and potentially managing the distortions that it might create globally. These new rules will probably have an impact on global trade, and potential bottlenecks under the World Trade Organisation should be identified.

And finally during COP22 in Marrakech, this increasing role for the private sector but also for the civil society and other non state actors was confirmed, with the announcement of several initiatives and commitments in favor of decarbonisation...