

Henrik Lund

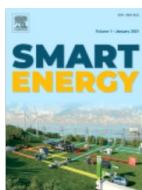
Professor, M.Sc.Eng., Ph.D., Dr.Techn.
Department of Planning
Aalborg University
Rendsburggade 14, DK-9000 Aalborg, Denmark
Phone: +45 9940 8309
www.henriklund.eu
www.EnergyPLAN.eu



ResearcherID: O-5979-2015

URL: <http://www.researcherid.com/rid/O-5979-2015>

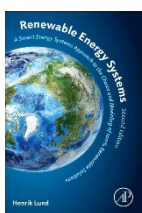
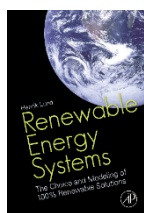
ORCID: <http://orcid.org/0000-0002-4930-7885>



Editor-in-Chief of Elsevier [International Journal ENERGY](#)

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Founding Editor of new Elsevier journal [Smart Energy](#)



Author of the Book: Renewable Energy Systems

Order here: www.elsevierdirect.com

Read more here: <http://www.energyplan.eu/book2/>

Chinese version here: <http://www.golden-book.com/booksinfo/15/1568073.html>



Thomson Reuters Highly Cited Researcher within Engineering 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021 og 2022: [Link](#)



Member of The Danish Academy of Technical Sciences (ATV)
<http://www.atv.dk/en/>

Energy PLAN Advanced energy system analysis computer model 	Architect behind the Advanced Energy System Analysis Model EnergyPLAN. Download freely from: www.EnergyPLAN.eu
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Promoter of the “Smart Energy Systems” concept:

<http://www.energyplan.eu/smartenergysystems>

See video: <https://www.youtube.com/watch?v=eiBiB4DaYOM>

Summary:

Henrik Lund (born 2 July 1960) is a Danish **engineer** (M.Sc.Eng.1985) and **Professor in Energy Planning** at Aalborg University in Denmark. He holds a **Ph.D.** in Implementaion of Sustainable Energy Systems (1990), and a **Dr.Techn.** in Choice Awareness and Renewable Energy Systems (2009). Henrik Lund is a highly ranked world leading researcher. He is listed among [ISI Highly Cited](#) researchers ranking him among the **top 1% researchers in the world** within engineering. Henrik Lund has many years of **management experience** as head of department for approx. 200 staff persons (1996-2002), head of section for approx. 50 persons (2014 – 2016) and head of research group of 20-30 persons (2002 – present). During his time the **Sustainable Energy Planning research group at Aalborg University** has now grown to approx. 30 staff members including 5 professors.

Research competences:

- **Energy System Analysis:** Methods and models for the design and the evaluation of technical and environmental consequences of energy systems with emphasise on integrated distributed generation technologies such as energy conservation, CHP and renewable energy.
- **Feasibility Studies:** Methods of socioeconomic feasibility studies with emphasise on employment and balance of payment consequences of the development and implementation of new technologies.
- **Public Regulation and Technological Change:** Analysis and design of public regulation measures in a market economy with emphasise on the implementation of environmental objectives and technological change in the energy sector.

Groundbreaking research results and activities:

- Starting with his first publication in 1983 Henrik Lund has for many years played an active role in the **design and debates of sustainable energy strategies and policies**, in Denmark as well as other countries and at the European level. This includes among others Green Energy for Bornholm (1986), Erneuerung der Energiesysteme in den neuen Bundesländern (1993), A Green Energy Plan with Job Opportunities (1996), Sustainable energy alternatives in Thailand (1999), Wind Power in Nicaragua (2006), Energy Strategies of the Danish Association of Engineers (IDA) in 2006, 2009, 2015 and 2020 and the Heat Roadmap Europe studies in 2012 and onwards.

A full list can be seen from here: <http://www.en.plan.aau.dk/henriklund/publications/>

- As a part of his senior doctoral thesis (Dr.Techn.) in 2009 Henrik Lund formulated the **Choice Awareness theory** which forms a straightforward, comprehensive methodology for comparing different energy systems' ability to integrate variable renewable energy sources together with a theoretical framework approach aimed at understanding how major technological changes, such as renewable energy, can be implemented at both national and international levels. The latter built on the analysis and involvement in 12 cases of decision making in major energy sector investments in Europe, Asia and the US. This theory is **novel** since it combines a social science theoretical framework understanding with a straightforward cross disciplinary methodology for comparing alternatives within major energy investments. The Choice Awareness theory was afterward published by Academic Press in books in 2010 (1st edt.) and 2014 (2nd edt.) as well as translated into Chinese.
- Henrik Lund is the architect and maker of the **Advanced Energy Systems Analysis Tool EnergyPLAN** - designed for the analysis and design of sustainable energy solutions at the national level. The model has been made and improved for now around 20 years in an

interaction with a wide group of international academics. Today, the model has more than 6000 registered users in more than 100 countries (<http://www.energyplan.eu/members-map-2/>) and has been applied in around 100 peer reviewed journal articles (<http://www.sciencedirect.com/science/article/pii/S0306261915007199>). The EnergyPLAN model is **ground-breaking** since among others it was the first model in the world to facilitate hourly analyses in a smart energy systems approach including all grids (electricity, heating, cooling and gas) as well as relevant cross sector energy conversion units (power-to-heat and power-to-gas etc.).

- Together with colleagues Henrik Lund has defined and is promoting the concept of **Smart Energy Systems**. This notion was first mentioned in academic literature in a paper from 2012 by Henrik Lund and colleagues: [Link to paper](#).

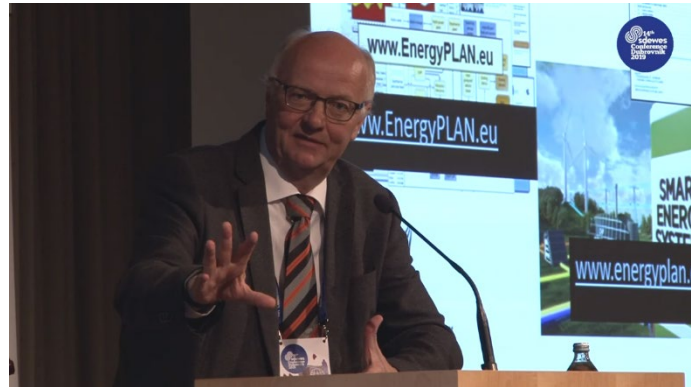
Publications and Citations (April 2021):

- Thomson Reuters Highly Cited Researcher within Engineering since 2014: [Link](#)
- Web of Knowledge: 186 Articles and h index = 58 (16000+ citations) [Link to ResearcherID](#)
- Scopus: 207 articles and h index = 67 (21000+ citations) [Link to Scopus](#)
- Research Gate: 219 publications and h index = 62 (24000+ citations) [Link to ResearchGate](#)
- Google Scholar: 600+ publications and h index = 81 (23000+ citations) [Link to GoogleScholar](#)

Invited presentations to peer-reviewed, internationally established conferences

During the past 5-10 years Henrik Lund has given **annually 5-10 invited plenary key-notes** at international peer-reviewed established conferences or similar events. This includes among many others the following:

- Keynote at [29th international conference on Efficiency, Cost, Optimisation, Simulation and Environmental Impact of Energy Systems \(ECOS 2016\)](#), 19-23 June 2016, Portorož, Slovenia
- Plenary Key-note at [CISBAT 2015, Future Buildings and Districts – Sustainability from Nano to Urban Scale](#), 9-11 September 2015, EPFL, Lausanne, Switzerland
- [Plenary lecture](#) at 17th Conference on Process Integration, Modelling and Optimisation for Energy Saving and Pollution Reduction ([PRES 2014](#)) and 21st International Congress of Chemical and Process Engineering ([CHISA 2014](#)), 23-27 August 2014 Prague, Czech Republic
- **Plenary Key-note at [1st International Conference on Energy & Environment: Bringing Together Economics and Engineering \(ICEE\)](#)**, University of Porto 9-10 May 2013.
- Keynote at [3rd International Conference on Contemporary Problems of Thermal Engineering \(CPOTE 2012\)](#), Institute of Thermal Technology, Gliwice, Silesia, Poland, 18-20 September 2012.
- Keynote at [1st Asia-Pacific Forum on Renewable Energy \(AFORE-1\)](#), Busan, Korea, November, 2011. [Keynote](#) at 6th. [International Green Energy Conference \(IGEC-VI\)](#), Eskisehir, Turkey on June 5-9, 2011.
- Presentation at [Pathways to 2050: International Conference](#), Dublin Convention Centre, 5 November 2010. [Sustainable Energy Authority of Ireland \(SEAI\)](#). [Link to presentation](#).
- [Keynote](#) at the conference [SEEP 2009, 3rd International Conference on Sustainable Energy & Environmental Protection](#), 11-15 August DCU-Dublin, Ireland.



A full list can be found here: <http://www.en.plan.aau.dk/henriklund/presentations/>
 Several of the presentations are video-taped: <http://www.en.plan.aau.dk/henriklund/video/>

Affiliation international conferences

Henrik Lund is a member of among others the following scientific boards (Typically annual or bi-annual conferences):

- **Conference chair** of the international conferences of Smart Energy Systems and 4th Generation District Heating (SES4DH) 2015 and onwards: www.4dh.dk
- Member of Scientific Advisory Board to the Conferences on Sustainable Development of Energy, Water and Environment Systems SDEWES, 2005 and onwards: www.sdewes.org
- Member of international Scientific committee of the Conferences on Process Integration, Modelling and Optimization for Energy Saving and Pollution Reduction (PRESS) 2010 and onwards: www.conferencepres.com/
- Member of Scientific committee to the international conferences of Contemporary Problems of Thermal Engineering (CPOTE) 1998 and onwards: www.itc.polsl.pl/CPOTE2016
- Member of Scientific Committee of the International Conferences on Efficiency, Cost, Optimization, Simulation and Environmental Impact of Energy Systems (ECOS) 2010 and onwards. www.ecos2016.si
- Member of Scientific Committee of the International Conferences on Energy & Environment: bringing together Economics and Engineering (ICEE) 2013 and onwards: www.fep.up.pt/conferences/icee
- Member of international Scientific committee of the Conferences Sustainable Energy and Environmental protection (SEEP) 2009 and onwards: www.seepconference.co.uk

Primary University Education:

- Dr.Techn. Choice Awareness and Renewable Energy Systems, Aalborg University 2009.
- PhD Implementation of Sustainable Energy Systems, Aalborg University 1990.
- M.Sc. Engineering, Aalborg University, 1985.

Supplementary Education:

- English for Academic purposes II, Aalborg University 1991
- English for Academic purposes I, Aalborg University 1990
- The Secretarial Certificate in Specialised Language for Business in English 1989
- Economics & Planning of Generation and Transmission Systems, Imperial College of Science and technology, University of London 1989.
- HD part 1. (Bachelor of Economics part I), Aalborg University 1984

Academic Employments:

- Professor, Aalborg University 2006 – present.

- Associate Professor, Aalborg University 1993 - 2006.
- Assistant Professor, Aalborg University, 1990 – 1993.
- Ph.D.-student, Aalborg University, 1986 – 1990.
- Consultant engineer, PlanEnergi s/i, 1985-1986.
- Research Fellow, Aalborg University, 1985.

Visiting Professor Positions:

- Visiting Professor, Shanghai Jiao Tong University, Shanghai, China, November 2019
- Visiting Professor, Shanghai Jiao Tong University, Shanghai, China, November 2015
- Visiting Professor, Università degli Studi di Napoli "Parthenope", Napoli, Italy, February 2015
- Visiting Professor, Shanghai Jiao Tong University, Shanghai, China, October 2011
- Visiting Professor, Tsinghua University, Beijing, China, September 2010
- Libra Professor, University of Main at Fork Kent, April 2010

Management Positions:

- Head of Research Group (staff = approx. 30 persons) 2016 – present.
- Head of Section (staff = approx. 50 persons), 2014 – 2016.
- Member of Academic Council 2008 – present.
- Member of the Faculty Council 2002-2008
- Head of Research Group (staff = approx. 20 persons) 2002 – 2014.
- Head of Department (Staff = approx. 200 persons) 1996 – 2002.
- Member of the faculty council 2002-2008

Positions:

- Board member of "GRØN ENERGI"
- Manager of "Geest Enge & Lunde" Wind turbine company (225 kW Vestas), 2001-2008.
- Member of "[Energisparepuljen](#)" (Danish Energy Saving Funds). 2004 - 2010.
- Member of "[Energifonden](#)" (EnergyFoundation). 2011 – 2018.
- Board member of "Vaarst Wind Turbine Company" (150 kW Bonus), 1988-2006.
- Member of the representative of "Himmerlands electricity supply", 1994-2003.
- President of "Himmerlands Energy and Environmental Office", 1995-2002.
- President of "Vaarst Vestervang" housing community, 1990-1995.

Affiliation with scientific journals:

- Editor-in-Chief of [ENERGY - The International Journal](#) (Elsevier)
- Associate Editor of [Energy Strategy Reviews](#) (Elsevier)
- Associate Editor of [International journal of Energy Technology and Policy](#) (Inderscience)
- Member of Editorial Board of [Renewable Energy](#) (Elsevier)
- Member of Editorial Board of [Applied Energy](#) (Elsevier)
- Member of Editorial Board of [International journal of Alternative Propulsion](#) (Inderscience)
- Guest Editor of Special Issue of [International Journal for Sustainable Energy](#) on *Distributed Generation*, [Volume 23, Number 4, December 2003](#).
- Guest Editor of Special Issue of [Journal of Cleaner Production](#) on *Sustainable Development in Practice*, [Volume 15, Issue 3, February 2007](#).
- Guest Editor of Special Issue of [Utilities Policy](#) on *Sustainable Energy and Transportation Systems*, [Volume 16, Issue 2, June 2008](#).
- Guest Editor of Special of [Applied Energy](#) on 100 Percent Renewable Energy Systems, [Volume 88, Issue 2, February 2011](#).
- Reviewer for among others: Energy Policy (Elsevier); Journal of Cleaner Production (Elsevier); International Journal of Hydrogen Energy (Elsevier); Journal of Power and Energy; CLEAN AIR. International Journal on Energy for a Clean Environment (EDC); Thermal Science. International scientific journal; International Journal of Global Energy Issues; Applied Thermal Engineering; Journal of Civil Engineering and Management; European Journal of Operational Research; IET Renewable Power Generation; International Journal of Environmental Studies

Technical advisor/evaluator to:

- Research Council for Natural Sciences and Engineering at the Academy of Finland (2018-2019)
- Linnaeus University, Sweden (2017)
- Research Council of Norway (2016)
- Tallinn University of Technology (2016)
- Research Council for Natural Sciences and Engineering at the Academy of Finland (2015)
- European Research Council (2013 and 2015 and 2016)
- Research Council for Natural Sciences and Engineering at the Academy of Finland (2015)
- Strategic Public Policy Research Grants Council of Hong Kong (2011)
- Science Foundation Ireland (2010)
- The Faroese Research Council (2010)
- The National Priorities Research Pr. ([NPRP](#)) of the Qatar National Research Fund (2010-2014)
- EUDP, The national Danish Research and Demonstration program (2008-2009)
- Unity through Knowledge Fund (UKF) of the Croatian Ministry of Science, 2007
- The Research Council of Norway, 2006-2007
- Norwegian Centre for International Cooperation in Higher Education (SIU), 2006-2007
- The Danish Council for Strategic Research, 2005.
- Science and Technology Foundation, Ministry of Science, Portugal, 2004.
- University of Luxembourg Research Programme, 2004.
- EPSRC (Engineering and Physical Sciences Research Council) UK, 2003
- The Danish Supreme Court , 2002-2004
- Danish Energy Research Programme, 2000-2002
- Danish Biogas Organisation, 1992
- Ishøj municipality, 1991
- Vester Hjermtlev Energy Company, 1990
- The City Council Alderman of Energy Supply , the municipality of Århus, 1987-1989

Awards:

- Gold medal in 1998 for "Best Research Paper Award" within the area "Energy Policies & Economics" by "International Energy Foundation".
- Teacher of the year at the Study board of Surveying and Planning, Aalborg University, 1994

Management activities:

- Head of 4DH (Strategic Research Centre for 4th Generation District Heating Technologies and Systems) financed by the Danish Council for Strategic Research involving 32 university and industrial partners in Denmark, Sweden, Croatia and China. 2012-2017: www.4dh.dk
- Coordinator of research project [CEESA](#) (Coherent Energy and Environmental System Analysis) financed by the Danish Council for Strategic Research involving 7 partners (mostly Danish Universities). 2007-2011.
- Coordinator of the [DESIRE](#) project (Dissemination strategy on Electricity balancing for large Scale Integration of Renewable Energy). European project involving ten partners financed by 6th FP, DG-TREN. 2005-2007.
- As head of department responsible for the implementation of more than 150 research project with a turnover of approximately 80 million DKK from 1996-2002. Personal involved in a number of research projects and committee works in Danish energy planning, and in the implementation of various local energy projects.
- Project leader of "Local energy markets", financed by Danish Energy Research Programme, 2001-2003.
- Project leader of "Import and employment consequences of Danish energy investments", financed by SiD and the Danish Energy Research Programme, 1994-1998.

Member of conference scientific boards (Typically annual or bi-annual conferences):

- Conference chair of the international conferences of Smart Energy Systems and 4th Generation District Heating (SES4DH) 2015 and onwards: www.4dh.dk
- Member of Scientific Advisory Board to the Conferences on Sustainable Development of Energy, Water and Environment Systems SDEWES, 2005 and onwards: www.sdewes.org
- Member of international Scientific committee of the Conferences on Process Integration, Modelling and Optimization for Energy Saving and Pollution Reduction (PRESS) 2010 and onwards: www.conferencepres.com/
- Member of Scientific committee to the international conferences of Contemporary Problems of Thermal Engineering (CPOTE) 1998 and onwards: www.itc.polsl.pl/CPOTE2016
- Member of Scientific Committee of the International Conferences on Efficiency, Cost, Optimization, Simulation and Environmental Impact of Energy Systems (ECOS) 2010 and onwards: www.ecos2016.si
- Member of Scientific Committee of the International Conferences on Energy & Environment: bringing together Economics and Engineering (ICEE) 2013 and onwards: www.fep.up.pt/conferences/icee
- Member of international Scientific committee of the Conferences Sustainable Energy and Environmental protection (SEEP) 2009 and onwards: www.seepconference.co.uk

Appointments/special invitations:

- Member of Board of Directors of IEF, [International Energy Foundation](http://www.internationalenergyfoundation.org), 2005-present.
- Invited by "Der Präsident der Bundesrepublik Deutschland" Johannes Rau to the [panel discussion of save energy supply](#) in the Villa Hammerschmidt in the connection to the World Renewables2004 conference in Bonn, 2-5 June 2004.
- IEF Fellow (International Energy Foundation), 1998-

Computer Programme Developments:

- The initial version of the energyPRO computer tool for the design and operation of CHP plants, 1988-90. Afterwards the tool was made commercial by the software company Energy and Environmental Data ([EMD](#)). The tool has been used in the project design of most small CHP plants in Denmark.
- EnergyBALANCE (1995-2000). A simple Excel spreadsheet model. Now made available as part of local energy planning tool [Energy Planning Tool web-site](#).
- EnergyPLAN (1995-present). Model for the system analysis of large-scale integration of renewable energy into the electricity supply. www.EnergyPLAN.eu.

Teaching Experience:

- Teaching experience at all levels of engineering education from first semester courses to PhD courses at Aalborg University, 1985-present.
- Various guest lectures at among others: Shanghai Jiao Tong University (2011 and 2015); GMIT Galway (2015); Università degli Studi di Napoli "Parthenope" (2015); Ångström Laboratory Uppsala University (2014); Institute of Engineering (IOE) Nepal (2014); University of the West of Scotland's Paisley campus, Glasgow (2014); University of Limerick (2011); Tsinghua University, Beijing (2010); University of Main at Fork Kent (2010).
- PhD course as Visiting Professor, Università degli Studi di Napoli "Parthenope", Napoli, Italy, February 2015
- Courses at Aalborg University "Life Long" education, 1999, 2001, 2002, 2003, 2004.
- Sustainable Energy Planning Workshop at Universidad Nacional de Ingeniería, Managua, Nicaragua 2006.
- Local Energy Planning Workshop in Surin, Thailand, 2000.
- Courses at "PROCEED 21" in Lithuania, Latvia and Estonia, 2000-2001.
- Energy Planning Workshop in Bangkok, Thailand, 1999.
- Courses at "Nordic Training Programme for Energy Experts in the Baltic States", the PROCEED Programme, 1997-1998.
- Head of post master education programme in "Energy Planning" and "Distributed CHP generation", 1987-1990.

- Courses at Danish Engineering Associations Educational programme, 1987-1990.

Publications: <http://www.en.plan.aau.dk/henriklund/publications/>

- Approx. 180 articles in refereed international journals (1997-2021).
- Approx. 50 papers and presentations in mostly refereed international proceedings (1986-2015).
- 50 books and reports on energy planning (1983-2021).
- More than 75 articles and book chapters (1983-2015).

Scientific journal papers (1997-2023):

- M. Chang, H. Lund, J. Z. Thellufsen, P. A. Østergaard: [Perspectives on purpose-driven coupling of energy system models](#), Energy, 265, February 2023.
- Z. Guzovic, N. Duic, A. Piacentino, N. Markovska, B. V. Mathiesen, H. Lund: [Paving the way for the Paris Agreement: Contributions of SDEWES science](#), Energy, 263, January 2023.
- A. D. Korberg, J. Z. Thellufsen, I. R. Skov, M. Chang, S. Paardekooper, H. Lund, B. V. Mathiesen: [On the feasibility of direct hydrogen utilization in fossil-free Europe](#), International Journal of Hydrogen Energy 48, January 2023
- M. Chang, S. Paardekooper, M. G. Prina, J. Z. Thellufsen, H. Lund, P. Lapuente: [Smart Energy Approaches for Carbon Abatement: Scenario Designs for Chile's Energy Transition](#), Smart Energy, 10, 2023.
- P. Sorknæs, S. Nielsen, H. Lund, B. V. Mathiesen, D. Moreno, J. Z. Thellufsen: [The benefits of 4th generation district heating and energy efficient datacentres](#), Energy, 260, December 2022.
- H. Lund, J. Z. Thellufsen, P. Sorknæs, B.V. Mathiesen, M. Chang, P. T. Madsen, M. S. Kany, I. R. Skov, [Smart energy Denmark. A consistent and detailed strategy for a fully decarbonized society](#), Renewable and Sustainable Energy Reviews, October 2022.
- M. Yuan, P. Sorknæs, H. Lund, Y. Liang: [The bidding strategies of large-scale battery storage in 100% renewable smart energy systems](#), Applied Energy, 326, November 2022.
- H. Lund, I. R. Skov, J. Z. Thellufsen, P. Sorknæs, A. D. Korberg, M. Chang, B. V. Mathiesen, M. S. Kany: [The role of sustainable bioenergy in fully decarbonised society](#), Renewable Energy, 196, August 2022.
- P. A. Østergaard, S. Werner, A. Dyrelund, H. Lund, A. Arabkoohsar, P. Sorknæs, O. Gudmundsson, J. E. Thorsen, B. V. Mathiesen: [The four generations of district cooling – A categorization of the development in district cooling from origin to future prospect](#), Energy, 253, August 2022.
- C. Breyer, S. Khalili, D. Bogdanov, M. Ram, A. Solomon Oyewo, A. Aghahosseini, A. Gulagi, A. A. Solomin, D. Keiner, G. Lopez, P. A. Østergaard, H. Lund, B. V. Mathiesen, M. Z. Jacobsen, S. Teske, T. Pregger, V. Fthenakis, M. Rauegi, H. Holttinen: [On history and Future of 100% Renewable Energy Systems Research](#), IEEE Access 10, July 2022.
- S. Paardekooper, H. Lund, J. Z. Thellufsen, N. Bertelsen, B. V. Mathiesen: [Heat Roadmap Europe – Strategic heating transition typology as a basis for policy recommendations](#), Energy Efficiency, 15, June 2022
- V. Battaglia, G. De Luca, S. Fabozzi, H. Lund, L. Vanoli: [Integrated energy planning to meet 2050 European targets: A Southern Italian region case study](#), Energy Strategy Reviews 41, May 2022.
- J. de Maigret, D. Viesi, M. S. Mahbub, M. Testi, M. Cuonzo, J. Z. Thellufsen, P. A. Østergaard, H. Lund, M. Baratieri, L. Crema: [A multi-objective optimization approach in defining the decarbonization strategy of a refinery](#), Smart Energy 6, May 2022.
- Z. Guzovic, N. Duic, A. Piacentino, N. Markovska, B. V. Mathiesen, H. Lund: [Recent advances in methods, policies and technologies at sustainable energy systems development](#), Energy, 245, April 2022.
- H. Lund, J. E. Thorsen, S. S. Jensen, F. P. Madsen: [Fourth-Generation District Heating and Motivation Tariffs](#), ASME Open Journal of Engineering, February 2022.

- M. S. Kany, B. V. Mathiesen, I. R. Skov, A. D. Korberg, J. Z. Thellufsen, H. Lund, P. Sorknæs, M. Chang: [Energy efficient decarbonization strategy for the Danish transport sector by 2045](#), Smart Energy, 5, February 2022.
- H. R. Rahbari, A. Arabkoohsar, M. P. Nielsen, B. V. Mathiesen, H. Lund: [Quantification of realistic performance expectations from trigeneration CAES-ORG energy storage system in real operating conditions](#), Energy Conversion and Management, 249, December 2021.
- M. Yuan, J. Z. Thellufsen, H. Lund, Y. Liang: [The electrification of transportation in energy transition](#), Energy, December 2021.
- S. Luo, W. Hu, W. Liu, X. Xu, Q. Huang, Z. Chen, H. Lund: [Transition pathways towards a deep decarbonization energy system—A case study in Sichuan, China](#), Applied Energy, Volume 302, November 2021.
- M. Yuan, J. Z. Thellufsen, P. Sorknæs, H. Lund, Y. Liang: [District heating in 100% renewable energy systems: Combining industrial excess heat and heat pumps](#), Energy Conversion and Management, September 2021.
- Y. Noorollahi, H. Lund, S. Nielsen, J. Z. Thellufsen: [Energy transition in petroleum rich nations: Case study of Iran](#), Smart Energy, Volume 3, August 2021.
- M. S. Javed, T. Ma, N. Mousavi, S. Ahmed, H. Lund, H. Yang, Y. Dai: [Quantifying Techno-economic Indicators' Impact on Isolated Renewable Energy Systems](#), ISCIENCE, July 2021.
- H. Lund, P. A. Østergaard, T. B. Nielsen, S. Werner, J. E. Thorsen, O. Gudmundsson, A. Arabkoohsar, B. V. Mathiesen: [Perspectives on fourth and fifth generation district heating](#), Energy, Volume 227, July 2021.
- P. Cabrera, J. A. Carta, H. Lund, J. Z. Thellufsen: [Large-scale optimal integration of wind and solar photovoltaic power in water-energy systems on islands](#), Energy Conversion and Management, Volume 235, May 2021.
- M. Chang, J. Z. Thellufsen, B. Zakeri, B. Pickering, S. Pfenninger, H. Lund, P. A. Østergaard: [Trends in tools and approaches for modelling the energy transition](#), Applied Energy, Volume 290, May 2021.
- Y. Xi, J. Fang, Z. Chen, Q. Zeng, H. Lund: [Optimal coordination of flexible resources in the gas-heat-electricity integrated energy system](#), Energy, Volume 223, May 2021.
- H. Lund, J. Z. Thellufsen, P. A. Østergaard, P. Sorknæs, I. R. Skov, B. V. Mathiesen: [EnergyPLAN – Advanced analysis of smart energy systems](#), Smart Energy, Volume 1, February 2021.
- T. B. Nielsen, H. Lund, P. A. Østergaard, N. Duic, B. V. Mathiesen: [Perspectives on energy efficiency and smart energy systems from the 5th SESAAU2019 conference](#), Energy, Volume 216, February 2021.
- A. Nikas, A. Gambhir, E. Trutnevyte, K. Koasidis, H. Lund, J. Z. Thellufsen et al.: [Perspective of comprehensive and comprehensible multi-model energy and climate science in Europe](#), Energy, Volume 215, January 2021.
- P. Sorknæs, P. A. Østergaard, J. Z. Thellufsen, H. Lund, S. Nielsen, S. Djørup, K. Sperling: [The benefits of 4th generation district heating in a 100% renewable energy system](#), Energy, Volume 213, December 2020.
- D. Meha, A. Pfeifer, N. Duić, H. Lund: [Increasing the integration of variable renewable energy in coal-based energy system using power to heat technologies: The case of Kosovo](#), Energy, Volume 212, December 2020.
- M. Yuan, J. Z. Thellufsen, H. Lund, Y. Liang: [The first feasible step towards clean heating transition in urban agglomeration: A case study of Beijing-Tianjin-Hebei region](#), Energy Conversion and Management, Volume 223, November 2020.
- Y. Xi, J. Fang, Z. Chen, H. Lund, S. M. Thomsen, A. Dyrelund, P. G. Kristensen: [Integration and Coordination of Flexible Resources in Multi-energy Systems](#), IEEE PES General Meeting, March 2020.
- S. Paardekooper, H. Lund, M. Chang, S. Nielsen, D. Moreno, J. Z. Thellufsen: [Heat Roadmap Chile: A national district heating plan for air pollution decontamination and decarbonisation](#), Journal of Cleaner Production, Volume 272, November 2020.

- X. Xu, W. Hu, D. Cao, Q. Huang, W. Liu, C. Chen, H. Lund, Z. Chen: **Economic feasibility of a wind-battery system in the electricity market with the fluctuation penalty**, **Journal of Cleaner Production**, Volume 271, October 2020.
- A. Menapace, J. Z. Thellufsen, G. Pernigrotto, F. Roberti, A. Gasparella, M. Righetti, M. Baratieri, H. Lund: **The design of 100 % renewable smart urban energy systems: The case of Bozen-Bolzano**, **Energy**, Volume 207, September 2020.
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