

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**

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Agenda of the Workshop – 20 September 2024

Time	Agenda point	Speaker	Affiliation
8:30	Registration starts Welcome coffee		EC
9:00	Introduction by the EC (30 min pres.)	Mark van Stiphout Zoe de Linde Valentin ENESCU	EC dHoU ENERGY/B5 dHoU CONNECT/E4 CONNECT/A1
9:30	Key note IEA AI in Energy (online)	Thomas Spencer	IEA
	Application/Use Cases of AI in Energy Grids		ENER – CINEA - CONNECT
10:00h	5 Pitches of 10 min		
	Moderation	Stavros Stamatoukos	ENER/B5
	Opportunities of AI for Grid Operators	Lóránt Dékány	TwinEU project
	Data Spaces critical to reap the benefits of AI	Antonello Monti	RWTH Aachen
	Federated energy data spaces and smart data/AIOps orchestrators	Moisés Antón García	ETRA I+D
	Prominent operational AI use cases from a DSO perspective (online)	Luis Cunha	ETIP SNET
11:00 11:20	Coffee break		
	Moderation	Stavros	
11:20	Panel: Evolution of AI adoption in energy / role of data spaces / emergence of GenAI	Alberto Mendez Rebollo Jakob Hviid Thomas Wisbech Herman Carsten	Plexigrid The Danish Energy Agency Energinet Elia
	Foundational GenAI		
	Moderation	Valentin ENESCU	
12:00h	Setting the scene	Valentin ENESCU	CNECT/A1
12:10h	AI versus GenAI for Energy Grid	Christina Leinauer, Jens Strüker	Fraunhofer-Institut FIT
12:15h	Q&A - Discussion with the audience		
12:45 13:45	Lunch		
13:45	After lunch coffee		

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

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:
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