

Station Note

World Café at TD 1.3

Station 7: What are the implications of global energy mixes by sources in 2030/2035/2050?

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Between 1990 and 2019 global greenhouse gas emissions continued to grow as they have since the industrial revolution and are now at their highest levels in human history. Climate action has resulted in some avoided emissions, but with current policies we are not on track to limit warming to well below 2°C, never mind as close to 1.5°C as possible. To do so, immediate and deep emissions reductions are needed, achieving global net zero CO₂ emissions by mid-century and net zero GHG emissions in the 2nd half of the 21st century. How such global transformations play out in different contexts, is to be considered in the GST in the light of equity and the best available science.

Achieving net zero CO₂ and GHG emissions requires systems transformation across all sectors. In published global emission scenarios, energy supply reaches net zero before most other sectors. This means phasing out high-emission systems and technologies while scaling up low- and zero-emission alternatives and implementing both supply- and demand-side measures, including energy efficiency and electrification of demand. While the timing of achieving net zero emissions will vary by country, all countries would need to adopt a whole-society approach, overcome challenges, and increase the ambition of near-term actions while charting just transitions to net zero CO₂ and GHG emissions.

Question for the Advisors:

- a) Predicting exact figures and outcomes of global energy mixes for specific years like 2030, 2035 or 2050 is challenging. And energy mixes in different countries can be expected to evolve differently. Let us imagine a zero-carbon world by 2050. What are the most important changes in the energy mix in 2030 and 2035 for your country or your region to support the eventual transition to zero-carbon? How do these link to technological advancement trends, policy changes, and socioeconomic development?
- b) Which low to zero carbon energy systems can provide the energy needed for your country/region in 2030, 2035 and 2050? What share are they of overall energy supply? What are the implications of these mixes for the timing of phasing out of fossil fuels from your energy sector, in different contexts? Where would the limited use of fossil fuels in future have the biggest welfare benefit? Under which conditions?
- c) By 2030/2035/2050, what are the expected shifts towards a cleaner and more sustainable energy mix as your country/region strives to meet its mitigation targets, such as those set out in your NDC, and other sustainable development objectives? How can policy and other incentives support these changes?
- d) What might a just energy transition look like in different contexts? In countries/regions where energy access needs expanded, where there is an extensive existing fossil fuel infrastructure, or in resource-rich developing countries/regions?