

4th Generation District Heating concepts, future district heating production and systems

Alireza	Etemad	A Multi-Scale Analytical Framework for Assessing Flexibility, Feasibility, and Performance of Decentralised 4th-Generation District Heating Systems
Andrea	Franzoso	Multi-Agent Deep Reinforcement Learning for Optimized Operation of Industrial Energy Systems
Anna	Dell'Isola	Upgrade of a Virtual 5th Generation District Heating and Cooling Network through Optimal Control
Anna	Cadenbach	Influence of sector coupling on a district heating system in a German town: thermal simulation and comparison of different supply scenarios
Asger Ulf	Jensen	Improved District Heating Network Hydraulics for Enhanced Energy Distribution and Excess Heat Recovery
Avril	Bullock	Achieving 4th-generation heat network performance by converting an existing UK communal heating system from a 4-pipe to a 2-pipe network
Bart	Homan	Exploring options for optimizing the energy consumption, production and storage of the Ecofactorij business park using HIL simulation
Casper	Hvilsted Nørgaard	A Regional Approach to Offshore Wind: The Key to a Cheaper & More Resilient European Power System
Charlie	Prétot	Innovative architectures of thermal source networks
Charlie	Davies	Developing a heat loss key performance indicator for district heat networks
Dabrel	Prits	A Data-Driven Framework for Assessing Building Readiness for Low-Temperature District Heating
Dennis	Lottis	Simulation Study on Optimizing Substations: Challenges and Solutions in the Transition to Fourth Generation District Heating Systems
Eoin	O Broin	Heat Recovery from Wastewater Treatment Plants to Supply Existing Buildings with Low-Carbon Heat via District Heating
Esther	Borkowski	Enhancing Model Accuracy in Grid-Integrated Building Control: A Semi-Systematic Literature Review of Hybrid Modelling Approaches
Femke	Janssen	Roll-Out Strategy Optimization for District Heating Networks
Hasibuzzaman	Mahmud	An automated framework to select the most profitable consumers for district heating network connections
Ina	Herrmann	Analysis of peak load reduction with configuration of district heating controllers and a newly developed optimization box
Jan Eric	Thorsen	Reducing district heating return temperatures by cascading concepts
Jerik	Catal	Optimized Buildings for Decarbonized District Heating: A Measures Catalogue for Reducing Temperatures, Enhancing Flexibility, and Cutting Costs
Jonathan	Chambers	5th Generation District Heating and Cooling with TESSA – pilot project in a UNESCO world heritage site
Joseph	Shanley	Equipment Condition and Resilience Requirements of UK Heat Networks
Julian	Plautz	Thermohydraulic Modeling and Simulation of a District Heating Network for the Optimization of Building Refurbishment Strategies
Lucrezia	Manservigi	Diagnosis of faults in district heating network components
Milad Morid	Zadeh	Smart waste heat recovery in a Danish supermarket refrigeration system
Morten	Karstoft Rasmussen	End-user installation monitoring, diagnosing, and optimization at a very large scale
Naomi	Adam	Environmental Trade-Offs in Collective Heating Systems: A Life Cycle Perspective on Cluster Size
Nermina	Abdurahmanovic	Simulation-based validation of an AI-supported operation strategy for sector-coupled district heating system
Nina	Dungworth	Practical considerations and results of optimising residential heat networks, focusing on consumer connection retrofit works.
Nirav	Patel	A techno-economic feasibility study of 5th generation district heating and cooling in Vienna
Nyasha	Grecu	The role of geothermal energy in decarbonizing district heating under future uncertainty: a techno economic analysis for an Austrian case study
Philipp	Gradl	Return-flow and bi-generation upgrades: Real-world results from an Austrian district heating network
Rahul Mohandasan	Karuvungal	Advanced Modeling of District Heating Networks and Analysis using uesgraphs v2.0.0 Tool: A Case Study from a German Living Lab Project
Sajedeh	Roustaei	Data-driven approach for diagnosing inefficiencies and optimizing district heating networks
Shiyan	Chang	Decarbonization of district heating in China
Simon	Müller	Optimizing the Operation of a Thermal Source Network Based on a Digital Twin Using Matlab/Simscape
Simran	Chaggar	A data driven approach within retrofit design to reduce emitter upgrades for commercial buildings connecting to low-temperature heat networks.
Stanislav	Chicherin	Design and Integration of 5th Generation District Heating and Cooling Systems: Economic Viability, Technical Methodologies, and Urban Applicability
Sven	Werner	Thermal lengths in district heating systems
Sylvester	Ofilì	Feasibility Analysis of Geothermal Energy Integration in Ultra-Low Temperature District Heating Networks
Theda	Zoschke	Demonstration of model predictive control for optimal power dispatch in a district heating network with decentralized producers
Tom	Burton	An Overview of proposed Technical Assurance Requirements for Existing Heat Networks in the UK

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CCUS and PtX technologies and the production and use of electrofuels in future energy systems

Alexander	Meisinger	Financing energy partnerships beyond Europe through H2Global: A case study on the way to a German-African energy transition
Fabio	Bozzolo Lueckel	Deployment of hydrogen in energy systems: finding the right policies to foster a nascent industry.
Falk	Birett	Mapping the Gap: Analyzing the Status and Future Prospects of Power-to-X Deployment in Germany
Hans	Gelten	Power-to-Methanol: Techno-Economic Analysis of a regional, decentral case-study
Haoshui	Yu	Exploring optimal Power-to-Methanol configuration with SOEC-based technologies
Hossein	Nami	Grid Capacity-Aware Investment Roadmap for Sector-Coupled Industrial Clusters
Julian	Straus	Modelling details matter – Representation of electrolysis in energy system models
Karl	Vilén	Impacts of Capacity Pricing Mechanisms and Motivation Tariffs in District Heating
Leon	Schumm	Green Steel: Integrated Modeling of Global Value and Supply Chain Configurations and Trade
Mehdi	Savaghebi	Unlocking Frequency Ancillary Services Potential in Eco-Industrial Clusters
Meng	Yuan	European Energy Independence: Trade-offs in Domestic Production vs. Renewable Fuel Import
Ramin	Ghiami Sardroud	Detailed energy and techno-economic comparison of three CO ₂ -to-methanol integration pathways: Novel direct CO ₂ capture and electrolysis

Components and systems for district heating, energy efficiency, electrification and electrofuels

Abdulrahman	Dahash	Techno-economic advantages of coupling large-scale seasonal thermal energy storage with heat pumps in district heating systems
Davide	Rizzi	High-Temperature, Large-Scale Heat Pumps: The Key to Decarbonizing Energy Systems
Diego Alejandro	Prieto Melo	From Shine to Decline: Analysis of Power Loss Rate of Photovoltaic Systems in Germany
Francesco	Neirotti	From waste to value: Circular Thermal systems and heat pumps driving industrial energy efficiency and decarbonization
Jakob	Nymann Rud	Transition to an Electrified and Low Temperature Heat Supply in Copenhagen
Meisam	Sadi	Carbon dioxide-based district energy systems in heating and cooling applications
Pauli	Hiltunen	District heating providing flexibility for the North European electricity system
Rasmus	Frost Lund	200 MW air source heat pumps for district heating: Challenges in large-scale application

Electrification of transport, heating and industry

Andra	Blumberga	Unintended long-term consequences of short-term climate and energy policy decisions: the case of diffusion of electric vehicles
Antonia	Golab	Density and speed of public charging infrastructure rollout: Accelerating the electrification of the passenger car stock at the federal state level
Arven	Syla	What is the interplay between smart charging, V2G and distributed charging infrastructure as flexibility options in the Swiss energy system?
Delight	Ezeh	Techno-economic assessment of flexible electrification systems for heat decarbonization in hard-to-abate industries
Endeshaw	Bekele	Optimal Strategies for a Zero-Emission Transport Sector in 100% Renewable Energy Cities
Marko	Starčević	The Role of Electric Vehicles as Flexible Consumers in Energy Communities
Michael	Krüger	Systematic Evaluation of Brayton Battery Concepts for Multi-Purpose Energy Applications

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Energy savings in the electricity sector, buildings, transport and industry

Arttu	Häkkinen	Bayesian LSTM for indoor temperature modeling
Astrid	Leitner	Real-World Implementation of Residential Energy Management Systems: Balancing Thermal and Electrical Energy
Blanca L.	Foliaco Romero	Comparative Analysis of Transcritical CO ₂ and R410 Heat Pumps for Electrical Ferries: Simulation and Control Optimization
Constantin	Völzel	5GDHC networks in urban settlements - Barriers and technological prerequisites for applications in existing buildings
Ece	Özer	Bi-Level Optimization for Designing Subsidy Schemes for Staged Energy Retrofits in Residential Buildings
Francesco	Ghionda	From Waste to Worth: Integrating a Double-Effect Heat Pump in a Pharmaceutical Industry for Process Cooling & District Heating
Jiyuan	Cui	Optimizing the operation of an integrated energy system for a small district using a two-level control strategy
Jonas	Hoppe	Renovation paths of single-family-houses and their impact on the heat transition in German districts
Jaap	Neven	Evaluating Model Predictive Control Performance with Various Combinations of Building RC-Models and State Observers
Karl	Walther	The advantages of integrated versus non-integrated optimal control for district energy systems and buildings: Insights from four case studies
Lars	Hellemo	Striving for realism in analyses of building retrofit potential for the green energy system transition with agent-based modelling
Leif	Holm Tambjerg	Renewable and Affordable Industrial Process Heat supplied from District Heating
Lieve	Helsen	A system of systems approach to decarbonize heating and cooling in the built environment
Lukas	Kranzl	Implementing the EPBD: the impact of policy settings on energy savings and heating system mix
Michał	Majchrzyk	Improving system efficiency using low temperature and latent waste heat
Rachel	Parziale	Monitoring the heat and electricity requirements in 4 northern German heat pump districts
Robert	Puknat	Optimizing residential energy systems in low-energy houses in timber-frame construction using Smart EMS for dynamic electricity pricing
Valentin	Kaisermayer	Smart System Integration of Waste Heat Recovery, Heat Pumps and PV to Unlock the Energy Potential of Thermal Baths
Xin	Bin	Cost-Effective Retrofit of Heat Exchanger Networks in Dairy Industry: Integrating CIP Scheduling and Multiple Utility Sources

GIS for energy systems, heat planning and district heating

Alejandro	Zabala Figueroa	GIS-based data-driven simulation of load profiles in industrial and urban areas
Alina	Kerschbaum	Spatially-Explicit Technical Potential of Onshore Wind Energy in Germany: A Regulatory and Geographical Assessment
Anton	Achhammer	The impact of hydrogen underground storage on fair partnerships: A GIS-based integration of salt caverns into PyPSA-Earth
Giulia	Spirito	HeatNODE, a cost-optimized model for the creation of the Italian Atlas of potential district heating networks to recover industrial waste heat.
Marina	Georgati	A spatial assessment of the district heating potential in Europe
Steffen	Nielsen	Mapping of CO ₂ infrastructure in Denmark: A cost comparison of decentralized and centralized e-fuel production
Ulrike	Jordan	Potential of wastewater, rivers and residual material as heat sources for district heating in the German federal state of Hesse

Institutional and organisational change for smart energy systems and radical technological change

Alessandro	Mati	Fueling sustainable aviation: prospects for electrofuels and policy frameworks
Frede	Hvelplund	Fundamental policy changes in a transition from around 50% to around 100% Renewable Energy.
George	Pickens	Structuring a technical assessment to support regulation of minimum heat network standards
Hironao	Matsubara	Progress of Regional Decarbonization in Japan and Challenges to Realization
Kristina	Lygnerud	The impact of social sustainability on district heating competitiveness
Pascal	Fröhlich	Historical Cost-Optimised Expansion of Renewable Energy Sources
Ruta	Vanaga	Integrated Approach for Sustainable Urban Energy Transition: Citizen Engagement, System Dynamics Modeling, and Immersive VR Decision-Making Tools

Aadit	Malla	Assessing the Potential for Biomass Reduction Through Targeted Retrofitting of District Heating Systems in Austria
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Integrated energy systems and smart grids

Isabelle	Best	Dynamic supply temperature optimization of a complex nested district heating network
Jacobus	van Rooyen	Operational strategy optimization under dynamic electricity prices; utilizing tank storages and high temperature seasonal storages
Jihong	Hang	Developing strategies for the electrification of Oil and Gas Industry in China
Jinze	Li	Hybrid Renewable Energy Integration for Oil and Gas Power Supply: Optimization and Feasibility in China
Kristina	Haaskjold	Hydrogen at sea: Evaluating offshore production for Europe's future demand
Marius	Güths	Optimization of energy flows with differing optimization goals on quarter level
Matthias	Brandes	Model-Predictive Power Control in Small-Scale Hydraulically Coupled District Heating Systems
Oddgeir	Gudmundsson	Revealing the Hidden Potential of Energy Efficiency in DH Networks
Savvas	Panagi	Grey-Box Modeling Methodologies for Integrating Building Thermal Dynamics into Power System Studies and Planning Tools
Seyed	Shahabaldin Tohidi	Analysis of flexibility characterization using flexibility function in residential buildings
Steen	Schelle Jensen	Potential of real-time end to end optimization of the full district heating system from heat source to distribution and demand
Yousef	Pourjamal	Impact of solar photovoltaics on the energy-industry transition in the Nordics

Planning and organisational challenges for smart energy systems and district heating

Abdulraheem	Salaymeh	Techno-Spatial Evaluation of the Practical Usability of Industrial Waste Heat in Urban Heating Systems
Andreas	Müller	The potential of local heat networks in the city of Vienna
Anna	Lackner	Decarbonization Pathway Optimization and Risk Assessment for District Heating applied to a Polish Case Study
Benedetto	Nastasi	Renewable District Cooling by leveraging renewable energy sources via advanced energy storage systems
Bent Ole	Gram Mortensen	Price caps as part of the green transition
Clara	Büttner	Open source tools and data for cross-sectoral grid planning on all voltage levels
Connie	Ocando	Empowering the DHC Sector: Focus on Education and Skills
Daniel	Møller Sneum	Financing district heating investments
Daniel	Zinsmeister	Transforming the Heating Sector: A Techno-economic Analysis of Munich's Local Heat Transition Planning
Dietrich	Schmidt	Perspectives on the digitalization of the district heating systems
Eike	Schuler	Do common multi-stage energy planning models underestimate regrets in the face of long-term uncertainties?
Enric	Gonzalez Gonzalo	Key findings on organizational and planning challenges across different actors on PEDs
Eric	Schulze Berge	Peripheral integration of medium voltage network structures within the framework of automated greenfield power network planning
Fabian	Ochs	Design Workflow for Optimized Heat Pump Systems for Positive Energy Districts
Giulia Anna Maria	Castorino	Energy and economic analysis of technologies suitable for energy transition in the hospital sector
Iná Maia	Novak	Applying Monte Carlo to assess district heating decarbonisation strategy risks: first insights of the Vienna case study
Jacob	Estevam Schmiedt	Data for Optimizing Heat Supply Systems in Existing Districts
Jakub	Skórczynski	Cyber Resilience Act and NIS2: Two legislative initiatives on cybersecurity that might change the way we work with smart energy systems
Jan	Markowski	Intelligent energy management in compressed air energy systems on the base of inverse problem solving
Jelena	Ziemele	Achieving Carbon Neutrality in District Heating: Lessons Learned from the Climate City Contract of the City of Riga
Johan	Granberg	Electricity grids in Energy Islands - A Future scenario analysis with cyber security implications
Jonathan	Hachez	Methodology to develop an investment plan for heating and cooling systems under climate uncertainty
Kai	Droste	Determining the potential of very shallow geothermal collectors in Germany
Katharina	Esterl	Importance of integrating models within a broader systematic perspective when planning local energy systems
Lars	Goray	F Heat – An Open Software Ecosystem for Municipal Heat Planning
Laura	Kuper	Economic Risk Assessment of District Heating Network Topologies: A Scenario-Based Analysis of Consumer Connection Rate Uncertainties
Lennart	Trentmann	Combining High Temporal and Spatial Resolution of District Heating Network Design – A Iterative Approach of DHN and Supply Structure Design

Lisa	Hjerrild	Regulative challenges of energy communities
Marja	Heikkinen	Energy system modelling of urban infrastructures and energy storage – quantifying the impacts of policy (in)coherence
Marta	Cavaleiro	Bridging the skills and competence gap in District Heating & Cooling: the DHC Academy Alliance

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Planning and organisational challenges for smart energy systems and district heating (continued)

Oskay	Ozen	A Qualitative Investigation of German Manufacturing Companies' Efforts to Incorporate Sustainability Into Production Site Transformations
Ryoga	Ono	Strategic planning for installation of district heating systems in Japan: Opportunities and Challenges
Saltanat	Kuntuarova	Game-theoretic modeling of energy-sharing communities within integrated district heating and electricity systems
Théodore	Fontenaille	Rural Heating Networks: A Processual Approach for Overcoming Challenges and Identify Levers
Thuvaraahen	Nagendiram	Strategic Heat Planning for Decarbonisation: Insights from Denmark and Implications for China's Clean Heating Development
Tim	Mandel	Who pays, who benefits? Multi-stakeholder cost-benefit analysis for strategic heat planning in three German neighbourhoods
Verena	Alton	Early-stage techno-economic assessment of DHC networks and individual systems - The FAST-DHC web-tool and its application to a UK case study
Viktoria	Illyés	Adopting low-temperature heating and cooling networks in the core of sector-coupling energy communities: a multidisciplinary task
Wiebke	Gerth	Automated planning of multiple-supply heating networks within the framework of greenfield planning

Renewable energy sources and waste heat sources including PtX for district heating

Alisson	Julio	From Carbon Neutrality to Negative Emissions: Evaluating the Impact of CCUS on Energy Systems and Power-to-X supply
Christian	Schützenhofer	Excess heat availability from a net zero emissions industry: sector-specific potentials considering widespread electrification and carbon capture
Dagnija	Blumberga	Gaseous Bioresources Towards Climate Neutrality
Hrvoje	Dorotić	Participation of district heating systems in balancing power markets via power-to-heat technologies
Rikke C.	Pedersen	A techno-economic analysis of infrastructure for CCS: Can biogas facilities benefit from a shared CO2 conditioning system?
Sander	Dijk	Balancing the energy system: a system-integrated approach to enlarge biomethane feed-in capacity into the gas infrastructure and reduce fossil fuels

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Smart energy system analyses, tools and methodologies

Abdul	Azzam	A Model Predictive Control Framework for Integrated Thermal and Electric Systems in Multi-Energy Grids
Alejo	Silvarrey Barruffa	Ilsim: an source to source compiler of industrial process simulation models
Aleksandra	Banasik	Experimental Investigation of a PCM Storage Unit with Process Visualization
Allan	Iraqi	A generic substation heating power forecasting approach using machine learning
Anders	N. Andersen	The role of Non-Asset Traders in the European Day-ahead and Intraday electricity markets
Anna	Billerbeck	Modelling climate-neutral district heating in energy system models – insights from an expert survey
Antti	Solonen	Demand Side Response in large scale: the Virtual Heat Storage concept
Ari	Laitala	Investment case of city scale wind power
Axel	Johansson	Exploring the Possibilities of Using Day-Ahead Environmental Impact Forecasts for Electricity Generation
Benjamin	Kwaku Nimako	Novel Multi-Criteria Decision Analysis Based on Performance Indicators for Urban Energy System Planning
Bernd	Riederer	Smart control of hydrogen-based multi-energy systems
Bram	van der Heijde	Energy flexibility from smart district heating and cooling control in smart energy systems: An updated review
Budareld	Mbumba	Challenges and prospects of electricity access in Angola
Carlos	Santos Silva	Using ENERGYPLAN to model energy systems with high spatial resolution: the case study of mainland Portugal electrical system
Christoph	Komanns	Evaluating Peak Shaving Potential with Open-Source Software
Christopher	Graf	Optimal domestic hot water and space heating system architecture for flexible heat pump operation in residential buildings
Costanza	Saletti	RECoS – An open-source tool for multi-energy system analysis
Dana	Orsolits	Coupling Power System and Gas Grids Through Dynamic Hydrogen Injection: Enhancing Flexibility in Smart Energy Systems
Diamantis	Almpantis	Smart Control Strategies for direct coupled PV-PEM Hydrogen Systems: Real-Time Optimization with Machine Learning Support
Dmitry	Romanov	Applicability of pygfunction for modelling deep coaxial borehole heat exchangers
Dominik	Stecher	Fault Detection and Classification in District Heating Substations using Supervised Machine Learning – Case Study and User Experience
Enno	Wiebrow	Enhancing Flow-Based Market Coupling with Uncertainty and Forecast Integration for Renewable Energies
Erik	Ahlgren	Modeling long-term sectoral integration in urban energy transitions
Ethan	St. Catherine	Heat Network Metering and Monitoring Standard: Regulating metering systems within UK heat networks
Finn	Weiland	Energy supply concepts based on shallow geothermal energy for existing urban districts
Gabriele	Fambri	Deep reinforcement learning to explore multi-energy systems: a methodological approach
Gerrid	Brockmann	Analysis of District Heating Network Configurations for a Suburban Region: a Sensitivity Study about the Heat Demand Density and Supply Temperature
Ingeborg	Treu Røe	Smart integration of renewable energy technologies in heat- and power-intensive industries in Europe
Ivan	Sukhanov	Adaptive demand-based logic for the Heat pump using supervised machine learning algorithms
Jack M.	Kristensen	Harnessing AI and IoT to Unlock Household Electricity Flexibility for a Smarter Energy Future
Jan	Trosdorff	Global deep learning model for high temporal and spatial resolution heat demand forecasting using real world monitoring and open data
Jana	Reiter	Dynamic Modelling and assessment of Alternative Fuel Supply Chains: Hydrogen, Ammonia, and Methanol Pathways for Maritime Applications
Jonathan	Sejdija	A Probabilistic Framework for Analyzing Uncertainty in Industrial Energy Supply and PPA Portfolios
Jonne	van Dreven	Generalising Fault Signatures for Robust District Heating Substation Monitoring
Leszek	Paják	Utilization of a deep geothermal borehole heat exchanger HOCLOOP solution in cooperation with existing coal-fired district heating
Lorenzo	Mario Pastore	On the role of hydrogen in 100% renewable energy systems: an assessment of applications, costs and infrastructure in Italy by 2050
Marius	Reich	Precomputed ML Surrogates for Energy System Design: Methodology and In-Depth Evaluation
Martina	Capone	A Simulation-Optimization Framework to Support the Transition of District Heating Systems
Mathieu	Patin	Benchmarking Control Strategies for Multi-Stack Electrolyser Systems under Renewable Energy Variability
Matteo	Giacomo Prina	Evaluating Machine Learning Robustness as an EnergyPLAN Surrogate Model for Uncertainty Analysis
Matthias	Posch	Effect of hot air welding parameters on the ageing behaviour of polyethylene liners
Michael	Krause	The impact of heat pumps on the electricity load: Evaluation of large sets of operational data including the simulation of future situations
Michel	Noussan	Evaluation of the hourly GHG intensity profiles of high-temperature heat pumps in industrial applications
Mikkel	Bue Lykkegaard	Data Compression for Time Series Modelling: A Case Study of Smart Grid Demand Forecasting

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Smart energy system analyses, tools and methodologies (continued)

Mirko	Morini	Predictive controller for optimal hydrogen generation and injection into the natural gas network
Nicholas	Tedjosantoso	Tensor-Based Modeling Framework for District Heating Pipes
Niklas	Denter	Modelling battery waste heat recovery for sector-coupled power-heat systems in district heating planning
Nils	Zimmerling	Monitoring of district heating concrete ducts by measuring thermal parameters
Ona	Vassallo	From combustion to conversion: Impact of heating demand decrease on district heating systems
Paula	Oberfeier	The role of reversible heat pumps in decarbonizing the heating sector under rising temperatures
Philipp	Herpich	Charting the EU Energy System Towards 2060 – Model results of the EU-EnVis-2060 scenarios
Reza	Mokhtari	Price-aware building thermal control using deep reinforcement learning: Simulation and experiment
Ruben	van den Berg	Driving decarbonization: evaluation of a case study of green hydrogen-based transport in Nieuwegein, the Netherlands
Selim	Mimaroglu	Disaggregating Electric Heating in Commercial Buildings with Deep Learning: U.S. Challenges and Opportunities
Théo	Balanza	The role of flexibility in a sector-coupled European energy system
Tim Aidan	Graulich	Can surrogate modeling improve linking between sectoral energy system models?
Tuomas	Vanhanen	Comparison of carbon neutrality strategies on the peak power demand of a Nordic city
Wojciech	Kostowski	Beyond conventional cooling - investigation of the impact of RHVT implementation into the Linde refrigeration cycle
Yassine	El Alali	Comparison of community-based and individualized energy scenarios in the urban energy transition using multi-objective optimization
Zhaoming	Yang	New generation natural gas pipeline system: for smart and resilient future

Smart energy infrastructure and storage options

Benedict	Brosius	Optimal real-time operation of smart energy systems with seasonal storage under uncertainty
Curtis	Meister	Data-Driven Surrogate Models of Seasonal Thermal Energy Storage for MPC Applications – A Case Study on the Dronninglund Pit Storage
Jānis	Narbutis	Optimization of Thermal Energy Storage in Building Facades Using Phase Change Materials and Accumulation Tanks
Martin	Sollich	Optimal Heat Storage Sizing for District Heating Networks to Maximize Electricity Revenue from Combined Heat and Power Units
Mirjam	Särnbratt	Grid operators’ perspectives on battery energy storage as an alternative to grid expansion: opportunities and barriers to deployment
Muhammad	Talha Siddique	A Simplified Energy Balance Model to Estimate Thermal Energy Storage Potential in Swimming Pool Facilities
Paul	Volk	Renewable district heating systems in rural areas considering seasonal storage & decreasing use of biomass
Ralf-Roman	Schmidt	Risk Assessment for Seasonal Thermal Energy Storage in District Heating Networks
Shariq	Akbar	Optimal integration of seasonal thermal energy storage within a thermal source network - The planning phase
Thomas	Haupt	Home Energy Management Systems (HEMS): Market Overview – Germany compared to Europe

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Special session on Nordic Hydrogen Valleys

Anne	Neumann	Analyzing Regulatory Instruments for Emerging European Hydrogen Markets
Frederik	Dahl Nielsen	Nordic Hydrogen Hubs: A Multi-Model Framework for Regional Integration towards 2040
Frederik	Fristed	Hydrogen and CO2 infrastructures for Nordic maritime decarbonisation: a self-sufficiency perspective
Johannes	Giehl	Power-to-X for Green Fuels: Techno-Economic Optimization of Energy Hubs Under Different Power Supply and Carbon Pricing Scenarios
Maria	Grahn	Under what circumstances can hydrogen become a cost-effective fuel choice for a future global fleet of heavy-duty trucks
Marie	Münster	Exploring the competition between e-fuels and negative emissions for decarbonizing international transport in the Nordics
Rasmus	Bramstoft	Nordic and European hydrogen production in an uncertain future

Special session on Energy communities and positive energy districts

Annette	Steingrube	Practical implications of the positive Energy District concept
Jelena	Nikolic	Energy Cooperatives legal framework: Differences and similarities in Denmark, the Netherlands, and Norway
Mario	Mihetec	Energy Communities and Smart Systems: Catalysts for a Rapid Renewable Energy Transition
Martijn	Gerritsen	Varieties of PEDs: Positive Energy Districts as building blocks for strategic energy planning at the local level
Minh	Thu Nguyen	Inclusive communication ecology for smart energy systems: Case studies from Positive Energy Districts across Europe
Peter	Sorknæs	North and South, what is the difference: Energy communities across the Europe

Special session on Power-to-heat and thermal energy storage for faster and more affordable decarbonization

Hanne	Kauko	Reducing grid impact of zero-emission passenger ports through power-to-heat and thermal energy storage
Lill Mari	Engan	Impact of Seasonal Thermal Energy Storage on the Power System at Different Latitudes
Sebastian	Zwickl-Bernhard	Defining Flexibility: A Key Performance Indicator Framework for District Energy Systems under Uncertainty
Stian	Backe	Quantitative Impact of Flexible Thermal Energy Resources in Future European Energy System Pathways
Sverre	Stefanussen Foslie	Decarbonizing industrial process heat demands using hybrid solar thermal and photovoltaic systems in combination with thermal energy storages.
Till	Holmes	The role of thermal energy storage in providing flexibility for the decarbonization of industrial process heat and district heating
Whitney	Trainor-Guitton	Underground Thermal Energy Storage for Space Cooling: Reducing Electricity Grid Costs and Stress from National to District Scale

Special session on Energy transition and decarbonisation in the district heating sector

Andrea	Menapace	Unlocking Waste Heat Potential for District Heating Systems
Jacek	Kalina	What can we do in Bucharest? The issues of decarbonising large district heating systems.
Łukasz	Jendryasek	Modernization of a Cogeneration-Based DH Network: Low-Temperature Heat Recovery and Dual Heat Pump Integration in Opole Poland.
Marcel	Barzantny	Cracking the code of PTES – the impact of atypical geological conditions on seasonal heat storage performance in Opole
Mariusz	Tańczuk	Integration of distributed waste heat sources into second-generation district heating systems – technical and economic challenge.
Per Alex	Sørensen	Know-how package and toolkit for transition of DHC systems using low temperature sources and heat pumps
Vilūnė	Lapinskienė	Decarbonizing the Vilnius District Heating System: Modernization of the Heat Source in Naujoji Vilnia

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Special session on Medium-duration thermal energy storage – Technologies, capacities and challenges - A Joint Workshop by IEA-ES Tasks 42, 44, 45

Adriano	Sciacovelli	Carnot Batteries: Technological capabilities, challenges and emerging trends from IEA-ES task 44
Alice	Tosatto	Optimizing large-scale Thermal Energy Storage Envelope Design for Enhanced Energy and Exergy Efficiency in District Heating Systems
Gerald	Englmair	Latent thermal energy storage for data center application
Jianhua	Fan	Water pit thermal energy storage for district heating system
Ming	Chen	Potentials of molten salt for medium duration thermal energy storage
Morten	Herget Christensen	Heat pump and e-boiler hybrid systems for charging of thermal energy storages – Techo-economic analysis of district heating and industry applications

Special session on Medium-duration thermal energy storage – System perspectives - A Joint Workshop by IEA-ES Tasks 42, 44, 45

Frederick	Stender	Effects of different uses of molten salt storages in the national energy system – A case study on Denmark
Michael	Bayer	Cascading of sTES for optimal operation of DHC networks – Case study on a cooling dominated grid
Niels	van der Veer	Cost-effective and low-carbon heat supply using medium duration molten salt energy storage in the industry.
Puneet	Saini	A Python-based simulation model for pre-sizing of Solar District Heating systems with Pit Thermal Energy Storage
Silvia	Trevisan	Heat integrated Carnot Batteries for Decarbonized Industries – System Opportunities Mapping
Wim	van Helden	Accelerating the Role of Large Thermal Energy Storages as Elements for Medium and Long Duration Flexibility