

**Opportunities and Challenges of AI/GenAI for Energy Grids**  
**Co-organised by DG ENER + DG CONNECT**  
**20 September 2024**

**Brussels**

**Centre de Conférences Albert Borschette,  
European Commission  
Rue Froissart 36,  
1040 Etterbeek**

**Introduction:**

To meet the Green Deal objectives in the most cost-efficient way requires an energy system that is much smarter and more interactive than it is today. Increased grids' observability and controllability, improved forecasting of energy production from distributed energy resources, and seamless integration across different operators in actively managing their systems are all examples of new needs and challenges that require innovative digital solutions. Decarbonisation, electrification and decentralisation of the energy system require digitalisation to make it work.

Smart and digitalised energy systems are instrumental for decarbonisation of several key industrial sectors like mobility, logistics, buildings, cities, etc.

Software applications and in particular AI tools combined with decentralised intelligence edge solutions support scaling of energy applications quickly and accelerate efficiency and productivity. Generative AI is a subset of AI that involves creating new content and solutions, holds significant potential for transforming the energy sector. The speed at which this software can scale cannot be better illustrated than by the explosion of use of OpenAI's ChatGPT which reached 100 million monthly users just two months after its initial release and became the fastest-growing consumer application ever. Applying GenAI for energy system operation may facilitate prediction of consumption and use patterns, scenario generation, strategic decision support and automated SW and application generation. This technology might enhance efficiency, optimize distributed complex resource management, and drive innovations in DER integration of assets such as renewable energy sources, smart metering, EV charging, and smart buildings..

The objective of the workshop will address the transformative potential of AI for the energy sector and will discuss opportunities and challenges related to AI/GenAI technologies and tools, use cases, grid edge orchestration and regulatory issues. The event is co-organised by DG ENERGY and DG CONNECT, as well supported by the CSA IntNet.

**The workshop will be structured around 4 blocks:**

- a. Application of AI for the energy grid – sectoral use cases**
- b. Foundational AI**
- c. AI at the Grid Edge**
- d. Regulatory issues / incl. e.g. AI safety risk assessment**

**Opportunities and Challenges of AI/GenAI for Energy Grids**  
**20 September 2024**  
**Brussels**

**Agenda of the Workshop – 20 September 2024**

<b>Time</b>	<b>Agenda point</b>	<b>Speaker</b>	<b>Affiliation</b>
8:30	Registration starts Welcome coffee		EC
9:00	<b>Introduction by the EC (30 min pres.)</b>	Paula Pinho, Director ENER/B Max Lemke HoU CONNECT/E4	EC, t.b.c.
9:30	<b>Key note IEA AI in Energy</b>	<b>Thomas Spencer</b>	IEA
	<b>Application/Use Cases of AI in Energy Grids</b>		ENER – CINEA - CONNECT
10:00h	<b>5 Pitches of 10 min</b>		
	Setting the scene	<b>Mark van Stiphout, Stavros Stamatoukos</b>	ENER/B5
	Opportunities of AI for Grid Operators	<b>Lóránt Dékány</b>	TwinEU project
	Data Spaces critical to reap the benefits of AI	<b>Antonello Monti</b>	RWTH Aachen
	AI to increase operational efficiency	<b>Alberto Mendez Rebollo</b>	Plexigrid
	Federated energy data spaces and smart data/AIOps orchestrators	<b>Moisés Antón García</b>	ETRA I+D
11:00 11:20	Coffee break		
11:20	<b>Panel: Evolution of AI adoption in energy / role of data spaces / emergence of GenAI</b>	Antonello Monti Jakob Hviid  Thomas Wisbech Herman Carsten	RWTH Aachen The Danish Energy Agency Energinet Elia
	<b>Foundational GenAI</b>		
11:50h	Setting the scene	Valentine ENESCU	CNECT/A1
	AI versus GenAI for Energy Grid	Christina Leinauer, Jens Strüker	Fraunhofer-Institut FIT
	<b>Q&amp;A - Discussion with the audience</b>		
12:45 13:45	Lunch		
13:45 14:00	After lunch coffee		

	<b>AI at the Grid Edge</b> AI tools combined with decentralised intelligence edge solutions		
14:00h	<b>5 Pitches</b>		
	Setting the scene	<b>Rolf Riemenschneider</b>	<b>CNECT/E4</b>
	Digital Sine – Orchestration at the convolution of e-mobility and energy	<b>Christina Leinauer, Jens Strüker</b>	<b>Fraunhofer-Institut FIT</b>
	A Smart energy OS as a baseline for AI innovation	<b>Tobias K. S. Ritschel</b>	<b>DTU</b>
	A Smart Orchestrator for Energy Communities	<b>Rafael Oliveira Rodrigues</b>	<b>EDP</b>
	AI revolution for energy systems	<b>Natalie Samovich</b>	<b>Alliance AIOTI</b>
15:00 15:15	Coffee break		
15:15	<b>Panel: AI Evolution or Revolution at the GridEdge</b>		
15:50	<b>Regulatory issues</b>	t.b.c.	ENER / CNECT-A2
16:10 16:30	Closing remarks	All	

## Workshop arrangements:

### Mode of the workshop:

Workshop will be on-site in Brussels, online participation possible (hybrid).

### Venue of the workshop:

Venue of the workshop is:  
Centre de Conférences Albert Borschette,  
European Commission  
Rue Froissart 36,  
1040 Etterbeek