



November 20<sup>th</sup> - 21<sup>st</sup>, 2023

# Digitalisation as the Enabler for High Performance District Heating Systems

Digital technologies are expected to improve the efficiency and system integration of additional renewable sources, as well as making the entire energy system reliable, smarter, and more efficient. Future digital applications may allow district energy systems to fully optimize the operation of their plant and network assets while realizing immediate and feasible decarbonization of urban heat supply: With data to optimize district heating systems and new business opportunities.

Venue: Fraunhofer ENIQ | EUREF-Campus 23/24 | 10829 Berlin

## About

This conference offers information on cutting-edge technologies and solutions around digitalization measures in district heating supply systems and creates a forum for participants from business, research institutions, and politics to engage in discussions and in exchanging ideas on these topics in addition to allowing new research and technology to be presented. Thus, the conference provides an opportunity for an open interdisciplinary conversation on how to address the upcoming challenges of the digital energy transition.

The presenters bring with them a wide range of expertise in digitalization solutions with a specific focus on the design and management of district heating systems. They additionally give insight into the development status of new digital business processes.

This event completes the Annex TS4 project, »Digitalization of District Heating and Cooling: Optimised Operation and Maintenance of District Heating and Cooling Systems via Digital Process Management,« which was carried out within the framework of the International Energy Agency's District Heating and Cooling Programme. It is organized in close collaboration with the Fraunhofer Cluster for Integrated Energy Systems (CINES).

### The conference aims to

- Present activities, solutions and challenges from various perspectives
- Discuss the role of digitalisation within a future decarbonated and integrated energy system
- Gain an impression of current commercial solutions

### This conference is directed towards

- District heating network operators and energy suppliers
- Digitalisation solution providers (software and hardware, consultants)
- R&D institutes and universities
- Policy makers, energy authorities, and associations

## Registration

<https://s.fhg.de/digitalisation-district-heating>

In collaboration with the Fraunhofer IEE

Supported by:



on the basis of a decision  
by the German Bundestag

# Programme schedule

## Monday – 20th November, 2023

**12:30 Coffee, Reception and Registration**

**14:00 Opening**

Digitalization as Key Technology to Optimize District Heating

Robin Wiltshire, IEA DHC Chair, United Kingdom

Welcoming and the Role of Digitalization in German Energy Research

Tobias Heffels, Federal Ministry for Economic Affairs and Climate Action, Germany

Introduction to the Conference Themes

Dietrich Schmidt, Fraunhofer IEE, Germany

Smart Thermal Networks in the European Union: Status, Trends and Outlook

Jonathan Volt, European Commission's Joint Research Centre, Netherlands

**15:15 Challenges of Digitalization in District Heating**

Chair: Sebastian Grimm, AGFW, Germany

The Role of Digitalisation for District Heating and Cooling Performance Upgrade: An Industry Perspective

Matteo Pozzi, Euroheat & Power / DHC+, Belgium

Industry Needs for Practical Implementation of Digitalization Processes

Annika Brecht, AGFW - Energy Efficiency Association for Heating, Cooling and CHP, Germany

**15:45 Coffee break**

**16:15 Digitalization of the Demand Side**

Chair: Michele Tunzi, Technical University of Denmark, Denmark

End-to-End Heat Supply System Optimization via Leanheat Software

Oddgeir Gudmundsson, Danfoss AS, Denmark

Energy Meters and Submeters Data for Innovative Control and Operation of Heating Systems in Buildings

Kees van der Vees, Brunata A/S, Denmark

District Heating Management

Alessandro Capretti, A2A spa, Italy

**17:00 Coffee break**

**17:30 Panel Discussion Industry | Science | Politics  
District Heating Digitalisation  
Implementation: Challenges, Motivators,  
Solutions**

Chair: Marijke Welisch, Fraunhofer CINES, Germany

Panel:

*Industry:* Bernd Rüger, Stadtwerke München, Germany

Steen Schelle Jensen, Kamstrup AS, Denmark

*Science:* Michele, Tunzi, Technical University, Denmark

Dietrich Schmidt, Fraunhofer IEE, Germany

*Politics:* Jonathan Volt, EC JRC, Netherlands

Aksana Krasatsenka, Euroheat & Power / DHC+, Belgium

**18:00 Summary**

**18:15 Excursion Offering:**

Site visit at the EUREF Innovation Campus

**19:30 Conference Dinner**

at Fraunhofer ENIQ

Venue: Fraunhofer ENIQ | EUREF-Campus 23/24 | 10829 Berlin

# Programme schedule

## Tuesday – 21st November, 2023

### 08:30 Opening – coffee reception

### 09:15 Digitalization to Link the Entire Supply Chain – System Perspectives

Chair: Dirk Vanhoudt, Vito, Belgium

From the Substation Outwards  
– Anomalies, Prediction and Optimization  
Nicola Kleppmann, SAMSON AG, Germany

The Glue of AI Solutions and the Energy Sector  
Christian Johansson, Noda, Sweden

DistrictLab-H: a new Tool to Optimize the Design and  
Operation of District Heating and Cooling Networks  
Mathieu Vallée, Roland Bavière, CEA, France

### 10:00 Digitalization of Energy Infrastructure

Chair: Edmund Widl, AIT, Austria

Expanding System Boundaries with Flexibility  
Filippa Sandgren, Utilifeed, Sweden

Advantages of Using Digital Twins for  
the Operation of District Heating Systems  
Ines Lindmeier, Wien Energie GmbH, Austria

Smart Management of Integrated Energy Systems  
Through Model Predictive Control  
Mirko Morini, University of Parma, Italy

### 10:45 Coffee break

### 11:15 Business Models

#### – Unlocking the Value of Digitalization in DHC

Chair: Steen Schelle Jensen, Kamstrup AS, Denmark

Digitization of District Heating Quarters  
– a Cost Benefit Analysis  
Markus Blesl, Technical University of Stuttgart, Germany

New Business Models for Utilities  
(TBC)

Legal Requirements for Data Protection and Cyber-  
security in the Digitalization of District Heating and  
Cooling  
Carsten von Gneisenau, Stiftung Umweltenergierecht,  
Germany

### 12:00 Lunch

### 13:00 Future Perspectives

Chair: Dietrich Schmidt, Fraunhofer IEE, Germany

Digitalization within the Energy Field:  
14 Propositions to Success!  
Manuel Wickert, Fraunhofer CINES, Germany

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### 13:30 Closing Remarks on the Conference's Theme

### 14:00 Closing of the Day

Conference Chair: Dietrich Schmidt, Fraunhofer IEE, Germany

### 15:00 Excursion offering:

Site visit in Berlin

### Further information on IEA DHC Annex TS4:

<https://www.iea-dhc.org/the-research/annexes/2018-2024-annex-ts4/>

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