

CALL FOR ABSTRACTS

11th International Conference on Smart Energy Systems

4th Generation District Heating •
Electrification • Electrofuels • Energy Efficiency

Copenhagen 16-17 September 2025

Topics

Smart energy system analyses, tools and methodologies

Smart energy infrastructure and storage options

Integrated energy systems and smart grids

Institutional and organisational change for smart energy systems and radical technological change

Energy savings in the electricity sector, buildings, transport and industry

4th generation district heating concepts, future district heating production and systems

Electrification of transport, heating and industry

CCUS and PtX technologies and the production and use of electrofuels in future energy systems

Planning and organisational challenges for smart energy systems and district heating

Geographical information systems (GIS) for energy systems, heat planning and district heating

Components and systems for district heating, energy efficiency, electrification and electrofuels

Renewable energy sources and waste heat sources including PtX for district heating

Important dates 2025

22 Apr **Deadline abstract submission (optional upgrade to paper)**

1 May **Reply on acceptance of abstracts**

1 - 31 May **Early registration**

1 Jun - 20 Aug **Normal registration**

12 - 19 Sep **Virtual conference is open**

15 Sep **Technical tour**

16 - 17 Sep **Conference**

18 Sep **Technical tour**

We invite researchers and experts from industry and business to contribute to further enhancing the knowledge of smart energy systems, 4th generation district heating, electrification, electrofuels, and energy efficiency.

The Smart Energy System concept is essential for cost-effective 100% renewable energy systems. The concept includes a focus on energy efficiency, end use savings and sector integration to establish energy system flexibility, harvest synergies by using all infrastructures, lower energy storage cost as well as to exploit low-value heat sources.

As opposed to, for instance, the smart grid concept, which takes a sole focus on the electricity sector, the smart energy system's approach includes the entire energy system in its identification of suitable energy infrastructure designs and operation strategies. Focusing solely on the smart electricity grid often leads to the definition of transmission lines, flexible electricity demands, and electricity storage as the primary means of dealing with the integration of fluctuating renewable sources. However, these measures are neither very effective nor cost-efficient considering the nature of wind power and similar sources. The most effective and least costly solutions are to be found when the electricity sector is combined with the heating and cooling sectors and/or the transport sector. Moreover, the combination of electricity and gas infrastructures may play an important role in the design of future renewable energy systems, and the electrification of heating and transport – possibly through electrofuels – can play a pivotal role in providing flexibility and ensuring renewable energy integration in all sectors.

In future energy systems, energy savings and 4th generation district heating can be combined, creating significant benefits. Low-temperature district heat sources, renewable energy heat sources combined with heat savings represent a promising pathway as opposed to individual heating solutions and passive or energy+ buildings in urban areas. Electrification in combination with district heat is a very important driver to eliminate fossil fuels. Heat pumps, PtX and utilisation of waste heat together with energy efficiency and 4th generation district heating create a flexible smart energy system. These changes towards integrated smart energy systems and 4th generation district heating also require institutional and organisational changes that address the implementation of new technologies and enable new markets to provide feasible solutions to society. Thus, the conference takes a holistic approach to the design of future energy systems.

Conference Chairs

Prof. Henrik Lund, Aalborg University

Prof. Brian Vad Mathiesen, Aalborg University

Prof. Poul Alberg Østergaard, Aalborg University

Ass. Prof. Jakob Zinck Thellufsen, Aalborg University

Hans Jørgen Brodersen, Senior Project Manager, Energy Cluster Denmark



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www.smartenergysystems.eu
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Aim and Organisers

Over its decade-long existence, the conference has become a significant venue for academia, industry, consultancy, and utilities to engage and discuss how to transition the energy system. Originally developed as a spin-off from the 4DH Research Centre targeting 4th Generation District Heating, the conference maintains a strong focus on district heating systems but also focuses on the integration with other sectors – electricity, cooling, industry, and transport in line with the sector integration core of the smart energy system concept. The aim of the conference is to establish a venue for presenting and discussing scientific findings and industrial experiences related to the subject of Smart Energy Systems based on renewable energy, 4th Generation District Heating Technologies and Systems, electrification of heating and transport sectors, electrofuels and energy efficiency. The conference is organised by Aalborg University and Energy Cluster Denmark.

Format

Again in 2025, we look forward to welcoming our participants to a hybrid conference with the possibility to attend either online or in person – this time at CPH Conference in central Copenhagen. In Copenhagen, you can attend the conference sessions in person, while the online conference platform enables you to watch recorded presentations; interact in writing with the presenters and nominate candidates for the Best Presentation Award. The online conference platform will be open to all attendees both before and after the conference in Copenhagen.

Submission Procedure

Both scientific and industrial contributions to the conference are most welcome. In general, we recommend to avoid presentations of planned research, but rather experiences and results.

To attend the conference as a presenter, you need to submit both an abstract and a recorded presentation. The recorded presentation must be prepared in the summer of 2025. Once your abstract is accepted for presentation, you will receive more information and a guideline to the recording of your presentation. Abstracts can be submitted via www.smartenergysystems.eu until 22 April 2025.

Authors of approved abstracts may be invited to submit papers to special issues of Energy, Smart Energy, Energies, and IJSEPM. Abstracts may be presented at the conference without uploading a full paper, as this is not a requirement.

Best Presentation Awards

Best Presentation Awards will be given to a selected number of presenters at the conference.



Conference fees

Early registration (1-31 May):

- 375 EUR (attendance in Copenhagen)
- 275 EUR (virtual attendance)

Normal fee (1 Jun - 20 Aug):

- 475 EUR (attendance in Copenhagen)
- 375 EUR (virtual attendance)

Conference dinner (Copenhagen):

- 110 EUR

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