

Plenary Session: Disruptive voices: Digitalization in the energy sector

Organizers: United Nations Economic Commission for Europe

Target group: Open to all participants; electricity value chain players, policy makers city planners, transport

Digitalization is at the heart of changes in society regarding how we live, travel, and do business. In modern economies, we cannot imagine energy production, distribution or use without digital infrastructure. Yet, there is insufficient understanding of the value that digital technology provides to the energy industry today and of the dependency on digital players, making them new and powerful entrants in the energy market. Innovative business models are challenging the old. During the transition, there will inevitably be transactional inefficiencies. The volumes of data produced by the digitalization of everything present an enormous opportunity for quality of information but require careful management to protect privacy and avoid misuse. Players will hesitate to lock themselves into specific choices of approach or technology given the rapid pace of change. There are numerous other challenges that the evolution of digitalization is facing.

This session will explore where the best opportunities lie, which aspects of digitalization are growing fastest, which technologies show the most promise, and how business models are evolving in response. The session will also explore the challenges of introducing digitalization into the existing physical energy system and the risks of exposure to digital threats.

Introductory remarks and moderation

- Aleksandar Dukovski, Chair, UNECE Group of Experts on Energy Efficiency

Moderated panel discussion:

- *What opportunities is digitalization bringing to the energy sector? Is it possible to measure the benefits?*
- *Which threats exist and how can they be prevented? Are protocols for protection against hacking sufficient? If not, what steps need to be taken? Who will ensure consumer protection in a new digitalized energy world?*
- *Which aspects of digitalization have seen the most significant progress in the recent past?*
- *Which new entrants have found root in the energy system? What does this mean for the evolution of business models? Service provision?*
- *What would be the role of regulators/policy makers to cater for the new innovative business models emerging because of digitalization?*

Panelists:

- Sun Xiansheng, Secretary General, International Energy Forum
- Hongpeng Liu, Director, Energy Division, ESCAP
- Yassamin Ansari, Senior Advisor, Mission 2020
- Mads Uhlin Hansen, CEO, Kube Energy
- Piyush Verma, Senior Energy Market Analyst, International Energy Research Centre, Ireland

Reactions from the audience, interactive discussion with panellists.

The discussion on more specific case examples will continue in the session "Digitalization in the energy sector" (Track 4)

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The use of ICT throughout the electricity system enables broader penetration of distributed or intermittent generation resources, improves the ability of network to anticipate and respond to system disturbances, and provides clear information on the types and locations of needed capital investment. “Smart” grids integrate generation, demand, and grid conditions to ensure reliable network operations. The use of ICT in transportation also yields multiple benefits in terms of diagnostics, equipment optimization (for fuel economy, performance, and emissions), congestion management, and types and locations of needed capital investments. Many countries and cities have started to use big and geo-spatial data for the successful implementation of sustainable energy projects, e.g. for the estimation of the renewable energy potential on country level, the development of city energy infrastructure plans or the identification of energy saving potentials for individual energy consumers. Energy systems face a plethora of risks including natural disasters. Digitalization will contribute to reduction of or at least improved management of most of these risks but exposes the system to greater risk of intentional attacks, and operators are obliged to take precautionary measures.

Following on from the scene setting plenary discussion, this session seeks to shed light onto the opportunities and hurdles given the fast spread of and dependency on ICT throughout the energy system. This session will introduce participants to the underlying thought process and technology as well as facilitate an international experience exchange based on case studies in blockchain, oil and gas, grids, as the respective data management and analysis methods can be easily applied in different locations.

Introductory remarks and moderation:

- Scott Foster, Director, Sustainable Energy Division, UNECE

Moderated panel discussion:

- *How are digitalization and blockchain making a difference in various sectors including electricity service provision, buildings, cities, utilities, oil and gas?*
- *How can we ensure the positive disruption of the energy world? How can blockchain play a significant role to enable a decentralized and democratized energy system?*
- *Which successful business models are emerging? How will the utilities' business models change as a result of the prosumer concept?*
- *What are the key challenges of exploiting the full potential of innovative technology like blockchain?*
- *What steps should stakeholders take to ensure that we are building the right skillsets and capabilities to deal with such technologies?*

Panelists:

- Anatoliy Klimashevskiy, IT Director, Ukgazvydobuvannya
- Helge Schramm, Sustainability and LCA Expert, Danfoss A/S
- Oleg Burdo, Director of Energy and Partner Project Departments, Schneider Electric Ukraine
- Piyush Verma, Senior Energy Market Analyst, International Energy Research Centre, Ireland
- Lauren Downes, Researcher, Cloud Legal Project, Microsoft Cloud Computing Research Centre, Energy Law, Queen Mary, University of London

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