SESAAU2025 - 11th International Conference on Smart Energy Systems

TENTATIVE ONLINE PROGRAMME (ALL PRESENTATIONS)

Update 08-07-2025

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
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
Giulia Anna Maria	**Castorino**	Energy and economic analysis of technologies suitable for energy transition in the hospital sector
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
James	**Gallimore**	Optimising heating and hot water systems in non-residential buildings prior to integration with low-carbon heat networks
Jan Eric	**Thorsen**	Reducing district heating return termperatures 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
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	**Ofili**	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	**Ghionda**	From Waste to Worth: Integrating a Double-Effect Heat Pump in a Pharmaceutical Industry for Process Cooling & District Heating
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

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
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
Oddgeir	**Gudmundsson**	Revealing the Hidden Potential of Energy Efficiency in DH Networks
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 CO2 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
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
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
Matteo	**Pozzi**	Bridging the skills and competence gap in District Heating & Cooling: the DHC Academy Alliance
Nicolas	**Marx**	Early-stage techno-economic assessment of DHC networks and individual systems - The FAST-DHC web-tool and its application to a UK case study

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
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

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 Senstivity 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
Kerstin	**Sernhed**	Heatwave Preparedness: Exploring District Cooling for Sustainable Urban Living
Leszek	**Pająk**	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

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
Pierre-Jean	**Delêtre**	Development and Implementation of a Real-Time Digital Twin for a Medium-Scale Air-Source Heat Pump
Rahul Mohandasan	**Karuvingal**	Advanced Modeling of District Heating Networks and Analysis using uesgraphs v2.0.0 Tool: A Case Study from a German Living Lab Project
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
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
Daniel	**Ruberg Nørhave**	Flexible steam production from high-temperature heat pump integrated with PCM storage
Jānis	**Narbuts**	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

TENTATIVE ONLINE PROGRAMME (ALL PRESENTATIONS)

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