

# 11<sup>th</sup> Annual IEA-EPRI Challenges in Electricity Decarbonisation Workshop

17 and 18 September 2024

Room 1 (first floor)  
9 Rue de la Fédération, 75015, Paris

International  
Energy Agency

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EPRI

## Background

Electricity represents a little more than one fifth of the final energy consumption today. As energy and climate strategies give priority to electrification, the share of electricity in energy end-use is expected to double by 2050 to meet the climate pledges made by countries. As a consequence, electricity security will be more and more critical to modern societies.

Power systems are transforming to support the growing role of electricity, reduce dependency to imported fuels, accommodating more variable renewable resources and storage across larger interconnections while digitalisation enables decentralisation and consumer engagement. At the same time, electricity is not immune to barriers to infrastructure development, geopolitics and climate threats. This leads to re-thinking electricity security and address, among others, system adequacy and flexibility, dependencies and co-ordination within the power sector and with other sectors, resilience to cyber and extreme weather events.

Since 2014, the IEA and the Electric Power Research Institute (EPRI) have co-hosted workshops gathering experts, policy makers and regulators to discuss key topics for the power sector throughout its transition.

The 11<sup>th</sup> IEA-EPRI Challenges in Electricity Decarbonisation workshop will follow the Electricity Security Advisory Board and will deepen the discussion on power markets design, the impact of Artificial Intelligence and the trend of resources decentralisation. The last session of the event will have a special focus on the role of decentralisation on the resilience of the electricity system of Ukraine.

## Format

The meeting will be informal in nature and held under the Chatham House Rule. Each session will be introduced by invited members of the Advisory Board and followed by a roundtable discussion. Attendance is by invitation only.

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## Agenda

### IEA-EPRI Challenges in Electricity Decarbonisation Workshop

#### Day 1: Tuesday 17 September

13h30-14h00	Welcome coffee and registration
14h00-14h15	<p><b>Welcome and Opening</b>  <i>Arshad Mansoor, President and Chief Executive Officer, EPRI</i></p> <p><b>Reflections on the Electricity Security Advisory Board</b>  <i>Pablo Hevia-Koch, Head of Unit, Renewables Integration and Secure Electricity</i></p>
14h15-15h40	<p><b>Session 1: Setting the Scene: Power Systems in Transitions</b></p> <ul style="list-style-type: none"> <li>• <i>Melissa Lott, Director of Research, Centre on Global Energy Policy, Columbia Climate School</i></li> <li>• <i>Arshad Mansoor, President and Chief Executive Officer, EPRI</i></li> </ul> <p>Followed by Roundtable discussion</p>
15h40-16h00	Coffee break
16h00-17h45	<p><b>Session 2: Market Designs for Secure Transitions</b></p> <p>Power markets have been designed to support electricity security. As the power systems transform and decarbonise, power markets need to send the right signals and rewarding availability when and where it is critical. How are instruments evolving, and how can these support the cost-efficient emergence of a diversified yet reliable fleet of market participants contributing to the security of supply?</p> <p>Addressed topics:</p> <ul style="list-style-type: none"> <li>- What do markets do well, and where do they fall short</li> <li>- Design features to incentivise and deliver the needed flexibility, including deployment of grids and energy storage</li> <li>- New markets and market products</li> <li>- Capacity markets: why and which</li> </ul> <p>Moderator: <i>Mo Cloonan, Principal Project Manager, EPRI</i></p>

	Introductory interventions by invited speakers Followed by Roundtable discussion
<b>17h45</b>	Reception

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**Day 2: Wednesday 18 September, 8h30-12h45**

<b>8h30-9h00</b>	Welcome coffee
<b>9h00-10h30</b>	<p><b>Session 3: Secure Electricity in the Era of Artificial Intelligence</b></p> <p>AI accelerates the digital transformation and offers new opportunities. While power systems are undergoing progressive digitalisation, should the power sector fear or embrace AI?</p> <p>Addressed topics:</p> <ul style="list-style-type: none"> <li>- Perspectives and growth of servers, with consequences for grids and the potential for demand side response</li> <li>- Locational signals for deployment of new servers</li> <li>- Management of cybersecurity risks</li> <li>- Role of AI in electricity systems management and related risks (responsibility, decision making)</li> </ul> <p>Moderator: <i>Wil Smith, Senior Advisor, Government &amp; External Affairs, EPRI</i></p> <p>Introductory interventions by invited speakers Followed by Roundtable discussion</p>
<b>10h30-10h50</b>	Coffee break
<b>10h50-12h30</b>	<p><b>Session 4: Resilience of Decentralised Power Systems (Ukraine study case)</b></p> <p>Aggregation of distributed energy resources, Virtual Power Plants (VPP) and energy communities are emerging as solutions to contribute to electricity security, affordability and decarbonisation. While pilots are multiplying, their success and sustainability requires proper valorisation of their value to the system and its participants.</p> <p>The specific case of Ukraine will be discussed, where decentralisation can be the foundation of a more resilient power system.</p>

	<p>Addressed topics:</p> <ul style="list-style-type: none"> <li>- Factors enabling the emergence of energy communities, aggregators and VPPs</li> <li>- Engaging consumers in the energy transition</li> <li>- What needs to be done to ensure decentralisation is not playing against system security</li> <li>- Resilience against internal and external threats</li> </ul> <p>Moderator: <i>Jacques Warichet, Power System Transformation Analyst, Renewable Integration and Secure Electricity Unit, IEA</i></p> <p>Introductory interventions by invited speakers Followed by Roundtable discussion</p>
<b>12h30-12h45</b>	<b>Closing remarks</b>

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