



Agenda Item 7 – 18th Session of the Group of Experts on Cleaner Electricity Systems

Attaining carbon neutrality in the UNECE Region

Session 4 – Digitalizing electricity systems

20 September 2022, 15h00 – 16h30 CEST (Geneva time)

Objective: This session will explore opportunities and challenges of digitalizing electricity systems, with a focus on effective policymaking to increase energy system efficiency, to make the electricity system cleaner and increase resiliency. It is based on findings resulting from joint work of the Group of Experts on Energy Efficiency and the Group of Experts on Cleaner Electricity Systems under the Task Force on Digitalization in Energy. Findings from this session will outline the future avenues of joint research.

Context: Digital solutions enable advances in connectivity, data, and analytics, bring potential to accelerate achievement of Sustainable Development Goals including Goal 7 “Ensure access to affordable, reliable, sustainable and modern energy for all”, and can greatly increase overall efficiency of energy system. Digital technologies, as a means to coordinate, analyse and interpret increasing quantities of energy system data, user preferences, and system requirements, will be at the core of multi-sector electrification and may facilitate complex system-level optimization of a decentralized energy sector. Digital innovations offer new ways of addressing challenges in the overall energy delivery process, in addition to energy efficiency specifically, and finding exceptional ways to overcome them.

Document entitled “Digitalization: Accelerating the Electricity System Transformation. Joint Paper by the Task Force on Digitalization in Energy of the Group of Experts on Energy Efficiency and the Group of Experts on Cleaner Electricity Systems” (ECE/ENERGY/GE.6/2022/4-ECE/ENERGY/GE.5/2022/4) will inform the session. The document discusses opportunities and benefits of digitalizing electricity systems, maps stakeholders involved, and outlines challenges for consideration by public authorities, private sector actors, and end-users. It concludes with recommendations on policies to accelerate electricity systems’ transformation through digitalization, to achieve higher levels of efficiency while ensuring security and sustainability. The document also contains results of a survey that was launched to acquire expert-level insights on challenges and opportunities of digitalizing energy systems across geographies.

Next steps: Findings from this discussion will feed into the 9th session of the Group of Experts on Energy Efficiency (<https://unece.org/info/Sustainable-Energy/events/367590>) and may eventually guide related future activities.

Introduction: Digitalization of the Electricity System

Sylvain Clermont, Vice-Chair of the Group of Experts on Cleaner Electricity Systems

Presentation of survey results, insights, and recommendations

Andrei Covatariu, Task Force on Digitalization in Energy, Group of Experts on Energy Efficiency

Fabian Heymann, Task Force on Digitalization in Energy, Group of Experts on Energy Efficiency

Elizabeth Massey, Task Force on Digitalization in Energy, Group of Experts on Energy Efficiency

Panel discussion: Digitalization & data collection: Enablers of a more resilient electricity system

By leveraging the building blocks of digitalization in energy and power sector companies could increase the asset life cycle of infrastructure, optimize electricity network flows, and innovate with customer-centric products. This panel will highlight what it means for stakeholders: grid operators, governmental authorities, end-users, etc. In brief: *Why you should care about digitalization in energy?*

- What is electricity grid digitalization? Why it contributes to cleaner electricity system?
- What are the identified opportunities and where are the low hanging fruits?
- Are there any challenges and trade-offs and how those can be minimized?
- Who are the key players and what are their incentives/interests? Are there any conflicting priorities?
- How can UNECE promote digitalization of electricity systems on agenda?
- What do we need for implementation? What kind of capabilities we need to build and bring it together?

Moderators:

Sylvain Clermont, Vice-Chair of the Group of Experts on Cleaner Electricity Systems

Piyush Verma, Co-Chair of the Group of Experts on Energy Efficiency, Chair of the Task Force on Digitalization in Energy

Panellists:

Ryan Quint, Director, Engineering and Security Integration · North American Electric Reliability Corporation (NERC)

Dirk Stockmann, Head of Software Strategy and Architecture, Siemens Germany

Furugzod Usmonov, Vice-Chair of the Group of Experts on Cleaner Electricity Systems

Discussion & next steps