

## Paris Energy Club Autumn Meeting

Wednesday 8 November 2023

### Summary of discussion

The meeting discussion was structured around 4 sessions all focusing on themes important for/related to energy transition COP28, Dutch disease and producing countries energy transition, investments, water and energy nexus.

#### Session 1: COP28 ahead; where do we stand and what are the expectations?

1. The COP 28 has a challenging context and had already triggered suspicion of the COP 28 presidency partiality and conflict of interests. Dr. Sultan Ahmed Al Jaber leading the COP 28 is also the Managing Director and CEO of Abu Dhabi National Oil Company. Defenders of Dr. Al Jaber put forward his role as leader behind the UAE's state-owned renewable energy company Masdar adding that oil industry can also be part of the solution to climate change. The same defenders believe that oil industry involvement in climate debate is a positive sign feeding such debate with genuine practical solutions.
2. Unlike the Kyoto Protocol, which established top-down legally binding emissions reduction targets (as well as penalties for noncompliance) for developed nations only, the Paris Agreement requires that all countries - rich, poor, developed, and developing - do their part and slash greenhouse gas emissions. To that end, greater flexibility and national ownership is built into the Paris Agreement. It is indeed not legally binding, but it appears to be more effective in terms of commitment.
3. Both backward looking and forward looking, the Global Stocktake (GST) is a key element of COP28 as it is a Party-driven process conducted with important preparation efforts. It enables countries and other stakeholders to see where they're collectively making progress toward meeting the goals of the Paris Agreement. Since 2015 (year of the Paris Agreement), the world has managed to bend the curve of emissions even if there is still a lot to do, not least to tackle ambition and implementation gap<sup>1</sup> issues. Bridging both gaps is crucial for achieving meaningful progress.
4. There is an increasing expectation to an energy package to be landed at COP28; tripling of the renewable energy capacity and doubling of energy efficiency improvement rate in 2023 (compared to 2022). Fossil fuels phase out remains as a target, but reduction of methane emissions could provide a significant contribution by the O&G sector to the "energy package".
5. Nuclear is acknowledged to provide CO<sub>2</sub> free energy but won't be a main topic of discussion as it is too long and complex to implement especially for developing countries. CCS as well faces the same conditions of implementation.
6. The Sixth Assessment Report (AR6) from the Intergovernmental Panel on Climate Change (IPCC) underlines necessity to avoid new investment in fossil fuel infrastructure and to seriously reduce fossil fuel usage. In this regard, Europe has defined a council position<sup>2</sup> adding to those previous demands a fossil free power sector and the removal of fossil fuel subsidies.

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<sup>1</sup> The implementation gap is the difference between what was planned (INDC -Intended Nationally Determined Contributions) and what happen. It is the failure to effectively execute policies and initiatives.

<sup>2</sup> The EU has, for the first time, agreed (October 2023) on a global phaseout of fossil fuels from the energy sector well ahead of 2050.

7. National implementation to convert large principles in concrete operations and investments matters. The investment needs are huge on a global scale and COP28 will focus on the cost of inaction. Facing a lack of finance from the multilateral banks, the Capital Allocation Framework is here to define a better allowance of resources as the financial models are still too conservative. In addition, macroeconomic bad conditions jeopardize massive investment nowadays.
8. Adaptation was an important aspect of the Kyoto Protocol that seems to have been forgotten, but a new outcome is expected for the COP28. The oddity of talking about adaptation lies in the fact that one can be considered as a mitigation non-believer or mitigation fighter. Still, the Overshoot Commission of the COP28 tries to anticipate what should be done if mitigation plans fail. The adaptation is of great importance to developing countries which are calling for funding sourced from developed countries to help them to adapt the climate change consequences.

## Session 2: Hydrocarbons producing countries and the energy transition.

1. Dutch disease is a well-known situation where the rapid development of hydrocarbon in a country result in a negative impact on the country's overall economy. It is also often characterized by higher inflation and pressure on salary scale, a substantial appreciation of the domestic currency leading to deterioration of terms of trade. Dutch Disease's impact is evident in the Netherlands, where past reliance on natural gas brought prosperity but now poses a challenge for future decarbonization due to the energy-intensive nature of the economy. There is even now a "pre-resource curse" when a country announces a discovery with spendings escalating even before production.
2. Producing countries exhibit different ways of managing their national hydrocarbon resources. Norway established a sovereign wealth fund that become the largest of its kind. However, the lack of diversification and a clear plan for a Net Zero Emission future raises concerns. Saudi Arabia, a MENA front runner, has made progress in economic diversification but faces a prolonged journey. In contrast, Venezuela, once a major oil exporter, now grapples with economic lockdown, underscoring the risks of an unbalanced economic structure. Nigeria, with a history of economic challenges, exhibits positive signs of change, cautiously moving towards a diversified and sustainable future.
3. Looking at various producing countries history, the following lessons were put forward as policy tools to avoid Dutch disease drawbacks:
  - Create a separate fund to prevent oil & gas revenues from disturbing domestic economy and save part of the revenues for next generations.
  - Create an investment fund for diversification (i.e., sectors that are not dependent on resources) and especially for energy transition.
  - Give citizens direct stake in revenues (example of Alaska), though such policy tool could be difficult to implement in more populated countries.
  - Manage regional impact by providing power discount in windfarms regions (like in Denmark for instance), but this might create price disparities among population.
  - Tackle corruption ruthlessly.
  - Enhance international community involvement to fund energy transition (World Bank, Multilateral Development Banks, etc.).

One participant asked whether hydrogen is going to be a new resource curse or not? In the short term, most 'hydrogen rich' countries are planning to export hydrogen as their domestic economies cannot absorb total domestic hydrogen production. Such countries may suffer from a Dutch disease but that suppose that hydrogen can provide a rent. The move by some countries to capture more value from the hydrogen produced on their soil, i.e. green steel production (from hydrogen) for example, mirrors oil producing countries local content policies.

### Session 3: Redefining energy investment drivers to better serve decarbonization policies.

1. Clean energy investment is widening the gap over fossil fuels with an exceptional growth expected in 2023 mainly due to solar PV deployment in China. In 2030, renewable global capacity additions are forecast to jump 46% to almost 500 GW breaking another record. However, such investments are still too low compared to what is needed to keep global warming under control.
2. Reduction of O&G investments and the resulting slowdown of oil supply could lead to oil shock if demand is not contained in parallel. This was the case in 2022 when global oil market has been into turmoil in April 2022 due to limited oil supply leading IEA Member Countries to release extra barrels from the IEA's emergency stocks.
3. Policy remains a major driver of the development of green investments by means of government-held competitive auctions or with price administratively set (feed-in tariffs, feed-in premiums, etc.). Including China, 75% utility solar PV and wind growth set to come from policies using fixed tariffs and auctions. However, one sixth of auctions were unallocated globally due to higher costs, low ceiling prices and lack of inflation indexing.
4. While investment in renewables has almost doubled in the last decade, investment in grids has remained stagnant. Grids are becoming a bottleneck for energy transitions as the projects are in queues waiting for connection. Grid development needs to accelerate to keep up with transitions raising material needs. In the next 20 years, close to 80 million km of grid lines will need to be added or replaced, which is as much as the global total in use today. Failing to step up the pace of grid investment and modernization would stifle the growth of renewables.
5. It is generally accepted that the LCOE (Levelized Cost of Energy) used in the models is a normalized indicator, but it is still very complex to integrate in LCOE extra costs such as integration costs or grid flexibility. As a result, LCOE analysis must be considered with care, calling for a need to analyze the system as a whole.
6. The usual narrative is that cost of renewables has decreased continuously – except for offshore wind. The cost reduction of green energies might hit the bottom because of interest rates and inflation effects on the supply chain. For now, the implementation of the higher cost of capital in the models (ex. IEA) needs to be done. But it will certainly have an impact on 2024 level of investments. The last open question is to assess what share of investment is necessary to maintain a flexibility of the grid.
7. Energy efficiency helps reducing the environment impact without extra grid costs and can have high return on the short-term even if hard to maintain. Solid determination from the governments is needed by defining standards and sanctions. Demand management could be very promising but in reality needs very sophisticated systems that do not have a short-range applicability.
8. The legacy of the vertical organization of the electricity sector is characterized by different status of the electricity security depending on the country under consideration. Existing power capacity (coal and gas plants) provided stability to the whole system, but such benefits are coming to an end because we realize that we need to build new assets and there are no incentives in the new market structures. And this concern is not only limited to Europe. Long term contract would be the tool of getting everyone to agree, i.e. the producers and the consumers if they were investors willing to use an asset once every twenty years. But a wiser way of providing flexibility would be in various contracting arrangements instead and especially for natural gas which allows to adapt to market fluctuations.
9. According to IEA, investments in nuclear capacity must double to achieve the Net Zero target by 2050. However, nuclear industry has lost significant part of its ability to deliver projects on time and within budget due to limited investment over recent years.

10. There is no easy road to achieve decarbonization of modern economies, and ambitious measures will be hard to implement. Many countries are already pursuing Plan B admitting they will not phase out fossil fuel without an affordable and reliable energy.

#### Session 4: Water and energy nexus: addressing challenges and seizing opportunities.

1. The scarcity of water as a resource is underestimated. Less than 1% of the water is easily accessible and the lack of access to clean and safe water is still important today. The number of water-stressed areas will significantly increase by 2040 according to the World Resources Institute. One out of three registered conflicts are caused over water.
2. Water is necessary to produce energy and energy is a key tenet for water management. The definition of water footprint is the measure of humanity's appropriation of fresh water in volumes of water consumed and/or polluted. That definition excludes the well-known 'net water use' in the energy sector mainly because the water cycle is slower than the usage. Water footprint of energy is mainly due to biomass, hydropower and concentrated solar.
3. There is a large spectrum of options to better manage water resources. Minimizing initial water consumption by implementing best practices and modernized assets is one of the options. Water reuse techniques can slow down the consumption cycle of fresh water by creating a loop; there are examples of residential buildings and companies experiencing rainwater distribution and wastewater reuse. Such solutions are interesting as the quantity of energy required for water reuse is lower than the quantity needed for desalinization for instance. Short-term direct costs resulting from implementation of such solutions may seem high, but indirect costs of water lacks could be higher if it is impossible to maintain the activity - e.g., the Panama Canal faced important losses due to drought. Therefore, companies see benefit in paying a premium to secure water supply. Yet, a recent example from the US showed limitations when a city was not able to give anymore the used water for cooling a nearby plant facility.
4. As measuring techniques are improving, and drinking water specs are becoming more stringent, it is challenging to get treated water to drinkable label. Curiously, some constituent's levels are more restrictive for the water industry than for the food-processing industry for example. Less stringent standards could be useful in regions facing a lack of drinking water such as Egypt, Sudan, or Latin American countries without prejudice to public health.
5. The water cycle is disrupting. Warmer temperatures mean a greater chance of precipitation, often in the form of intense, unpredictable storms. Conversely, increased evaporation can also intensify dry conditions with water escaping into the atmosphere rather than remaining on the ground where it is needed. The issue at stake is to create a 'sponge infrastructure' with more resilient assets that allow the ground to be permeable. The water cycle will be less affected by slowing down consumption and allowing water to flow more slowly into the ground.
6. Expanding those solutions with a decentralized water network could be of interest only for remote areas or for a physical restraint such as the size of waterpipes. The economies of scale granted by a centralized network help to reduce the costs of water.
7. Condensing the water vapor is interesting with no other water option but it is still very expensive and local pollutants can condensate too. This solution is not competitive enough to expand.

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The Club meeting has also allocated some time to discuss recent geopolitical development, ongoing war in the Middle East and its impact on markets.

Since Hamas attack on Israeli soil, oil prices have dropped due to limited disruption in petroleum supplies. Robust U.S. oil production and the realization that major oil-producing nations are not directly affected contribute to the market's apparent complacency.

According to one participant, the war will not escalate, nor involve other powers in the region. Iran has already a strong influence in the region (Iraq, Syria, Lebanon), influence that the Islamic Republic would like to preserve.

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