

Jakob Zinck Thellufsen
PhD Fellow
The Faculty of Engineering and Science
Department of Development and Planning
Sustainable Energy Planning Research Group
Postal address:
Skibbrogade 5
B1-23
9000
Aalborg
Denmark
Email: jakobzt@plan.aau.dk
Phone: +45 9940 8289



Publications

Cross-border renewable energy exports: Electricity and e-fuels

Yuan, M., Thellufsen, J. Z., Lund, H., Sorknæs, P., Nielsen, S. & Skov, I. R., 16 Jun 2026, In: Energy Conversion and Management. 360, 121587.

SLCOE – system-based LCOE for comparing energy technologies in different systems

Lund, H., Thellufsen, J. Z., Østergaard, P. A., Breyer, C., Duic, N., Blaabjerg, F., Foley, A., Østergaard, J., Yuan, M., Madsen, P. T. & Mathiesen, B. V., 15 Jun 2026, In: Energy. 353, 140880.

Quantifying the impacts of policies on compensating for the hard-to-abate emissions of a smart energy city

Vanhanen, T., Aliana, A., Østergaard, P. A., Thellufsen, J. Z., Sorknæs, P., Järventausta, P. & Aalto, P., Nov 2025, In: Smart Energy. 20, 15 p., 100213.

Modelling hydrogen in sector coupled energy systems

Münster, M., Bramstoff, R., Bregnbæk, L., Campion, N., Kjærgård Hald, M., Eleftheriou, D., Karlsson, K., Koumparakis, C., Kountouris, I., Radoszynski, A. M., Thellufsen, J. Z., Yuan, M. & Lund, H., 30 Sept 2025, In: Energy. 332, 14 p., 137092.

Let's make PED work: How current knowledge can contribute to future positive energy districts

Nikolic, J., Thellufsen, J. Z., Sorknæs, P., Madsen, P. T. & Nørgaard, L. S., 15 Sept 2025, In: Sustainable Cities and Society. 132, 15 p., 106817.

D5.7: Behaviour, social and disruptive innovation – Update

Parrado-Hernando, G., Wergles, N., Pérez, J., González, L. J. M., Alvarez-Antelo, D., Capellán-Pérez, I., Mediavilla, M., de Blas, I., Fossas-Tenas, A., Gavrikov, A., Merrone, L., Wen, X., Trutnevyte, E., Kleanthis, N., Stavrakas, V., Flamos, A., Fragkos, P., Zisarou, E., Zamanipour, B. & Ahmadi, F. & 16 others, Keppo, I., Johannsen, R. M., Yuan, M., Thellufsen, J. Z., Maheshwari, J., Frilingou, N., Nikas, A., Vishwanathan, S. S., Garg, A., Van de Ven, D.-J., Bachs, C. R., Arto, I., Mittal, S., Tholen, L., Mateo, A. & Ferreras, N., 31 Aug 2025

District heating in clean energy systems

Lund, H., Østergaard, P. A., Sorknæs, P., Nielsen, S., Skov, I. R., Yuan, M., Thellufsen, J. Z., Mathiesen, B. V., Benson, S. M., Jentsch, A., Zhang, X., Werner, S., Wiltshire, R., Möller, B. & Duic, N., Aug 2025, In: Nature Reviews Clean Technology. 1, 8, p. 532–546 15 p.

D4.10 – European sub-national deep dives – Update

Trutnevyte, E., Maguire, A., Torné, A., Frilingou, N., Van de Ven, D.-J., Sampedro, J., Horowitz, R., Bachs, C. R., Yuan, M., Johannsen, R. M. & Thellufsen, J. Z., 29 Jul 2025, European Commission. 85 p.

Green ammonia production in Denmark: Assessing future potentials and challenges

Asgharian, H., Lund, H., Thellufsen, J. Z., Iov, F., Nielsen, M. P. & Liso, V., 1 May 2025, In: Fuel. 387, 134423.

Urban Smart Energy Systems from a Climate Change Perspective: Technical, Economic and Environmental Optimization Analysis

Battini, F., Menapace, A., Stradiotti, G., Zanfei, A., Nicolosi, F. F., Torre, D. D., Renzi, M., Pernigotto, G., Ravazzolo, F., Righetti, M., Gasparella, A., Thellufsen, J. Z. & Lund, H., May 2025, In: Smart Energy. 18, 12 p., 100180.

Enhancing Renewable Energy System Metrics: Security, Flexibility, and Sustainability

Johannsen, R. M., Johannessen, S. B., Thellufsen, J. Z., Rinaldi, L., Vincenzo Rocco, M., Koasidis, K., Nieto, J., Kleanthis, N., Stavrakas, V. & Heussaff, C., 30 Apr 2025, 11 p..

Examining pathways for a climate neutral Europe by 2050: A model comparison analysis including integrated assessment models and energy system models

Mikropoulos, E., Roelfsema, M., Chen, H. H., Staffell, I., Oreggioni, G., Hdidouan, D., Thellufsen, J. Z., Chang, M. A., Fragkos, P., Giannousakis, A., Chatterjee, S., Ürge-Vorsatz, D., Pfenninger, S., Pickering, B., Victoria, M., Brown, T. & van Vuuren, D. P., 15 Mar 2025, In: Energy. 319, p. 18 134809.

Energy balancing and storage in climate-neutral smart energy systems

Lund, H., Østergaard, P. A., Yuan, M., Sorknæs, P. & Thellufsen, J. Z., Mar 2025, In: Renewable and Sustainable Energy Reviews. 209, 11 p., 115141.

Heating Sector Strategies in Climate-Neutral Societies

Nielsen, S., Sorknæs, P., Mathiesen, B. V., Lund, H., Moreno, D. & Thellufsen, J. Z., 17 Jan 2025, In: International Journal of Sustainable Energy Planning and Management. 43, p. 101–122 22 p.

Book of Abstracts 2025: 11th International Conference on Smart Energy Systems

Lund, H. (Editor), Mathiesen, B. V. (Editor), Østergaard, P. A. (Editor), Thellufsen, J. Z. (Editor) & Brodersen, H. J. (Editor), 2025, Aalborg Universitet. 416 p.

Quantifying the Impacts of Policies on Compensating for the Hard-to-Abate Emissions of a Smart Energy City

Vanhanen, T., Guardia, A. A., Østergaard, P. A., Thellufsen, J. Z., Sorknæs, P., Järventausta, P. & Aalto, P., 2025, SSRN: Social Science Research Network, 27 p.

CCUS storylines in energy system scenarios: Supporting carbon neutral and carbon negative societies

Skov, I. R. & Thellufsen, J. Z., Dec 2024, Aalborg Universitet. 15 p.

Cost and system effects of nuclear power in carbon-neutral energy systems

Thellufsen, J. Z., Lund, H., Mathiesen, B. V., Østergaard, P. A., Sorknæs, P., Nielsen, S., Madsen, P. T. & Andresen, G. B., 1 Oct 2024, In: Applied Energy. 371, 13 p., 123705.

Book of Abstracts: 10th International Conference on Smart Energy Systems

Lund, H. (Editor), Mathiesen, B. V. (Editor), Østergaard, P. A. (Editor), Thellufsen, J. Z. (Editor) & Brodersen, H. J. (Editor), Sept 2024, Aalborg Universitet. 392 p.

Strategic management of CO₂: A scalable model for CCS in decarbonised societies

Moreno, D., Bang, A., Nielsen, S. & Thellufsen, J. Z., Sept 2024, In: Journal of Environmental Management. 368, 24 p., 122175.

The role of cryogenic carbon capture in future carbon-neutral societies

Asgharian, H., Marques, D. L., Iov, F., Liso, V., Nielsen, M. P., Thellufsen, J. Z. & Lund, H., Jun 2024, In: International Journal of Greenhouse Gas Control. 135, 104161.

The many faces of heating transitions. Deeper understandings of future systems in Sweden and beyond

Martin, N., Zinck Thellufsen, J., Chang, M., Talens-Peiró, L. & Madrid-López, C., 1 Mar 2024, In: Energy. 290, 12 p., 130264.

Three different directions in which the European Union could replace Russian natural gas

Nikas, A., Frilingou, N., Heussaff, C., Fragkos, P., Mittal, S., Sampedro, J., Giarola, S., Sasse, J. P., Rinaldi, L., Doukas, H., Gambhir, A., Giannousakis, A., Golinucci, N., Koasidis, K., Rocco, M. V., Trutnevyte, E., Xexakis, G., Zachmann, G., Zisarou, E. & Colombo, E. & 8 others, Hawkes, A., Yarlagadda, B., Binsted, M., Iyer, G., Johannsen, R. M., Thellufsen, J. Z., Lund, H. & Van de Ven, D. J., 1 Mar 2024, In: Energy. 290, 14 p., 130254.

Exploring the location and use of baseload district heating supply: What can current heat sources tell us about future opportunities?

Moreno, D., Nielsen, S., Sorknæs, P., Lund, H., Thellufsen, J. Z. & Mathiesen, B. V., 1 Feb 2024, In: *Energy*. 288, 15 p., 129642.

Dokumentation for EnergyPLAN scenarier for Vesthimmerlands Kommune

Bang, A., Sorknæs, P. & Thellufsen, J. Z., Feb 2024, Aalborg Universitet. 12 p.

IAM COMPACT D4.9 – European sub-national deep dives

Trutnevyte, E., Sasse, J.-P., Pehle, H., Johannsen, R. M., Thellufsen, J. Z., Rinaldi, L., Vincenzo Rocco, M., Nieto, J., Miguel González, L. J., Kleanthis, N., Stavrakas, V., Papantonis, D., Manias, N., Flamos, A. & Frilingou, N., 31 Jan 2024, 95 p.

Assessment of Greenhouse Gas Emission Reduction Strategies in Electricity Grid of Turkiye by Utilizing EnergyPLAN Simulation

Karakus, C., Leonowicz, Z. & Thellufsen, J. Z., 2024, *2024 IEEE International Conference on Environment and Electrical Engineering and 2024 IEEE Industrial and Commercial Power Systems Europe (EEEIC / I&CPS Europe)*. IEEE (Institute of Electrical and Electronics Engineers), 7 p. 10751507. (IEEE International Conference on Environment and Electrical Engineering and 2024 IEEE Industrial and Commercial Power Systems Europe (EEEIC / I&CPS Europe)).

Book of Abstracts: 10th International Conference on Smart Energy Systems

Lund, H., Mathiesen, B. V., Østergaard, P. A., Thellufsen, J. Z. & Brodersen, H. J., 2024, *Book of Abstracts: 10th International Conference on Smart Energy Systems*. Aalborg Universitet, p. 2-3 2 p.

Local Energy Balance Assessment, Aalborg East

Thellufsen, J. Z. & Nikolic, J., 2024, 18 p.

Economic potentials of carnot batteries in 100% renewable energy systems

Sorknæs, P., Thellufsen, J. Z., Knobloch, K., Engelbrecht, K. & Yuan, M., 1 Nov 2023, In: *Energy*. 282, 11 p., 128837.

Beyond sector coupling: Utilizing energy grids in sector coupling to improve the European energy transition

Thellufsen, J. Z., Lund, H., Sorknæs, P., Nielsen, S., Chang, M. & Mathiesen, B. V., Nov 2023, In: *Smart Energy*. 12, 9 p., 100116.

Danmark skal have en ny plan for energien

Mathiesen, B. V., Borch, K., Sperling, K., Østergaard, P. A., Skov, I. R., Sorknæs, P., Thellufsen, J. Z., Nielsen, S., Madsen, P. T., Lund, H. & Hvelplund, F., 25 Aug 2023, In: *Jyllands-Posten*.

Multi-objective optimization of an energy community: an integrated and dynamic approach for full decarbonisation in the European Alps

Viesi, D., Mahbub, M. S., Brandi, A., Thellufsen, J. Z., Østergaard, P. A., Lund, H., Baratieri, M. & Crema, L., 6 Jul 2023, In: *International Journal of Sustainable Energy Planning and Management*. 38, p. 8-29 22 p.

Fakta om Atomkraft i Danmark - Version 2: Input til en faktabaseret diskussion af fordele og ulemper ved atomkraft som en del af den grønne omstilling i Danmark

Thellufsen, J. Z., Lund, H., Mathiesen, B. V., Madsen, P. T., Østergaard, P. A., Nielsen, S., Sorknæs, P., Wenzel, H., Østergaard, J., Münster, M., Rosendal, M. B., Madsen, H., Morthorst, P. E., Sørensen, P. B., Andresen, G. B., Gøtske, E. K., Pedersen, T. T. & Victoria, M., 12 Jun 2023, 2 ed. 53 p.

Smart Energy Approaches for Carbon Abatement: Scenario Designs for Chile's Energy Transition

Chang, M., Paardekooper, S., Prina, M. G., Thellufsen, J. Z., Lund, H. & Lapuente, P., May 2023, In: *Smart Energy*. 10, 11 p., 100098.

Perspectives on purpose-driven coupling of energy system models

Chang, M., Lund, H., Thellufsen, J. Z. & Østergaard, P. A., 15 Feb 2023, In: Energy. 265, 10 p., 126335.

On the feasibility of direct hydrogen utilisation in a fossil-free Europe

Korberg, A. D., Thellufsen, J. Z., Skov, I. R., Chang, M., Paardekooper, S., Lund, H. & Mathiesen, B. V., 26 Jan 2023, In: International Journal of Hydrogen Energy. 48, 8, p. 2877-2891 15 p.

LSICC Deliverable 1 - Carbon Capture Technology Overview

Thellufsen, J. Z. & Wild, C., 2023, 5 p.

16 energiforskere fra fem universiteter: Lad os få mere fakta i atomkraftdebatten

Lund, H., Thellufsen, J. Z., Mathiesen, B. V., Madsen, P. T., Østergaard, P. A., Nielsen, S., Sorknæs, P., Wenzel, H., Münster, M., Rosendal, M. B., Madsen, H., Østergaard, J., Morthorst, P. E., Sørensen, P. B., Andresen, G. B. & Victoria, M., 19 Dec 2022, In: Altinget.dk.

The benefits of 4th generation district heating and energy efficient datacentres

Sorknæs, P., Nielsen, S., Lund, H., Mathiesen, B. V., Moreno, D. & Thellufsen, J. Z., 1 Dec 2022, In: Energy. 260, 9 p., 125215.

Method for comparing efficiency and system integration potential for biomass-based fuels production pathways

Krogh, A., Lozano, E. M., Thellufsen, J. Z., Grue, J. & Pedersen, T. H., 20 Nov 2022, In: Journal of Cleaner Production. 376, 13 p., 134336.

Robust cost-effective 2050 investment strategies in a volatile context: Deliverable D-3.3

Thellufsen, J. Z., Mathiesen, B. V., Korberg, A. D. & Madsen, P. T., 11 Nov 2022, 46 p.

Fakta om Atomkraft: Input til en faktabaseret diskussion af fordele og ulemper ved atomkraft som en del af den grønne omstilling i Danmark

Thellufsen, J. Z., Lund, H., Mathiesen, B. V., Madsen, P. T., Østergaard, P. A., Nielsen, S., Sorknæs, P., Wenzel, H., Münster, M., Rosendal, M. B., Madsen, H., Østergaard, J., Morthorst, P. E., Sørensen, P. B., Andresen, G. B. & Victoria, M., 20 Oct 2022, 26 p.

Review and validation of EnergyPLAN

Østergaard, P. A., Lund, H., Thellufsen, J. Z., Sorknæs, P. & Mathiesen, B. V., Oct 2022, In: Renewable and Sustainable Energy Reviews. 168, 26 p., 112724.

Smart energy Denmark. A consistent and detailed strategy for a fully decarbonized society

Lund, H., Thellufsen, J. Z., Sorknæs, P., Mathiesen, B. V., Chang, M., Madsen, P. T., Kany, M. S. & Skov, I. R., Oct 2022, In: Renewable and Sustainable Energy Reviews. 168, 11 p., 112777.

Udsnit af Varmeplan Danmark 2021 til danske kommuner og forsyningselskaber

Mathiesen, B. V., Lund, H., Nielsen, S., Sorknæs, P., Moreno, D. & Thellufsen, J. Z., 10 Aug 2022

The role of sustainable bioenergy in a fully decarbonised society

Lund, H., Skov, I. R., Thellufsen, J. Z., Sorknæs, P., Korberg, A. D., Chang, M., Mathiesen, B. V. & Kany, M. S., Aug 2022, In: Renewable Energy. 196, p. 195-203 9 p.

Heat Roadmap Europe - Strategic heating transition typology as a basis for policy recommendations

Paardekooper, S., Lund, H., Thellufsen, J. Z., Bertelsen, N. & Mathiesen, B. V., Jun 2022, In: Energy Efficiency. 15, 5, 25 p., 32.

A multi-objective optimization approach in defining the decarbonization strategy of a refinery

de Maigret, J., Viesi, D., Mahbub, M. S., Testi, M., Cuonzo, M., Thellufsen, J. Z., Østergaard, P. A., Lund, H., Baratieri, M. & Crema, L., May 2022, In: Smart Energy. 6, 32 p., 100076.

D-3.2: Recommendations for technology-specific R&D activities in Smart Energy Systems

Victoria, M., Thellufsen, J. Z., Pedersen, T. T., Gøtske, E. K., Gautam, K. R., Schwenk-Nebbe, L. J., Chang, M., Petersen, U. R. & Korberg, A. D., 31 Jan 2022, Aalborg Universitet. 24 p.

Deliverable 3.1: Potential investment strategies and job creation in European renewable energy systems

Thellufsen, J. Z., Korberg, A. D., Chang, M., Petersen, U. R. & Victoria, M. (Member of study group), 31 Jan 2022, Aalborg Universitet. 65 p.

D-1.2 2022 Final tool and method documentation

Andresen, G. B., Lund, H., Thellufsen, J. Z., Victoria, M. & Chang, M., Jan 2022, 72 p.

Energy efficient decarbonisation strategy for the Danish transport sector by 2045

Kany, M. S., Mathiesen, B. V., Skov, I. R., Korberg, A. D., Thellufsen, J. Z., Lund, H., Sorknæs, P. & Chang, M., 2022, In: Smart Energy. 5, 11 p., 100063.

Heat Plan Denmark 2021: A CO2 Neutral Heat Supply

Sorknæs, P., Nielsen, S., Mathiesen, B. V., Moreno, D., Thellufsen, J. Z. & Lund, H., 2022, In: HOT/COOL - International Magazine on District Heating and Cooling . 2/2022, p. 5-7 3 p.

The electrification of transportation in energy transition

Yuan, M., Thellufsen, J. Z., Lund, H. & Liang, Y., 1 Dec 2021, In: Energy. 236, 121564.

Designing a Smart Energy Europe from the PRIMES scenarios: Documentation report

Thellufsen, J. Z., 2 Nov 2021, 21 p.

Documentation for included technology data and fuel costs

Victoria, M., Chang, M., Petersen, U. R. & Thellufsen, J. Z., 1 Nov 2021, 9 p.

Documentation - The European Commission's "A Clean Planet for all" scenarios modelled in EnergyPLAN

Petersen, U. R., Korberg, A. D. & Thellufsen, J. Z., 1 Nov 2021, 71 p.

Smart Energy Europe – developing a renewable energy scenario for a decarbonised Europe

Thellufsen, J. Z., Lund, H., Chang, M., Petersen, U. R., Korberg, A. D., Østergaard, P. A. & Mathiesen, B. V., 12 Oct 2021, *Proceedings of the 16th Conference on Sustainable Development of Energy, Water and Environment Systems*. 12 p.

Varmeplan Danmark 2021 - Baggrundsrapport

Mathiesen, B. V., Lund, H., Nielsen, S., Sorknæs, P., Moreno, D. & Thellufsen, J. Z., 8 Oct 2021, Institut for Planlægning, Aalborg: Aalborg Universitet. 103 p.

Varmeplan Danmark 2021 - En Klimaneutral Varmeforsyning

Mathiesen, B. V., Lund, H., Nielsen, S., Sorknæs, P., Moreno, D. & Thellufsen, J. Z., 8 Oct 2021, Institut for Planlægning: Aalborg Universitet. 19 p.

District heating in 100% renewable energy systems: Combining industrial excess heat and heat pumps

Yuan, M., Zinck Thellufsen, J., Sorknæs, P., Lund, H. & Liang, Y., 15 Sept 2021, In: Energy Conversion and Management. 244, 19 p., 114527.

The Role of Sustainable Bioenergy in a Fully Decarbonised Society

Lund, H., Skov, I. R., Thellufsen, J. Z., Sorknæs, P., Korberg, A. D., Chang, M., Mathiesen, B. V. & Kany, M. S., 14 Sept 2021, SSRN: Social Science Research Network, 19 p. (RENE-D-21-04548).

Energy transition in petroleum rich nations: Case study of Iran

Noorollahi, Y., Lund, H., Nielsen, S. & Thellufsen, J. Z., Aug 2021, In: Smart Energy. 3, 100026.

IDAs Klimasvar 2045: Sådan bliver vi klimaneutrale

Lund, H., Mathiesen, B. V., Thellufsen, J. Z., Sorknæs, P., Chang, M., Kany, M. S. & Skov, I. R., 8 Jun 2021, Ingeniørforeningen IDA. 86 p.

Trends in tools and approaches for modelling the energy transition

Chang, M., Thellufsen, J. Z., Zakeri, B., Pickering, B., Pfenninger, S., Lund, H. & Østergaard, P. A., 15 May 2021, In: Applied Energy. 290, 18 p., 116731.

Large-scale optimal integration of wind and solar photovoltaic power in water-energy systems on islands

Cabrera, P., Carta, J. A., Lund, H. & Thellufsen, J. Z., 1 May 2021, In: Energy Conversion and Management. 235, 19 p., 113982.

Integrating low-temperature renewables in district energy systems: Guidelines for policy makers

Bertelsen, N., Mathiesen, B. V., Djørup, S. R., Schneider, N. C. A., Paardekooper, S., Sánchez García, L., Thellufsen, J. Z., Kapetanakis, J., Angelino, L. & Kiruja, J., 8 Mar 2021, Abu Dhabi, Copenhagen: International Renewable Energy Agency. 122 p.

Perspective of comprehensive and comprehensible multi-model energy and climate science in Europe

Nikas, A., Gambhir, A., Trutnevyte, E., Koasidis, K., Lund, H., Thellufsen, J. Z., Mayer, D., Zachmann, G., Miguel, L. J., Ferreras-Alonso, N., Sognnaes, I., Peters, G. P., Colombo, E., Howells, M., Hawkes, A., van den Broek, M., Van de Ven, D. J., Gonzalez-Eguino, M., Flamos, A. & Doukas, H., 15 Jan 2021, In: Energy. 215, Part A, 119153.

EnergyPLAN – Advanced Analysis of Smart Energy Systems

Lund, H., Thellufsen, J. Z., Østergaard, P. A., Sorknæs, P., Skov, I. R. & Mathiesen, B. V., 2021, In: Smart Energy. 1, 16 p., 100007.

What do we know about the consequences for employment of investing in renewable energy?

Madsen, P. T., Thellufsen, J. Z., Lund, H. & Djørup, S., 2021, 6 p.

The benefits of 4th generation district heating in a 100% renewable energy system

Sorknæs, P., Østergaard, P. A., Thellufsen, J. Z., Lund, H., Nielsen, S., Djørup, S. & Sperling, K., 15 Dec 2020, In: Energy. 213, 119030.

Heat Roadmap Chile: A national district heating plan for air pollution decontamination and decarbonisation

Paardekooper, S., Lund, H., Chang, M., Nielsen, S., Moreno, D. & Thellufsen, J. Z., Nov 2020, In: Journal of Cleaner Production. 272, 122744.

The first feasible step towards clean heating transition in urban agglomeration: A case study of Beijing-Tianjin-Hebei region

Yuan, M., Thellufsen, J. Z., Lund, H. & Liang, Y., Nov 2020, In: Energy Conversion and Management. 223, 113282.

The design of 100 % renewable smart urban energy systems: The case of Bozen-Bolzano

Menapace, A., Thellufsen, J. Z., Pernigotto, G., Roberti, F., Gasparella, A., Righetti, M., Baratieri, M. & Lund, H., 15 Sept 2020, In: Energy. 207, 118198.

Smart energy cities in a 100% renewable energy context

Thellufsen, J. Z., Lund, H., Sorknæs, P., Østergaard, P. A., Chang, M., Drysdale, D., Nielsen, S., Djørup, S. R. & Sperling, K., Sept 2020, In: Renewable and Sustainable Energy Reviews. 129, 109922.

The MATLAB Toolbox for EnergyPLAN: A tool to extend energy planning studies

Cabrera, P., Lund, H., Thellufsen, J. Z. & Sorknæs, P., 1 Jun 2020, In: Science of Computer Programming. 191, 102405.

IDAs Klimasvar: Transport- og energiløsninger 2030

Lund, H., Mathiesen, B. V., Thellufsen, J. Z., Sorknæs, P. & Skov, I. R., May 2020, Ingeniørforeningen IDA. 64 p.

District Heating Tariffs, Economic Optimisation and Local Strategies during Radical Technological Change

Djørup, S. R., Sperling, K., Nielsen, S., Østergaard, P. A., Thellufsen, J. Z., Sorknæs, P., Lund, H. & Drysdale, D. W., 4 Mar 2020, In: *Energies*. 13, 5, 1172.

Modelling an individual country within the context of the surrounding energy systems – the importance of detail

Thellufsen, J. Z. & Chang, M., 10 Feb 2020, *Proceedings of 2nd LA SDEWES Conference*.

Smart Energy Aalborg: Matching End-Use Heat Saving Measures and Heat Supply Costs to Achieve Least Cost Heat Supply

Nielsen, S., Thellufsen, J. Z., Sorknæs, P., Djørup, S. R., Sperling, K., Østergaard, P. A. & Lund, H., 27 Jan 2020, In: *International Journal of Sustainable Energy Planning and Management*. 25, p. 13-32 20 p.

EPlanFlow: A cross-sectoral and cross border energy system analysis tool

Thellufsen, J. Z., Chang, M., Zhu, K., Lund, H., Victoria, M. & Andresen, G. B., 2020, (In preparation).

Smart Energy Aalborg: Energivision for Aalborg Kommune 2050

Lund, H., Thellufsen, J. Z., Østergaard, P. A., Nielsen, S., Sperling, K., Djørup, S. R., Sorknæs, P., Remmen, A., Kær, S. K. & Rosendahl, L., 2020, Aalborg Universitet. 32 p.

Towards a decarbonised heating and cooling sector in Europe: Unlocking the potential of energy efficiency and district energy

Mathiesen, B. V., Bertelsen, N., Schneider, N. C. A., García, L. S., Paardekooper, S., Thellufsen, J. Z. & Djørup, S. R., 5 Dec 2019, Aalborg Universitet. 97 p.

Smart Energy Cities in a 100% Renewable Energy Context

Thellufsen, J. Z., Lund, H., Nielsen, S., Sorknæs, P., Djørup, S. R., Sperling, K., Østergaard, P. A., Drysdale, D. W. & Chang, M., 4 Oct 2019, *Proceedings for 14th Conference on Sustainable Development of Energy, Water and Environment Systems*.

Policies and incentives for a 4th generation district heating system

Djørup, S. R., Sperling, K., Nielsen, S., Østergaard, P. A., Thellufsen, J. Z., Lund, H., Sorknæs, P. & Drysdale, D. W., Oct 2019.

Benefits to single country modelling: Comparing 14 interconnected individual country models to a single 14-country model

Thellufsen, J. Z., Paardekooper, S., Chang, M. & Lund, H., 11 Sept 2019, *5th International Conference on Smart Energy Systems : Book of Abstracts*. Lund, H. (ed.). Aalborg Universitet, p. 244 1 p.

Implementing cleaner heating solutions towards a future low-carbon scenario in Ireland

Thellufsen, J. Z., Nielsen, S. & Lund, H., 20 Mar 2019, In: *Journal of Cleaner Production*. 214, p. 377-388 12 p.

Quantifying the influence of wind power and photovoltaic on future electricity market prices

Sorknæs, P., Djørup, S. R., Lund, H. & Thellufsen, J. Z., 15 Jan 2019, In: *Energy Conversion and Management*. 180, p. 312-324 13 p.

Documentation for Scenarios in the 2050 Aalborg Energy Vision

Thellufsen, J. Z., Lund, H., Sorknæs, P., Nielsen, S., Maya-Drysdale, D. & Østergaard, P. A., 2019, 18 p.

Geographical distribution of heat savings in a smart energy system

Thellufsen, J. Z. & Nielsen, S., 13 Nov 2018, p. 116-117. 2 p.

The electricity market in a renewable energy system

Djørup, S. R., Thellufsen, J. Z. & Sorknæs, P., 1 Nov 2018, In: *Energy*. 162, p. 148-157 10 p.

Cross-border versus cross-sector interconnectivity in renewable energy systems

Thellufsen, J. Z. & Lund, H., 1 Apr 2017, In: *Energy*. 124, p. 492-501 9 p.

Contextual Aspects of Smart City Energy Systems Analysis: Methodology and Tools

Thellufsen, J. Z., 2017, Aalborg Universitetsforlag. 169 p.

Roles of local and national energy systems in the integration of renewable energy

Thellufsen, J. Z. & Lund, H., 1 Dec 2016, In: *Applied Energy*. 183, p. 419-429 11 p.

Heat Roadmap Europe: Identifying the balance between saving heat and supplying heat

Hansen, K., Connolly, D., Lund, H., Drysdale, D. W. & Thellufsen, J. Z., 5 Nov 2016, In: *Energy*. 115, 3, p. 1663-1671 9 p.

Future Green Buildings: A Key to Cost-Effective Sustainable Energy Systems

Mathiesen, B. V., Drysdale, D., Lund, H., Paardekooper, S., Ridjan, I., Connolly, D., Thellufsen, J. Z. & Jensen, J. S., May 2016, Department of Development and Planning, Aalborg University.

Energy Storage and Smart Energy Systems

Lund, H., Østergaard, P. A., Connolly, D., Skov, I. R., Mathiesen, B. V., Hvelplund, F. K., Thellufsen, J. Z. & Sorknæs, P., 2016, In: *International Journal of Sustainable Energy Planning and Management*. 11, p. 3-14

IDA's Energy Vision 2050: A Smart Energy System strategy for 100% renewable Denmark

Mathiesen, B. V., Lund, H., Hansen, K., Ridjan, I., Djørup, S. R., Nielsen, S., Sorknæs, P., Thellufsen, J. Z., Grundahl, L., Lund, R. S., Drysdale, D., Connolly, D. & Østergaard, P. A., Nov 2015, Department of Development and Planning, Aalborg University. 164 p.

Energy saving synergies in national energy systems

Thellufsen, J. Z. & Lund, H., Oct 2015, In: *Energy Conversion and Management*. 103, p. 259-265 7 p.

Smart Cities and National Energy Systems

Thellufsen, J. Z., 27 Sept 2015.

Multiple Energy System Analysis of Smart Energy Systems

Thellufsen, J. Z., 25 Aug 2015, *Book of abstracts: International Conference on Smart Energy Systems and 4th Generation District Heating*.

Heat Roadmap Europe: Balancing heat supply and heat savings for various European countries

Hansen, K., Connolly, D., Lund, H., Drysdale, D. & Thellufsen, J. Z., 2015, *Proceedings of the 10th Dubrovnik Conference for Sustainable Development of Energy, Water and Environment Systems*. 13 p.

How to Establish Local Renewable Energy Scenarios in the Context of National Energy Systems

Thellufsen, J. Z., 23 Nov 2014, *Proceedings of the 7th International Conference on Sustainable Energy and Environmental Protection*. Dubai, UAE, 6 p. S01130

Heat Saving Strategies in Sustainable Smart Energy Systems

Lund, H., Thellufsen, J. Z., Aggerholm, S., Wittchen, K. B., Nielsen, S., Mathiesen, B. V. & Möller, B., 2014, 2014-1 ed. Institut for Planlægning, Aalborg Universitet. 86 p. (DDP-Publication series, Vol. 2014-1).

Heat Saving Strategies in Sustainable Smart Energy Systems

Lund, H., Thellufsen, J. Z., Aggerholm, S., Wittchen, K. B., Nielsen, S., Mathiesen, B. V. & Möller, B., 2014, In: *International Journal of Sustainable Energy Planning and Management*. 4, p. 1-15

Heat Saving Strategies in Sustainable Smart Energy Systems

Lund, H., Thellufsen, J. Z., Aggerholm, S., Wittchen, K. B., Nielsen, S., Mathiesen, B. V. & Møller, B., 2014, In: International Journal of Sustainable Energy Planning and Management.

Projects

CARMA-Green Fuels Cross Mission Carbon Management

Lund, H. (PI), Sorknæs, P. (Project Participant), Mathiesen, B. V. (Project Participant), Thellufsen, J. Z. (Project Participant), Yuan, M. (Project Participant), Nielsen, S. (Project Participant), Johannsen, R. M. (Project Participant) & Aparecido Vitoriano Julio, A. (Project Participant)
01/11/2023 → 01/11/2026

CITIES

Mathiesen, B. V. (Project Participant), Lund, H. (Project Participant), Hvelplund, F. (Project Participant), Thellufsen, J. Z. (Project Participant) & Sperling, K. (Project Participant)
01/01/2014 → 31/12/2019

CITIES: Centre for IT-Intelligent Energy Systems

Heiselberg, P. K. (Project Participant), Mathiesen, B. V. (Project Participant), Lund, H. (Project Participant), Hvelplund, F. (PI), Thellufsen, J. Z. (Project Participant), Sperling, K. (PI) & Madsen, H. (Project Manager)
01/01/2014 → 31/12/2020

CO2 Infrastruktur Aalborg

Bang, A. (PI), Jensen, H. T. (PI), Thellufsen, J. Z. (PI), Sperling, K. (PI), Moreno, D. (PI) & Nielsen, S. (PI)
01/01/2026 → 31/12/2026

Energistrategi for Aalborg Kommune 2020-2050

Lund, H. (Project Manager), Thellufsen, J. Z. (Project Participant), Østergaard, P. A. (Project Participant), Nielsen, S. (Project Participant), Sperling, K. (Project Participant), Djørup, S. R. (Project Participant), Sorknæs, P. (Project Participant), Remmen, A. (Project Participant), Kær, S. K. (Project Participant) & Rosendahl, L. (Project Participant)
01/01/2018 → 01/05/2020

IAM COMPACT : Expanding Integrated Assessment Modelling: Comprehensive and Comprehensible Science for Sustainable, Co-Created Climate Action

Thellufsen, J. Z. (PI), Johannsen, R. M. (Project Participant) & Yuan, M. (Project Participant)
01/09/2022 → 31/08/2025

Facilitating the integration of low-temperature renewable energy sources in district heating and cooling networks

Mathiesen, B. V. (Project Coordinator), Bertelsen, N. (Project Participant), Schneider, N. C. A. (Project Participant), Kapetanakis, J. (Project Participant), Djørup, S. R. (Project Participant) & Thellufsen, J. Z. (Project Participant)
01/04/2019 → 30/06/2020

FLEXPOSTS: FLEXPOSTS - FLEXible energy POSitivity districTS

Olesen, K. (PI), Nørgaard, L. S. (Project Participant), Steffansen, R. N. (Project Participant), Lissandrello, E. (Project Participant), Maya-Drysdale, D. (Project Participant), Thellufsen, J. Z. (Project Participant), Lyhne, I. (Project Participant), Løkke, S. (Project Participant) & Nikolic, J. (Project Participant)
Innovation Fund Denmark
01/11/2022 → 30/06/2025

VPDK2021: Heat Plan Denmark 2021 - A Climate Neutral Heat Supply

Mathiesen, B. V. (Project Coordinator), Lund, H. (Project Participant), Nielsen, S. (Project Participant), Sorknæs, P. (Project Participant), Thellufsen, J. Z. (Project Participant) & Moreno, D. (Project Participant)
01/09/2020 → 08/10/2021

IEA ECES Task 36: Carnot batteries - Technology and perspectives

Sorknæs, P. (PI), Thellufsen, J. Z. (PI) & Yuan, M. (CoI)

01/01/2020 → 30/06/2023

INNO-CCUS INFRASTRUCTURES

Thellufsen, J. Z. (PI), Mathiesen, B. V. (CoI), Aparecido Vitoriano Julio, A. (Project Participant), Skov, I. R. (Project Participant), Yuan, M. (Project Participant), Moreno, D. (Project Participant), Nielsen, S. (Project Participant), Lund, H. (Project Participant) & Hansen, D. S. (PI)

Ørsted A/S, TOTAL E&P Danmark A/S, Innovation Fund Denmark

01/10/2023 → 31/03/2027

Large Scale Integration of Carbon Capture

Thellufsen, J. Z. (PI), Moreno, D. (Project Participant), Nielsen, S. (Project Participant), Yuan, M. (Project Participant) & Aparecido Vitoriano Julio, A. (Project Participant)

01/10/2022 → 01/06/2026

Opstilling af kommunal energisystemmodel i EnergyPLAN

Bang, A. (PI), Sorknæs, P. (PI) & Thellufsen, J. Z. (PI)

01/07/2023 → 01/02/2024

RE-INVEST: Renewable Energy Investment Strategies

Mathiesen, B. V. (PI), Lund, H. (Project Participant), Østergaard, P. A. (Project Participant), Thellufsen, J. Z. (Project Participant), Korberg, A. D. (Project Participant), Askeland, K. (Project Participant), Petersen, U. R. (Project Participant) & Kapetanakis, J. (Project Manager)

01/04/2017 → 31/03/2022

Sustainable Energy Transitions Laboratory

Thellufsen, J. Z. (CoI), Lund, H. (Project Participant) & Chang, M. (Project Participant)

01/06/2019 → 30/11/2022