

9th International Conference on

Smart Energy Systems

4th Generation District Heating,
Electrification, Electrofuels and
Energy Efficiency

12-13 September 2023
Copenhagen

#SESAAU2023



AALBORG UNIVERSITY
DENMARK



CALL

FOR ABSTRACTS

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 systems 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.

Important dates 2023

14 April	Deadline for submission of abstracts (Additional upgrade to paper after the conference is optional)
24 April	Reply on acceptance of abstracts
24 April - 31 May	Early registration
1 June - 10 August	Normal registration
12 - 13 September	Conference

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, in buildings and transport as well as within 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

Conference fees

Early registration (for presenters with accepted abstracts):

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

Normal fee:

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

Additional fee for conference dinner (CPH): **100 EUR**



Aim and Organisers

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 (4GDH), electrification of heating and transport sectors, electrofuels and energy efficiency. This 9th conference in the series cements it as a main venue for presentations and fruitful debates on subjects that are pertinent to the development and implementation of smart energy systems to fulfil national and international objectives. The conference is organised by Aalborg University and Energy Cluster Denmark.

Format

Again in 2023, we look forward to welcoming our participants to a hybrid conference with the possibility to attend either online or in person – this time at DGI Byen in central Copenhagen. In Copenhagen, you can attend the conference sessions in person, while the online conference platform enables you to attend the conference virtually. Via the platform you will have access to watch all recorded presentations; interact in writing with the presenters and nominate candidates for the Best Presentation Award. The online conference platform will be open both before and after the conference in Copenhagen.

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

Submission Procedure

Both scientific and industrial contributions to the conference are most welcome.

To attend the conference as a presenter, you need to submit both an **abstract** and a **recorded presentation**. The abstract must be submitted by 14 April 2023. The recorded presentation must be prepared in the summer of 2023. 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 from **1 February to 14 April 2023**.

Submitted abstracts will be reviewed by a scientific and an industrial committee. Authors of approved abstracts may be invited to submit papers to special issues of Energy, Smart Energy and IJSEPM. Abstracts may be presented at the conference without uploading a full paper, as this is not a requirement.



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

International Scientific Committee

Prof. Anton Ianakiev, Nottingham Trent University, GB
 Prof. Bent Ole G. Mortensen, University of Southern Denmark
 Prof. Bernd Möller, University of Flensburg, DE
 Prof. Christian Breyer, Lappeenranta University of Tech, FI
 Prof. Dagnija Blumberga, Riga Technical University, LV
 Prof. Erik Ahlgren, Chalmers University of Technology, SE
 Prof. Ernst Worrell, Utrecht University, NL
 Prof. Ingo Weidlich, HafenCity University, DE
 Prof. Leif Gustavsson, Linnaeus University, SE
 Prof. Marie Münster, Technical University of Denmark, DK
 Prof. Mark Z. Jacobson, Stanford University, US
 Prof. Martin Greiner, Aarhus University, DK
 Prof. Neven Duić, University of Zagreb, HR
 Prof. Richard van Leeuwen, Saxion University, NL
 Prof. Stefan Holler, HAWK, DE
 Prof. Sven Werner, Halmstad University, SE
 Prof. Thomas Brown, TU Berlin, DE
 Prof. Xiliang Zhang, Tsinghua University, CN
 Prof. Urban Persson, Halmstad University, SE
 Ass. Prof. Benedetto Nastasi, Sapienza University of Rome, IT
 Ass. Prof. Paula Ferreira, University of Minho, PT
 Ass. Prof. Younes Noorollahi, University of Tehran, IR
 Dr. Hanne L. Raadal, NORSUS, NO
 Dr. Hironao Matsubara, ISEP, JP
 Dr. Matteo Giacomo Prina, EURAC Research, IT
 Dr. Ralf-Roman Schmidt, Austrian Institute of Technology, AT
 Dr. Robin Wiltshire, Building Research Establishment, GB

International Industrial Committee

Anders Bavnøj Hansen, Chief Engineer at Energinet.dk, DK
 Anders Dyrelund, Senior Market Manager at Rambøll, DK
 Anders N. Andersen, Head of Dept. at EMD International, DK
 Dietrich Schmidt, Head of Department at Fraunhofer, DE
 Dirk Vanhoudt, Senior Researcher at VITO, BE
 Fabian Levihn, Head of R&D at Stockholm Exergi, SE
 Gareth Jones, Managing Director at Fairheat, GB
 Jan-Eric Thorsen, Director, Danfoss DCS Global Applications, DK
 Jesper Møller Larsen, Division Director, Verdo, DK
 John Bøggild Hansen, Senior Advisor at Haldor Topsøe, DK
 Morten Abildgaard, CEO at Viborg Fjernvarme, DK
 Peter Jorsal, Product and Academy Manager at Kingspan, DK
 Steen Schelle Jensen, Head of Business Dev. at Kamstrup, DK
 Ulrik Stridbæk, Vice President at Ørsted, DK