



PHD DEFENCE
by Simon Peter A. K. Larsen

PHD defence

**Demand Flexibility in
District Heating Networks:
An Exploration of Heating Practices
When Smart Home Technology
Enters Everyday Life**

16 June 2021
13:00 –17:00

This defence will be carried out online.



**DEPARTMENT OF
THE BUILT ENVIRONMENT**

**AALBORG
UNIVERSITY**

THESIS SUMMARY

Low-carbon transition scenarios imply that the district heating network will be increasingly dependent on renewable energy sources (RES) in a near future. As RES are more fluctuating in nature, enabling energy demand flexibility (balancing production and demand) becomes an emerging challenge. Enabling flexibility in the district heating network, include scenarios of integrating residential buildings, using them as short-term thermal storages for heat loads. Shifting the boundaries of the district heating network, using residential buildings actively, calls for a deeper understanding of the role of occupants and how they perform everyday practices.

This dissertation aims to investigate the role of occupants in relation to enabling heat demand flexibility, focusing on mundane aspects of how occupants heat their homes, how they engage with smart home technologies for load shifting and how heating is entangled in everyday life practices. The research contributes with a nuanced picture of occupants' role in scenarios for enabling a heat demand flexibility, by showing the complex ways in which heating practices are performed and how they reconfigure differently.

ASSESSMENT COMMITTEE

- Assoc. Prof. Charlotte Louise Jensen, Dept. of Planning, Aalborg University (chairman)
- Senior Researcher Lars Kjerulf Petersen, Aarhus University
- Senior Lecturer Tom Hargreaves, University of East Anglia

PHD SUPERVISORS

- Supervisor, Prof. Kirsten Gram-Hanssen, Dept. of the Built Environment, Aalborg University
- Co-supervisor, Assoc. Prof. Anna Marszal-Pomianowska, Dept. of the Built Environment, Aalborg University
- Co-supervisor, Postdoc Line Valdorff Madsen, Dept. of the Built Environment, Aalborg University

MODERATOR

- Research Director Hans Thor Andersen, Dept. of the Built Environment, Aalborg University

GRADUATE PROGRAMME: Planning and Development

PROGRAMME

13:00 Welcome by moderator

13:05 Lecture and presentation by Ph.D. student

13:50 Break

During the break, participants can email questions to the moderator, Hans Thor Andersen hansthor@build.aau.dk, who will present these questions after the Q&A session with the assessment committee.

14:00 Q&A session with the assessment committee

16:00 End of defence

The assessment committee enters another "room", evaluates and writes the final assessment.

Approx.

16:45 The assessment committee re-joins the "Defence room" and announces its decision.

17:00 End of event

HOW TO PARTICIPATE

The PhD defence will be carried out online via Zoom.

Link: <https://aaudk.zoom.us/j/67123910459>

Meeting ID: 671 2391 0459

Passcode: 125155

COPY OF THESIS

For a copy of the thesis, please send an email to inst.build.phd@build.aau.dk.

*This PhD defence is organised by
the Department of the Built Environment.*