



Agenda Item 4 – 18th Session of the Group of Experts on Cleaner Electricity Systems

Attaining carbon neutrality in the UNECE Region

Session I

19 September 2022, 10h45 – 12h00 CEST (Geneva time)

Objective: Present to the Group of Experts on Cleaner Electricity Systems the findings from the project on enhancing the understanding of the implications and opportunities for moving to carbon neutrality in the UNECE region across the power and energy intensive industries by 2050 and discuss next steps.

Context: The “Carbon Neutrality” project is based on the findings of the project on strengthening the capacity of the ECE member States to achieve the energy-related Sustainable Development Goals – Pathways to Sustainable Energy. The objective of the Pathways Project was to help countries develop, implement and track national sustainable energy policies to mitigate climate change and contribute to sustainable development. The project concluded that attaining sustainable energy is extremely challenging and the Committee on Sustainable Energy tasked the Group of Experts on Cleaner Electricity Systems to initiate a dialogue about delivering on the 2030 Agenda in an integrated way that develops carbon neutrality as a concept and that is pragmatic and rational economically, socially and environmentally with a particular focus on low- and zero-carbon technologies, such as fossil fuels with carbon capture, use and storage, nuclear power, hydrogen, energy efficiency, renewable energy etc.

The “Carbon Neutrality” project was implemented based on three main workstreams:

1. Refinement of data and assumptions of technology inputs
2. Understanding the role of selected technologies and innovation towards carbon neutrality
3. Collaboration across sectors towards carbon neutrality

Achievable pathways for governments to design and attain carbon-neutral energy systems were identified and a [UNECE Carbon Neutrality Toolkit](#) was developed. The Toolkit identified technology and policy options and provided recommendations on facilitating the move towards carbon neutrality and specified the requirements for a carbon-neutral energy system. Following briefs and reports are included in the Toolkit:

- [Framework for attaining carbon neutrality in the UNECE region by 2050](#)
- [Technology brief on carbon capture, use and storage \(CCUS\)](#)
- [Geologic CO₂ storage in Eastern Europe, Caucasus and Central Asia](#)
- [Technology brief on hydrogen](#)
- [Technology brief on nuclear power](#)
- [Integrated Life-cycle Assessment of Electricity Sources](#)
- [Technology interplay under the carbon neutrality concept](#)

Next steps: The Group of Experts will review the key Carbon Neutrality project findings and will discuss how the Group can cooperate closely with other Expert Groups under the UNECE Sustainable Energy Programme and support the [UNECE Committee on Sustainable Energy](#) in designing a resilient energy system for the region that is more secure, more affordable and delivers on net-zero.

Setting the scene: presentation of project findings

Iva Brkic, Project Lead & Walker Darke, Consultant, UNECE

Holger Rogner, Senior Analyst & Behnam Zakeri, Senior Analyst, IIASA

Roundtable: Building a resilient energy system in the ECE region through low- and zero-carbon technology interplay

- What is the interplay of all low- and zero-carbon technologies, including between flexible clean coal, natural gas and renewable energy, carbon capture, use and storage (CCUS), advanced fossil fuels technologies for power generation, including high-efficiency, low-emissions (HELE) technologies, nuclear power and hydrogen?
- How can we improve the interplay between all low- and zero-carbon technologies?
- What it takes to create resilient energy systems in the UNECE region?

Moderator: Jim Robb, Chair of the Group of Experts on Cleaner Electricity Systems

Panel: panellists will discuss the interplay of different low- and zero-carbon technologies, their role in attaining carbon neutral resilient energy systems and their implications across the UNECE region

Energy security & energy system resilience in Europe: Vladimir Budinsky, Vice-Chair of the Group of Experts on Cleaner Electricity Systems

Nuclear power: King Lee, Vice-Chair of the Group of Experts on Cleaner Electricity Systems

Hydrogen & CCUS: Jon Gibbins, Vice-Chair of the Group of Experts on Cleaner Electricity Systems

Transboundary cooperation & energy system resilience in Central Asia: Furugzod Usmonov, Vice-Chair of the Group of Experts on Cleaner Electricity Systems

Discussion & Next steps

Interventions by member states and a wider multi-stakeholder community