18th Session of the Group of Experts Cleaner Electricity Systems

Energy Security, Resilience and Net Zero
Tangible Actions to Deliver a Sustainable Energy Future

19 September 2022, Geneva
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Housekeeping

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You can mute or unmute your microphone and video.

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To request the floor.

To choose your preferred interpretation language.
Opening and approval of the agenda

Mr. Jim Robb, Chair, Group of Experts on Cleaner Electricity Systems
Election of officers

Nominations received
Chair:
Mr. Jim Robb, United States

Vice-Chairs:
Mr. Baurzhan Umirzakov, Kazakhstan
Mr. Georgy Popov, Russian Federation
Mr. Andrew Minchener, International Centre for Sustainable Carbon
Mr. King Lee, World Nuclear Association
Mr. Antoine Herzog, Électricité de France
Election of officers

Elected candidates

Chair:
Mr. Jim Robb, United States

Vice-Chairs:
Mr. Baurzhan Umirzakov, Kazakhstan
Mr. Andrew Minchener, International Centre for Sustainable Carbon
Mr. King Lee, World Nuclear Association
Mr. Antoine Herzog, Électricité de France
Election of officers

As per the Terms of Reference and Rules of Procedure of the Economic Commission for Europe, Fifth Revised Edition

CHAPTER IX: VOTING

Rule 42: All elections shall be decided by secret ballot, unless, in the absence of any objection, the Commission decides to proceed without taking a ballot on an agreed candidate or slate.

Instructions:
1. Distribution of ballots to member States (one ballot per delegation present)
2. Member States mark their votes on the provided ballot
3. Secretariat calls member States alphabetically to approach the ballot box to confirm identity and cast their vote
4. Secretariat verifies and counts the ballots
5. Secretariat validates the results
   
   Note: only candidates that receive the required majority (simple majority of the members present and voting) are elected

6. Chair reports the results
Election of officers

  
  - Para 15. Candidates for the Bureaux of the subsidiary bodies shall be nominated by ECE member States where possible. The Bureaux of the subsidiary bodies can nominate additional Vice-Chairs from the expert community based on their expertise, professionalism, and support as appropriate.
  
  - Para 16. Elections to Bureaux will take place in accordance with the Guidelines on procedures and practices for ECE bodies adopted by the Economic Commission for Europe
Election of officers

Bureau of the Group of Experts on Cleaner Electricity Systems
Chair:
Mr. Jim Robb, United States

Vice-Chairs:
Mr. Vladimir Budinsky, Czech Republic
Mr. Baurzhan Umirzakov, Kazakhstan
Ms. Djamila Aitmatova, Kyrgyzstan
Mr. Furugzod Usmonov, Tajikistan
Mr. Jonathan Gibbins, United Kingdom
Mr. Antoine Herzog, Électricité de France
Mr. Sylvain Clermont, Hydro-Québec Canada
Mr. Andrew Minchener, International Centre for Sustainable Carbon
Mr. King Lee, World Nuclear Association
Activities and priorities of the Committee on Sustainable Energy & matters for consideration by the Group of Experts

Denise Mulholland, Secretary, Committee on Sustainable Energy
The Committee on Sustainable Energy and its six Subsidiary Bodies

- Reducing the Environmental Footprint of the Energy Sector
- Deep Transformation of the Energy System
- Sustainable Resource Management
Reducing the Environmental Footprint of the Energy Sector

- Enhancing the interplay between the renewable energy and natural gas
- Improving energy efficiency across buildings and industry sectors
- Scaling renewable energy deployment in Eastern Europe, the Caucasus and Central Asia
- Promoting sustainable hydrogen production pathways in Eastern Europe and Central Asia
- Supporting member States to achieve their methane reduction targets
Deep Transformation of the Energy System

- Pathways to Sustainable Energy
- Attaining Carbon Neutrality in the UNECE region
- Building resilient energy systems in the UNECE region
- Digitalizing energy systems

Sustainable Resource Management

- Building and implementing global standards - UNFC and UNRMS
- Addressing the demand for critical raw materials for energy transition
- Enabling resource efficiency and progressing towards circular economy
Session I - Building a resilient energy system in the ECE region through low- and zero-carbon technology interplay

Introduction and moderation:
Mr. Jim Robb, Chair, Group of Experts on Cleaner Electricity Systems

Carbon Neutrality Project Findings:
Ms. Iva Brkic, Project Lead, UNECE
Mr. Walker Darke, Consultant, UNECE
Mr. Behnam Zakeri, Senior Analyst, IIASA

Panel Discussion:
Mr. Vladimir Budinsky, Vice-Chair of the Group of Experts on Cleaner Electricity Systems
Mr. King Lee, Vice-Chair of the Group of Experts on Cleaner Electricity Systems
Mr. Jon Gibbins, Vice-Chair of the Group of Experts on Cleaner Electricity Systems
Mr. Furugzod Usmonov, Vice-Chair of the Group of Experts on Cleaner Electricity Systems
Carbon Neutrality Toolkit

Supporting policymakers to make informed decisions towards the implementation of the 2030 Agenda for Sustainable Development and the Paris Agreement.
UNECE Carbon Neutrality Toolkit

Impacts of the carbon neutrality project

**International**
30+ Countries actively participating in carbon neutrality project implementation.

**Development**
15+ capacity building workshops delivered on low- and zero-technologies and carbon neutrality frameworks.

**Policies**
7+ United Nation's publications on carbon neutrality including technology and policy briefs.

**Action**
Launch of activities on rebuilding the energy system in Ukraine, and carbon neutrality attainment in Central Asia.

**Sharing**
Millions of views of the ECE Carbon Neutrality Toolkit at international events, and online.
Carbon Neutral Energy System of the Future
Carbon Neutral Energy System of the Future

Energy industry is the major emitter of climate change, which contributes to 40% of total GHG emission.

Industry, transport and building combined contribute to 54% of total GHG emission.

Deploy all zero- and low-carbon technologies and energy storage systems.

Reducing emissions from existing supply through:
- Energy efficiency
- High-Efficiency, Low-Emissions technology (HELE)
- Retrofitting with Carbon Capture (CCUS) technologies

Deep decarbonization through
- Improved fuel efficiency
- Electrification
- Low carbon fuels

Deep decarbonization through
- Energy efficiency
- Electrification of heating and cooling
- Heating from hydrogen and nuclear

Deep decarbonization through
- System efficiency and circularity
- Electrification
- Technology innovation
Key Takeaways – Carbon Neutrality under Carbon Neutrality System

Actions fall short on carbon neutrality

Carbon dioxide and methane emissions in the UNECE region [MtCO2eq]

- Reference Scenario
- Carbon Neutrality Scenario

Chart: United Nations • Created with Datawrapper
Key Takeaways – Carbon Neutrality under Carbon Neutrality System

**Diversify Energy**
Diversify primary and final energy supply

**Phase-Out Fossil Fuels**
Accelerate phase-out of unabated fossil fuels

**Electrification**
Electrify all sectors through renewable energy and nuclear power

**Innovate**
Scale-up innovative low- and zero-carbon technologies
Key Takeaways – Carbon Neutrality under Carbon Neutrality System

01. RAISE AWARENESS
Raise awareness about the merits of all low- and zero-carbon technologies

02. DEVELOP POLICIES
Develop policy frameworks in support of carbon neutrality

03. LEVEL THE PLAYING FIELD
Create a level-playing field to finance a just transition toward carbon-neutral energy systems

Technology transfer and deployment
- Removing obstacles to knowledge sharing and technological transfer – including intellectual property constraints

Institutional capacity
- to plan and drive ambitious transformation of energy systems

Buy-in and adoption
- from all stakeholders to build secure, affordable, and carbon-neutral energy systems.

UNECE as a platform for International Cooperation
- Coordinated international cooperation will be essential to attain a carbon-neutral energy system.
- Supportive policies, incentives, and regulatory frameworks encourage regional technical cooperation across industry, buildings, and transport for projects of common interest and public-private partnerships.
Session I - Building a resilient energy system in the ECE region through low- and zero-carbon technology interplay

Introduction and moderation:
Mr. Jim Robb, Chair, Group of Experts on Cleaner Electricity Systems

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Mr. Jon Gibbins, Vice-Chair of the Group of Experts on Cleaner Electricity Systems
Mr. Furugzod Usmonov, Vice-Chair of the Group of Experts on Cleaner Electricity Systems
Attaining carbon neutrality in the UNECE region – Next Steps

**Western Europe**
Intensifying the utilization of wind, solar energy and biomass production are vital aspects of wholesale changes needed across national lines to support climate neutrality targets. This region continues to be the world’s hub for innovative research in clean technologies. Still, more policy support and financing are needed to make these technologies commercialized.

**North America**
United States and Canada are scaling up new and existing low- and zero-carbon technologies in diversifying their energy mix. The US could lead nuclear development and deployment of small modular reactors for wider energy uses.

**Western Balkans**
Coal, oil and gas fitted with carbon capture technologies continue to be a part of the energy system. Unprecedented utilization of hydropower accelerated expansion of wind, and introduction of nuclear small modular reactors transform end-use infrastructure to become carbon neutral.

**Belarus, Moldova, and Ukraine**
A just transition towards the deployment of low- and zero-carbon technologies sees CCUS with cogeneration of district heat, nuclear power and onshore wind become the prime supply side areas.

**Russia**
Natural gas will continue to dominate the energy mix. Nuclear power can play a vital role in attaining carbon neutrality for the region alongside other sustainable technologies including wind and hydro power. Fossil fuels are required to be fitted with CCUS and comply with methane management requirements.

**Central Asia**
A massive switch of fossil fuel conversion to technologies equipped with CCUS provides adequate time to scale up deployment of wind, solar and hydro power plants and the introduction of nuclear power and hydrogen.

**Central and Eastern Europe**
The region is dependent on fossil fuel imports. Scaling up and deploying all low- and zero-carbon technologies are needed to ensure energy security and attain resilient energy systems.
Attaining carbon neutrality in the UNECE region – Next Steps

2nd Almaty Energy Forum

Innovating and Modernizing Energy Infrastructure in Central Asia

Date: 14 – 16 November 2022
LUNCH BREAK
12h00 – 15h00 CET

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Building Resilient Energy Systems

What is a resilient energy system?

- A resilient energy system ensures that energy makes an optimal contribution to a country’s social, economic, and environmental development.
- Energy security strengthens energy independence through interconnectivity and trade.
- Affordability reduces costs of electricity, heating, cooling, and transport.
- Environmental sustainability lowers the carbon footprint and enhances efficiency across the energy supply chain.
What are the vulnerabilities of the existing energy system?

**Challenges**

- **COVID-19**
  - Economic recovery at the expanse of energy transition is a concerning risk

- **Geopolitical Instability**
  - Disruption of supply
  - Impeding energy flows
  - Threatening economic growth
  - Energy prices increase short and medium-term

- **Supply Chain Disruption Factors**
  - Exponential increase in demand for critical raw materials
  - Higher cost for shipping and logistics
  - Limited technology standardisation
  - Trade restrictions

- **Climate Change Crisis**
  - A threat multiplier to all of the above increase in intensity of extreme events will pose a threat to international peace and security

**Impacts**

- **Disrupted Energy Availability**
  - Limited access to resources and disruptions in demand create uncertainties for long term energy investments and security

- **Inadequate Energy Accessibility**
  - Region-wide energy price increase inhibit economic growth and exacerbate energy poverty across the region

- **Questionable Energy Sustainability**
  - Maintaining national energy security may resort to the use of power generation by traditional unabated coal-fired plants, increasing CO2 emissions and delaying net-zero target
10 recommendations from the UNECE Expert Community to design and implement resilient energy systems

1. Implement energy efficiency solutions immediately
2. Digitalize the energy systems
3. Decarbonize energy system and accelerate fuel switching
4. Diversify the energy supply
5. Build a workforce to deliver on just energy transition
6. Implement a resource management framework
7. Integrate circular carbon economy concept into decision-making
8. Recognize that there is not a one-size-fits-all approach
9. Acknowledge that all low- and zero-carbon technologies play a role
10. Address behavioral barriers
What are the immediate actions for policymakers?

**RAISE AWARENESS**
- Establish common language
- Familiarise with all benefits and risks
- Create environment that gain confidence and reduce fear
- Boost stakeholders’ competence

**DEVELOP REGULATORY FRAMEWORK**
- Nexus approach to managing the natural resource base
- Consistent policies and market frameworks
- Review interconnection infrastructure
- Separate interconnections
- Integrate energy system
- Practical ways to ensure affordability

**SECURE FINANCING**
- Cooperate with global financial community
- Support development projects with risk-sharing structure
- Science-based climate and sustainable finance classification
- Provide financing to all other low-carbon technologies
- Evaluate carbon pricing and energy subsidies
- Encourage decision-makers and end-users to make investment decisions