

## EKN's and SEK's Scientific Climate Council – notes from 24 August 2021

### *About EKN's and SEK's Scientific Climate Council*

The climate council is an advisory expert body with the aim to guide the Swedish export finance system in its ambition to adapt their full operations to be in line with the Paris Agreement's 1.5°C target. The climate council is a knowledge resource and a discussion partner for EKN and SEK concerning principled positions.

The climate council meetings are held under Chatham House Rule. The purpose of the meeting notes is to reflect and summarize the council's primary take-home messages to EKN and SEK.

### *Participants 24 August 2021 (digital meeting)*

Climate Council: Anna Krook-Riekkola, Max Åhman, Måns Nilsson, Tomas Kåberger.

EKN: Anna-Karin Jatko, Peter Tuving, Karin Wessman

SEK: Magnus Montan, Per Åkerlind, Johan Henningsson

### *Topics for the climate council's first meeting*

- The role of natural gas in energy transition - in general and in developing countries in particular: compatibility with the ambitions in the Paris Agreement and the 1.5-degree target? For example, starting from the IEAs Net Zero by 2050-scenario.
- Possible approaches that EKN and SEK can take when assessing specific projects in different countries: compatibility with the 1.5-degree target, potential for transition, possible lock-in effects and value chain leakage? Of particular interest:
  - New or expanding gas-fired power plants in various parts of the world
  - Refineries

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### *Summarized notes, based on the themes that were discussed*

Are new natural gas-based projects compatible with the Paris Agreement, in general terms?

- The Paris Agreement is an important foundation and based on the principle of fair share and with net-zero emissions in focus. A fair transition also includes to care for socially disadvantaged groups.
- The Paris Agreement is not the same thing as the 1,5-degree target. The Paris Agreement states that we should stay well below 2 degrees and strive to limit global warming to 1.5°C. There is room for about 2.5 times more future emissions in a 2-degree scenario compared to a 1.5-degree scenario. The possibilities to limit global warming to 1.5 degrees are in practice very small but it is still important to strive for this goal.
- Interpret the spirit in the climate convention – look to the country's Nationally Determined Contribution (NDC). It could however be misleading in the current situation, as NDCs in practice lead to higher warming than 2 degrees. It is important to prepare for that countries will eventually have an updated and more ambitious plan, in accordance with the Paris Agreement which states that NDCs should be updated every fifth year, with the aim to tighten the goals based on new conditions.
- There is little room for new fossil-based investments if the targets in the Paris Agreement are to be met.

The situation in a country matters when it comes to the role of natural gas in energy transition

- Vulnerable countries should be treated most generously. Developed countries need to move away from fossil dependency much quicker. Policy-related risks (e.g. trade tariffs) in combination with the investment's integration with the country's energy system and the risk for lock-in effects are key aspects to consider.
- Other factors which influence the country's situation are what the current energy system looks like; potential for renewable energy sources; type of energy needs; which alternatives analysis has been done? Is there an updated NDC which includes natural gas? It should be considered that the possibilities for developing a thorough analysis in the country may be restricted (lack of resources), which influences the underlying input.
- The potential for renewable electricity production such as wind and solar is very large and to a large extent still untapped. Wind-based electricity production may in practice be limited by access to land, while incoming solar radiation is an unlimited resource in some countries. Hydropower/dams, natural gas and biogas can be used to manage energy storage needs over seasons (summer/winter). Batteries can manage storage needs over shorter time intervals (day/night).

Credible scenarios for energy transition, compatible with the ambitions of the Paris Agreement

- The International Energy Agency (IEA) Net Zero by 2050-scenario (NZE) has scientific credibility.
- On the contrary, IEA has so far not been able to foresee the learning processes and speed of cost reduction for sun and wind-based power. An enormous scaling up of renewable solutions is required under the IEA NZE-scenario, which in turn means that costs will be reduced even further.
- IEAs scenarios has so far been built upon the development of technology for carbon capture and storage (CCS). The IEA Net Zero-scenario states that there is no need for new investments in extraction of coal, oil or gas but there is some space for continued extraction in existing oil- and gas-fields. CCS may be used to a larger extent in the future (primarily to produce hydrogen from natural gas and for coal-fired power plants in countries with no other options) but probably not at the scale which IEA's scenario assumes.

Leakage from the value chain influences the total climate impact from natural gas

- Leakage from the natural gas value chain (methane, flaring etc) is large and crucial in order to assess the total climate impact from natural gas.

Lock-in effects from new natural gas-based projects

- Lock-in effects are not only relevant for physical infrastructure. There may also be institutional and political lock-in effects both before and after an investment decision; does the decision-maker have the proper basis for decision-making in order to weigh different options against each other, for example when it comes to potential and cost for new solar-based power compared with already ongoing plans for new natural gas-fired power projects? The already existing institutional and political direction may impact alternatives analysis and is often difficult to influence. An investment in new natural gas may contribute to further lock-in, i.e. discourage transition.
- The transfer from natural gas to large-scale hydrogen requires large investments in existing/new infrastructure: manufacturing, storage and transportation.

Technology and price for renewable energy sources is developing quickly

- The costs for renewable energy sources are being reduced at quick speed, in particular for solar-based electricity production. Consequently, one important question – not related to climate impact – is if a natural gas-based power project is economically feasible in 5 to 10 years? Many countries are reducing fossil fuel subsidies.
- Oil will most likely be around for a while. The biggest challenge when it comes to phasing out oil and gas is the petrochemical and refinery industries. It is “easier” to phase out oil and gas for power production.
- The petrochemical industry has not yet fully embraced climate change and is lagging behind other sectors when it comes to transition plans. There are examples of petrostates investing in refineries in other countries to ensure future demand, while at the same time investing in renewable electricity production for domestic use. The same may happen with fossil gas.
- If a developing country has a natural gas source; is it not better for the country to export the resource and invest in renewable energy- and heat production domestically?

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