Monday 15 September 2025 at 14:30 - 17:30 CET

Technical Tour: Waste-to-energy plant with CO2 capture

ARC and the upgraded CCS project
ARC (Amager Resource Centre) is a waste treatment company owned by five municipalities in Copenhagen. ARC runs the waste-to-energy plant Amager Bakke, 10 recycling centres, plus 12 minor near/local recyclingstations etc., and handles waste from 670,000 citizens and 68,000 companies. In 2024, ARC incinerated almost 610,000 tons of non-recyclable, residual waste and turned it into 198 GWh of electricity and 1,363 GWh of district heating. The vision of ARC is to make waste treatment and incineration net zero/carbon neutral. One step is by implementing an extra cleaning filter that captures CO2 from the flue gas. In 2025, we established the CopenCaptrue project in collaboration with the German energy company E.ON. The partnership aims to capture 400,000 tons of CO2 annually by 2030. A demonstration project began in 2021 and is now on its third demonstration unit. This is the first CCS project connected to a waste-to-energy plant in Denmark. The technology behind carbon capture is extremely energy intensive. By integrating CO2 capture into the district heating system, ARC's demonstration project aims to show that CO2 capture can be achieved with neutral energy consumption.

Meeting place: DGI Byen (Conference venue), Tietgensgade 65, DK-1704 Copenhagen

Programme
Transport from DGI Byen to ARC waste treatment plant and back
Presentation on Waste treatment in ARC and the Waste-to-Energy and Carbon Capture project
Guided tour incl. visit at CCS test facility and an optional visit to the recreational rooftop
Sandwich and refreshments

Limited number of seats

More information and registration via Conference website

SESAAU2025 - 11th International Conference on Smart Energy Systems

TENTATIVE PROGRAMME COPENHAGEN

Update 02-09-2025

Tuesday 16 September 2025

08:00-09:00	Registration and breakfast	Ground floor, Plenary room
09:00-10:45	**Plenary opening session**	
09:00-09:15	Opening speech	
09:20-09:50	**Keynote ŞIIR KILKIŞ**: Smart Energy Systems Targeted Mitigation in Urban Areas for Avoiding Increments of Global Warming	
09:55-10:25	**Keynote ASBJØRN HAUGSTRUP**: Outlook: Why is the heating of our homes attracting increased political attention and what is its role in Smart Energy Systems if we are to meet political targets?	
10:25-10:45	Debate	

10:45-11:15 Coffee and networking in sponsor area

11:15-13:00 Parallel sessions

Session 1	Session 2	Session 3	Session 4	Session 5	Session 6	Session 7	Special session
Ground floor Sankt Hans Torv	**Ground floor Nørrebros Runddel**	**Ground floor Spisehuset**	**1st floor Amager Strandpark**	**1st floor Kastrup Lufthavn**	**2nd floor Enghave Plads**	**2nd floor Vesterbro Torv**	**2nd floor Hovedbanegården**
4th Generation District Heating concepts, future district heating production and systems	**Components and systems for district heating, energy efficiency, electrification and electrofuels**	**Planning and organisational challenges for smart energy systems and district heating**	**4th Generation District Heating concepts, future district heating production and systems**	**Smart energy system analyses, tools and methodologies**	**Planning and organisational challenges for smart energy systems and district heating**	**Energy savings in the electricity sector, buildings, transport and industry**	**Special session on Energy communities and positive energy districts**
Chair: Lieve Helsen	**Chair: Peter Jorsal**	**Chair: Urban Persson**	**Chair: Anna Volkova**	**Chair: Erik Ahlgren**	**Chair: Kristina Lygnerud**	**Chair: Morten Jordt Duedahl**	**Chair: Mark Wiering**
Session keynote Sven Werner: Thermal lengths in district heating systems	**Session keynote Jakob Nymann Rud:** Transition to an Electrified and Low Temperature Heat Supply in Copenhagen	**Session keynote Bent Ole Gram Mortensen**: Price caps as part of the green transition	**Session keynote Jan Eric Thorsen**: Reducing district heating return temperatures by cascading concepts	**Session keynote Jack M. Kristensen:** Harnessing AI and IoT to Unlock Household Electricity Flexibility for a Smarter Energy Future	**Session keynote Connie Ocando**: Empowering the DHC Sector: Focus on Education and Skills	**Session keynote Lukas Kranzl:** Implementing the EPBD: the impact of policy settings on energy savings and heating system mix	**Session keynote Peter Sorknæs**: North and South, what is the difference: Energy communities across the Europe
Naomi Adam: Environmental Trade-Offs in Collective Heating Systems: A Life Cycle Perspective on Cluster Size	**Pauli Hiltunen**: District heating providing flexibility for the North European electricity system	**Laura Kuper**: Economic Risk Assessment of District Heating Network Topologies: A Scenario-Based Analysis of Consumer Connection Rate Uncertainties	**Jerik Catal**: Optimized Buildings for Decarbonized District Heating: A Measures Catalogue for Reducing Temperatures, Enhancing Flexibility, and Cutting Costs	**Antti Solonen**: Demand Side Response in large scale: the Virtual Heat Storage concept	**Marta Cavaleiro**: Bridging the skills and competence gap in District Heating & Cooling: the DHC Academy Alliance	**Ece Özer**: Bi-Level Optimization for Designing Subsidy Schemes for Staged Energy Retrofits in Residential Buildings	**Jelena Nikolic**: Energy Cooperatives legal framework: Differences and similarities in Denmark, the Netherlands, and Norway
Nina Dungworth: Practical considerations and results of optimising residential heat networks, focusing on consumer connection retrofit works	**Rasmus Frost Lund**: 200 MW air source heat pumps for district heating: Challenges in large-scale application	**Tim Mandel**: Who pays, who benefits? Multi-stakeholder cost-benefit analysis for strategic heat planning in three German neighbourhoods	**Dabrel Prits**: A Data-Driven Framework for Assessing Building Readiness for Low-Temperature District Heating	**Axel Johansson**: Exploring the Possibilities of Using Day-Ahead Environmental Impact Forecasts for Electricity Generation	**Jelena Ziemele**: Achieving Carbon Neutrality in District Heating: Lessons Learned from the Climate City Contract of the City of Riga	**Lars Hellemo**: Striving for realism in analyses of building retrofit potential for the green energy system transition with agent-based modelling	**Minh Thu Nguyen**: Inclusive communication ecology for smart energy systems: Case studies from Positive Energy Districts across Europe
Stanislav Chicherin: Design and Integration of 5th Generation District Heating and Cooling Systems: Economic Viability, Technical Methodologies, and Urban Applicability	**Davide Rizzi**: High-Temperature, Large-Scale Heat Pumps: The Key to Decarbonizing Energy Systems	**Anna Lackner**: Decarbonization Pathway Optimization and Risk Assessment for District Heating applied to a Polish Case Study	**Simran Chaggar**: A data driven approach within retrofit design to reduce emitter upgrades for commercial buildings connecting to low-temperature heat networks	**Michael Krause**: The impact of heat pumps on the electricity load: Evaluation of large sets of operational data including the simulation of future situations	**Lennart Trentmann**: Combining High Temporal and Spatial Resolution of District Heating Network Design – A Iterative Approach of DHN and Supply Structure Design	**Astrid Leitner**: Real-World Implementation of Residential Energy Management Systems: Balancing Thermal and Electrical Energy	**Martijn Gerritsen**: Varieties of PEDs: Positive Energy Districts as building blocks for strategic energy planning at the local level
Charlie Prétot: Innovative architectures of thermal source networks	**Abdulrahman Dahash**: Techno-economic advantages of coupling large-scale seasonal thermal energy storage with heat pumps in district heating systems	**Daniel Møller Sneum**: Financing district heating investments	**Julian Plautz**: Thermohydraulic Modeling and Simulation of a District Heating Network for the Optimization of Building Refurbishment Strategies	**Théo Balanza**: The role of flexibility in a sector-coupled European energy system	**Jonathan Hachez**: Methodology to develop an investment plan for heating and cooling systems under climate uncertainty	**Robert Puknat**: Optimizing residential energy systems in low-energy houses in timber-frame construction using Smart EMS for dynamic electricity pricing	**Annette Steingrube**: A practical assessment method for Positive Energy Districts
Esther Borkowski: Enhancing Model Accuracy in Grid-Integrated Building Control: A Semi-Systematic Literature Review of Hybrid Modelling Approaches	**Francesco Neirotti**: From waste to value: Circular Thermal systems and heat pumps driving industrial energy efficiency and decarbonization	**Jan Markowski**: Intelligent energy management in compressed air energy systems on the base of inverse problem solving	**Rahul M. Karuvingal**: Advanced Modeling of District Heating Networks and Analysis using uesgraphs v2.0.0 Tool: A Case Study from a German Living Lab Project	**Lorenzo Mario Pastore**: On the role of hydrogen in 100% renewable energy systems: an assessment of applications, costs and infrastructure in Italy by 2050	**Verena Alton**: Early-stage techno-economic assessment of DHC networks and individual systems - The FAST-DHC web-tool and its application to an Austrian case study	**Jonas Hoppe**: Renovation paths of single-family-houses and their impact on the heat transition in German districts	**Mario Mihetec**: Energy Communities and Smart Systems: Catalysts for a Rapid Renewable Energy Transition

Tuesday 16 September 2025

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13:00-14:15	**Lunch and networking**

14:15-16:00 Parallel sessions

Session 9	Session 10	Session 11	Session 12	Session 13	Session 14	Special session	Special session
Ground floor Sankt Hans Torv	**Ground floor Nørrebros Runddel**	**Ground floor Spisehuset**	**1st floor Amager Strandpark**	**1st floor Kastrup Lufthavn**	**2nd floor Enghave Plads**	**2nd floor Vesterbro Torv**	**2nd floor Hovedbanegården**
Institutional and organisational change for smart energy systems and radical technological change	**Smart energy system analyses, tools and methodologies**	**Smart energy infrastructure and storage options**	**Integrated energy systems and smart grids**	**Smart energy system analyses, tools and methodologies**	**Planning and organisational challenges for smart energy systems and district heating**	**Special session on Power-to-heat and thermal energy storage for faster and more affordable decarbonization**	**Special session on Energy transition and decarbonisation in the district heating sector**
Chair: Dagnija Blumberga	**Chair: Marie Münster**	**Chair: Dietrich Schmidt**	**Chair: Jan Eric Thorsen**	**Chair: Ingo Leusbrock**	**Chair: Bent Ole Mortensen**	**Chair: Hanne Kauko**	**Chair: Mariusz Tańczuk**
Session keynote Kristina Lygnerud: The impact of social sustainability on district heating competitiveness	**Session keynote Mirko Morini**: Predictive controller for optimal hydrogen generation and injection into the natural gas network	**Session keynote Ralf-Roman Schmidt**: Risk Assessment for Seasonal Thermal Energy Storage in District Heating Networks	**Session keynote Isabelle Best:** Dynamic supply temperature optimization of a complex nested district heating network	**Session keynote Carlos Santos Silva**: Using ENERGYPLAN to model energy systems with high spatial resolution: the case study of mainland Portugal electrical system	**Session keynote Lisa Hjerrild**: Regulative challenges of energy communities	**Session keynote Stian Backe**: Quantitative Impact of Flexible Thermal Energy Resources in Future European Energy System Pathway	**Session keynote Jacek Kalina**: What can we do in Bucharest? The issues of decarbonising large district heating systems
Frede Hvelplund: Fundamental policy changes in a transition from around 50% to around 100% Renewable Energy	**Dana Orsolits**: Coupling Power System and Gas Grids Through Dynamic Hydrogen Injection: Enhancing Flexibility in Smart Energy Systems	**Jānis Narbuts**: Optimization of Thermal Energy Storage in Building Facades Using Phase Change Materials and Accumulation Tanks	**Jacobus van Rooyen**: Operational strategy optimization under dynamic electricity prices; utilizing tank storages and high temperature seasonal storages	**Anders N. Andersen**: The role of Non-Asset Traders in the European Day-ahead and Intraday electricity markets	**Viktoria Illyés**: Adopting low-temperature heating and cooling networks in the core of sector-coupling energy communities: a multidisciplinary task	**Till Holmes**: The role of thermal energy storage in providing flexibility for the decarbonization of industrial process heat and district heating	**Vilūnė Lapinskienė**: Decarbonizing the Vilnius District Heating System: Modernization of the Heat Source in Naujoji Vilnia
Ruta Vanaga: Integrated Approach for Sustainable Urban Energy Transition: Citizen Engagement, System Dynamics Modeling, and Immersive VR Decision-Making Tools	**Diamantis Almpantis**: Smart Control Strategies for direct coupled PV-PEM Hydrogen Systems: Real-Time Optimization with Machine Learning Support	**Martin Sollich**: Optimal Heat Storage Sizing for District Heating Networks to Maximize Electricity Revenue from Combined Heat and Power Units	**Oddgeir Gudmundsson**: Revealing the Hidden Potential of Energy Efficiency in DH Networks	**Enno Wiebrow**: Enhancing Flow-Based Market Coupling with Uncertainty and Forecast Integration for Renewable Energies	**Saltanat Kuntuarova:** Game-theoretic modeling of energy-sharing communities within integrated district heating and electricity systems	**Sebastian Zwickl-Bernhard**: Defining Flexibility: A Key Performance Indicator Framework for District Energy Systems under Uncertainty	**Łukasz Jendryasek**: Modernization of a Cogeneration-Based DH Network: Low-Temperature Heat Recovery and Dual Heat Pump Integration in Opole Poland
Pascal Fröhlich: Historical Cost-Optimised Expansion of Renewable Energy Sources	**Bernd Riederer**: Smart control of hydrogen-based multi-energy systems	**Benedict Brosius**: Optimal real-time operation of smart energy systems with seasonal storage under uncertainty	**Marius Güths**: Optimization of energy flows with differing optimization goals on quarter level	**Mikkel Bue Lykkegaard**: Data Compression for Time Series Modelling: A Case Study of Smart Grid Demand Forecasting	**Enric Gonzalez Gonzalo**: Key findings on organizational and planning challenges across different actors on PEDs	**Lill Mari Engan**: Impact of Seasonal Thermal Energy Storage on the Power System at Different Latitudes	**Mariusz Tańczuk**: Integration of distributed waste heat sources into second-generation district heating systems – technical and economic challenge
Hironao Matsubara: Progress of Regional Decarbonization in Japan and Challenges to Realization	**Mathieu Patin**: Benchmarking Control Strategies for Multi-Stack Electrolyser Systems under Renewable Energy Variability	**Paul Volk**: Renewable district heating systems in rural areas considering seasonal storage & decreasing use of biomass	**Jinze Li**: Hybrid Renewable Energy Integration for Oil and Gas Power Supply: Optimization and Feasibility in China	**Ona Vassallo:** From combustion to conversion: Impact of heating demand decrease on district heating systems	**Fabian Ochs**: Design Workflow for Optimized Heat Pump Systems for Positive Energy Districts	**Sverre Stefanussen Foslie**: Decarbonizing industrial process heat demands using hybrid solar thermal and photovoltaic systems in combination with thermal energy storages	**Andrea Menapace**: Unlocking Waste Heat Potential for District Heating Systems
Alessandro Mati: Fueling sustainable aviation: prospects for electrofuels and policy frameworks	**Ruben van den Berg**: Driving decarbonization: evaluation of a case study of green hydrogen-based transport in Nieuwegein, the Netherlands	**Curtis Meister**: Data-Driven Surrogate Models of Seasonal Thermal Energy Storage for MPC Applications – A Case Study on the Dronninglund Pit Storage	**Jihong Hang**: Developing strategies for the electrification of Oil and Gas Industry in China	**Abdul Azzam**: A Model Predictive Control Framework for Integrated Thermal and Electric Systems in Multi-Energy Grids	**Katharina Esterl**: Importance of integrating models within a broader systematic perspective when planning local energy systems	**Whitney Trainor-Guitton**: Underground Thermal Energy Storage for Space Cooling: Reducing Electricity Grid Costs and Stress from National to District Scale	**Per Alex Sørensen**: Know-how package and toolkit for transition of DHC systems using low temperature sources and heat pumps
						Hanne Kauko: Reducing grid impact of zero-emission passenger ports through power-to-heat and thermal energy storage	**Marcel Barzantny**: Cracking the code of PTES – the impact of atypical geological conditions on seasonal heat storage performance in Opole

16:00-16:30	**Coffee break**

Tuesday 16 September 2025

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16:30-18:15 Parallel sessions

Session 17	Session 18	Session 19	Session 20	Session 21	Session 22	Session 23	Session 24
Ground floor Sankt Hans Torv	**Ground floor Nørrebros Runddel**	**Ground floor Spisehuset**	**1st floor Amager Strandpark**	**1st floor Kastrup Lufthavn**	**2nd floor Enghave Plads**	**2nd floor Vesterbro Torv**	**2nd floor Hovedbanegården**
4th Generation District Heating concepts, future district heating production and systems	**4th Generation District Heating concepts, future district heating production and systems**	**GIS for energy systems, heat planning and district heating**	**Renewable energy sources and waste heat sources including PtX for district heating**	**Energy savings in the electricity sector, buildings, transport and industry**	**Smart energy system analyses, tools and methodologies**	**Smart energy system analyses, tools and methodologies**	**Planning and organisational challenges for smart energy systems and district heating**
Chair: Carsten Ø. Pedersen	**Chair: Gareth Jones**	**Chair: Andreas Müller**	**Chair: Ralf-Roman Schmidt**	**Chair. Anders N. Andersen**	**Chair: Matteo Giacomo Prina**	**Chair: Carlos Santos Silva**	**Chair: Benedetto Nastasi**
Session keynote Anna Cadenbach: Influence of sector coupling on a district heating system in a German town: thermal simulation and comparison of different supply scenarios	**Session keynote Morten Karstoft Rasmussen**: End-user installation monitoring, diagnosing, and optimization at a very large scale	**Session keynote Steffen Nielsen**: High Resolution Spatial Mapping of Biogas Potentials and Site Selection – A Danish case study	**Session keynote Dagnija Blumberga**: Gaseous Bioresources Towards Climate Neutrality	**Session keynote Leif Holm Tambjerg**: Renewable and Affordable Industrial Process Heat supplied from District Heating	**Session keynote Erik Ahlgren**: Modeling long-term sectoral integration in urban energy transitions	**Session keynote Wojciech Kostowski**: Beyond conventional cooling - investigation of the impact of RHVT implementation into the Linde refrigeration cycle	**Session keynote Dietrich Schmidt**: Perspectives on the digitalization of the district heating systems
Ina Herrmann: Analysis of peak load reduction with configuration of district heating controllers and a newly developed optimization box	**Charlie Davies**: Developing a heat loss key performance indicator for district heat networks	**Giulia Spirito**: HeatNODE, a cost-optimized model for the creation of the Italian Atlas of potential district heating networks to recover industrial waste heat	**Sander Dijk**: Balancing the energy system: a system-integrated approach to enlarge biomethane feed-in capacity into the gas infrastructure and reduce fossil fuels	**Michał Majchrzyk**: Improving system efficiency using low temperature and latent waste heat	**Yassine El Alali**: Comparison of community-based and individualized energy scenarios in the urban energy transition using multi-objective optimization	**Nils Zimmerling**: Monitoring of district heating concrete ducts by measuring thermal parameters	**Johan Granberg**: Electricity grids in Energy Islands - A future scenario analysis with cyber security implications
Anna Dell'Isola: Upgrade of a Virtual 5th Generation District Heating and Cooling Network through Optimal Control	**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	**Alejandro Zabala Figueroa**: GIS-based data-driven simulation of load profiles in industrial and urban areas	**Rikke C. Pedersen**: A techno-economic analysis of infrastructure for CCS: Can biogas facilities benefit from a shared CO2 conditioning system?	**Valentin Kaisermayer**: Smart System Integration of Waste Heat Recovery, Heat Pumps and PV to Unlock the Energy Potential of Thermal Baths	**Martina Capone**: A Simulation-Optimization Framework to Support the Transition of District Heating Systems	**Nicholas Tedjosantoso**: Tensor-Based Modeling Framework for District Heating Pipes	**Jakub Skórczynski**: Cyber Resilience Act and NIS2: Two legislative initiatives on cybersecurity that might change the way we work with smart energy systems
Simon Müller: Optimizing the Operation of a Thermal Source Network Based on a Digital Twin Using Matlab/Simscape	**Lucrezia Manservigi**: Diagnosis of faults in district heating network components	**Marina Georgati**: A spatial assessment of the district heating potential in Europe	**Alisson Julio**: From Carbon Neutrality to Negative Emissions: Evaluating the Impact of CCUS on Energy Systems and Power-to-X supply	**Xin Bin:** Cost-Effective Retrofit of Heat Exchanger Networks in Dairy Industry: Integrating CIP Scheduling and Multiple Utility Sources	**Paula Oberfeier**: The role of reversible heat pumps in decarbonizing the heating sector under rising temperatures	**Ingeborg Treu Røe**: Smart integration of renewable energy technologies in heat- and power-intensive industries in Europe	**Marja Heikkinen**: Energy system modelling of urban infrastructures and energy storage – quantifying the impacts of policy (in)coherence
Nermina Abdurahmanovic: Simulation-based validation of an AI-supported operation strategy for sector-coupled district heating system	**Sajedeh Roustaei**: Data-driven approach for diagnosing inefficiencies and optimizing district heating networks	**Alina Kerschbaum**: Spatially-Explicit Technical Potential of Onshore Wind Energy in Germany: A Regulatory and Geographical Assessment	**Christian Schützenhofer**: Excess heat availability from a net zero emissions industry: sector-specific potentials considering widespread electrification and carbon capture	**Francesco Ghionda**: From Waste to Worth: Integrating a Double-Effect Heat Pump in a Pharmaceutical Industry for Process Cooling & District Heating	**Michel Noussan**: Evaluation of the hourly GHG intensity profiles of high-temperature heat pumps in industrial applications	**Bram van der Heijde**: Energy flexibility from smart district heating and cooling control in smart energy systems: An updated review	**Eike Schuler**: Do common multi-stage energy planning models underestimate regrets in the face of long-term uncertainties?
Theda Zoschke: Demonstration of model predictive control for optimal power dispatch in a district heating network with decentralized producers	**Alireza Etemad**: A Multi-Scale Analytical Framework for Assessing Flexibility, Feasibility, and Performance of Decentralised 4th-Generation District Heating Systems	**Anton Achhammer**: The impact of hydrogen underground storage on fair partnerships: A GIS-based integration of salt caverns into PyPSA-Earth	**Hrvoje Dorotić**: Participation of district heating systems in balancing power markets via power-to-heat technologies	**Rachel Parziale**: Monitoring the heat and electricity requirements in 4 northern German heat pump districts	**Ivan Sukhanov**: Adaptive demand-based logic for the Heat pump using supervised machine learning algorithms	**Alejo Silvarrey Barruffa**: IIsim: an source to source compiler of industrial process simulation models	**Théodore Fontenaille**: Rural Heating Networks: A Processual Approach for Overcoming Challenges and Identify Levers

19:30 **Conference dinner**

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Wednesday 17 September 2025

09:00-10:45 Parallel sessions

Session 25	Session 26	Session 27	Session 28	Session 29	Special session	Special session
Ground floor Sankt Hans Torv	**Ground floor Nørrebros Runddel**	**Ground floor Spisehuset**	**1st floor Kastrup Lufthavn**	**2nd floor Enghave Plads**	**2nd floor Vesterbro Torv**	**2nd floor Hovedbanegården**
Smart energy system analyses, tools and methodologies	**CCUS and PtX technologies and the production and use of electrofuels in future energy systems**	**Electrification of transport, heating and industry**	**4th Generation District Heating concepts, future district heating production and systems**	**Planning and organisational challenges for smart energy systems and district heating**	**Special session on Nordic Hydrogen Valleys**	**Special session on Medium-duration thermal energy storage – Technologies, capacities and challenges** - A Joint Workshop by IEA-ES Tasks 42, 44, 45
Chair: Paula Ferreira	**Chair: Haoshui Yu**	**Chair: Ruta Vanaga**	**Chair: Sven Werner**	**Chair: Stefan Holler**	**Chair: Iva Ridjan Skov**	**Chair: Peter Sorknæs**
Session keynote Costanza Saletti: RECoS – An open-source tool for multi-energy system analysis	**Session keynote Mehdi Savaghebi**: Unlocking Frequency Ancillary Services Potential in Eco-Industrial Clusters	**Session keynote Andra Blumberga**: Unintended long-term consequences of short-term climate and energy policy decisions: the case of diffusion of electric vehicles	**Session keynote Casper Hvilsted Nørgaard:** A Regional Approach to Offshore Wind: The Key to a Cheaper & More Resilient European Power System	**Session keynote Benedetto Nastasi**: Renewable District Cooling by leveraging renewable energy sources via advanced energy storage systems	**Session keynote Anne Neumann**: Analyzing Regulatory Instruments for Emerging European Hydrogen Markets	**Jianhua Fan**: Water pit thermal energy storage for district heating system
Gabriele Fambri: Deep reinforcement learning to explore multi-energy systems: a methodological approach	**Hossein Nami**: Grid Capacity-Aware Investment Roadmap for Sector-Coupled Industrial Clusters	**Marko Starčević**: The Role of Electric Vehicles as Flexible Consumers in Energy Communities	**Shiyan Chang**: Decarbonization of district heating in China	**Jacob Estevam Schmiedt**: Data for Optimizing Heat Supply Systems in Existing Districts	**Rasmus Bramstoft**: Nordic and European hydrogen production in an uncertain future	**Gerald Englmair:** Latent thermal energy storage for data center application
Gerrid Brockmann: Analysis of District Heating Network Configurations for a Suburban Region: a Senstivity Study about the Heat Demand Density and Supply Temperature	**Karl Vilén**: Impacts of Capacity Pricing Mechanisms and Motivation Tariffs in District Heating	**Arven Syla**: What is the interplay between smart charging, V2G and distributed charging infrastructure as flexibility options in the Swiss energy system?	**Dennis Lottis**: Simulation Study on Optimizing Substations: Challenges and Solutions in the Transition to Fourth Generation District Heating Systems	**Daniel Zinsmeister**: Transforming the Heating Sector: A Techno-economic Analysis of Munich's Local Heat Transition Planning	**Frederik Dahl Nielsen**: Nordic Hydrogen Hubs: A Multi-Model Framework for Regional Integration towards 2040	**Ming Chen**: Potentials of molten salt for medium duration thermal energy storage
Ethan St. Catherine: Heat Network Metering and Monitoring Standard: Regulating metering systems within UK heat networks	**Falk Birett**: Mapping the Gap: Analyzing the Status and Future Prospects of Power-to-X Deployment in Germany	**Endeshaw Bekele**: Optimal Strategies for a Zero-Emission Transport Sector in 100% Renewable Energy Cities	**Femke Janssen**: Roll-Out Strategy Optimization for District Heating Networks	**Lars Goray**: F|Heat – An Open Software Ecosystem for Municipal Heat Planning	**Marie Münster**: Exploring the competition between e-fuels and negative emissions for decarbonizing international transport in the Nordics	**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
Tuomas Vanhanen: Comparison of carbon neutrality strategies on the peak power demand of a Nordic city	**Julian Straus**: Modelling details matter – Representation of electrolysis in energy system models	**Antonia Golab**: Density and speed of public charging infrastructure rollout: Accelerating the electrification of the passenger car stock at the federal state level	**Andrea Franzoso**: Multi-Agent Deep Reinforcement Learning for Optimized Operation of Industrial Energy Systems	**Abdulraheem Salaymeh**: Techno-Spatial Evaluation of the Practical Usability of Industrial Waste Heat in Urban Heating Systems	**Johannes Giehl**: Power-to-X for Green Fuels: Techno-Economic Optimization of Energy Hubs Under Different Power Supply and Carbon Pricing Scenarios	**Adriano Sciacovelli:** Carnot Batteries: Technological capabilities, challenges and emerging trends from IEA-ES task 44
Budareld Mbumba: Challenges and prospects of electricity access in Angola	**Alexander Meisinger**: Financing energy partnerships beyond Europe through H2Global: A case study on the way to a German-African energy transition	**Delight Ezeh:** Techno-economic assessment of flexible electrification systems for heat decarbonization in hard-to-abate industries	**Bart Homan**: Exploring options for optimizing the energy consumption, production and storage of the Ecofactorij business park using HIL simulation	**Oskay Ozen**: A Qualitative Investigation of German Manufacturing Companies' Efforts to Incorporate Sustainability Into Production Site Transformations	**Frederik Fristed**: Hydrogen and CO2 infrastructures for Nordic maritime decarbonisation: a self-sufficiency perspective	**Alice Tosatto**: Optimizing large-scale Thermal Energy Storage Envelope Design for Enhanced Energy and Exergy Efficiency in District Heating Systems
					Maria Grahn: Under what circumstances can hydrogen become a cost-effective fuel choice for a future global fleet of heavy-duty trucks	

10:45-11:15 **Coffee and networking in sponsor area**

Wednesday 17 September 2025

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11:15-13:00 Parallel sessions						
Session 32	**Session 33**	**Session 34**	**Session 35**	**Session 36**	**Session 37**	**Special session**
Ground floor Sankt Hans Torv	**Ground floor Nørrebros Runddel**	**Ground floor Spisehuset**	**1st floor Kastrup Lufthavn**	**2nd floor Enghave Plads**	**2nd floor Vesterbro Torv**	**2nd floor Hovedbanegården**
Energy savings in the electricity sector, buildings, transport and industry	**CCUS and PtX technologies and the production and use of electrofuels in future energy systems**	**Smart energy system analyses, tools and methodologies**	**4th Generation District Heating concepts, future district heating production and systems**	**Planning and organisational challenges for smart energy systems and district heating**	**Smart energy system analyses, tools and methodologies**	**Special session on Medium-duration thermal energy storage – System perspectives** - A Joint Workshop by IEA-ES Tasks 42, 44, 45
Chair: Mirko Morini	**Chair: Richard van Leeuwen**	**Chair: Jacek Kalina**	**Chair: Robin Wiltshire**	**Chair: Lukas Kranzl**	**Chair: Dirk Vanhoudt**	**Chair: Geoffroy Gauthier**
Session keynote Lieve Helsen: A system of systems approach to decarbonize heating and cooling in the built environment	**Session keynote Haoshui Yu:** Exploring optimal Power-to-Methanol configuration with SOEC-based technologies	**Session keynote Leszek Pająk**: Utilization of a deep geothermal borehole heat exchanger HOCLOOP solution in cooperation with existing coal-fired district heating	**Session keynote Tom Burton:** An Overview of proposed Technical Assurance Requirements for Existing Heat Networks in the UK	**Session keynote Andreas Müller**: The potential of local heat networks in the city of Vienna	**Session keynote Matteo Giacomo Prina:** Evaluating Machine Learning Robustness as an EnergyPLAN Surrogate Model for Uncertainty Analysis	**Niels van der Veer**: Cost-effective and low-carbon heat supply using medium duration molten salt energy storage in the industry
Jaap Neven: Evaluating Model Predictive Control Performance with Various Combinations of Building RC-Models and State Observers	**Hans Gelten**: Power-to-Methanol: Techno-Economic Analysis of a regional, decentral case-study	**Dmitry Romanov**: Applicability of pygfunction for modelling deep coaxial borehole heat exchangers	**Eoin O Broin:** Heat Recovery from Wastewater Treatment Plants to Supply Existing Buildings with Low-Carbon Heat via District Heating	**Clara Büttner**: Open source tools and data for cross-sectoral grid planning on all voltage levels	**Jonathan Sejdija**: A Probabilistic Framework for Analyzing Uncertainty in Industrial Energy Supply and PPA Portfolios	**Frederick Stender**: Effects of different uses of molten salt storages in the national energy system – A case study on Denmark
Arttu Häkkinen: Bayesian LSTM for indoor temperature modeling	**Meng Yuan**: European Energy Independence: Trade-offs in Domestic Production vs. Renewable Fuel Import	**Matthias Posch**: Effect of hot air welding parameters on the ageing behaviour of polyethylene liners	**Milad Morid Zadeh**: Smart waste heat recovery in a Danish supermarket refrigeration system	**Ryoga Ono**: Strategic planning for installation of district heating systems in Japan: Opportunities and Challenges	**Anna Billerbeck:** Modelling climate-neutral district heating in energy system models – insights from an expert survey	**Silvia Trevisan**: Heat integrated Carnot Batteries for Decarbonized Industries – System Opportunities Mapping
Karl Walther: The advantages of integrated versus non-integrated optimal control for district energy systems and buildings: Insights from four case studies	**Leon Schumm:** Green Steel: Integrated Modeling of Global Value and Supply Chain Configurations and Trade	**Christoph Komanns**: Evaluating Peak Shaving Potential with Open-Source Software	**Nirav Patel**: A techno-economic feasibility study of 5th generation district heating and cooling in Vienna	**Thuvaraahen Nagendiram**: Strategic Heat Planning for Decarbonisation: Insights from Denmark and Implications for China's Clean Heating Development	**Allan Iraqi**: A generic substation heating power forecasting approach using machine learning	**Wim van Helden**: Accelerating the Role of Large Thermal Energy Storages as Elements for Medium and Long Duration Flexibility
Jiyuan Cui: Optimizing the operation of an integrated energy system for a small district using a two-level control strategy	**Fabio Bozzolo Lueckel**: Deployment of hydrogen in energy systems: finding the right policies to foster a nascent industry	**Niklas Denter**: Modelling battery waste heat recovery for sector-coupled power-heat systems in district heating planning	**Jonathan Chambers**: 5th Generation District Heating and Cooling with TESSA – pilot project in a UNESCO world heritage site	**Wiebke Gerth:** Automated planning of multiple-supply heating networks within the framework of greenfield planning	**Jonne van Dreven**: Generalising Fault Signatures for Robust District Heating Substation Monitoring	**Michael Bayer**: Cascading of sTES for optimal operation of DHC networks – Case study on a cooling dominated grid
Steen Schelle Jensen: Potential of real-time end to end optimization of the full district heating system from heat source to distribution and demand	**Ramin Ghiami Sardroud**: Detailed energy and techno-economic comparison of three CO_2-to-methanol integration pathways: Novel direct CO_2 capture and electrolysis	**Aleksandra Banasik**: Experimental Investigation of a PCM Storage Unit with Process Visualization	**Sylvester Ofili:** Feasibility Analysis of Geothermal Energy Integration in Ultra-Low Temperature District Heating Networks	**Giulia Anna Maria Castorino**: Energy and economic analysis of technologies suitable for energy transition in the hospital sector	**Philipp Herpich**: Charting the EU Energy System Towards 2060 – Model results of the EU-EnVis-2060 scenarios	**Puneet Saini**: A Python-based simulation model for pre-sizing of Solar District Heating systems with Pit Thermal Energy Storage

13:00-14:00	**Lunch and networking**

14:00-16:15	**Plenary closing session**	Ground floor plenary room
14:15-14:45	**Keynote PHILIP CHRISTIANI**: Europe's Energy Pivot: A Strategic Blueprint for a Prosperous and Secure Energy Future	
14:50-15:20	**Keynote LILY BERMEL**: The state of U.S. clean energy investment and policy	
15:20-15:45	Debate	
15:50-16:05	Best Presentation Award ceremony	
16:05-16:15	Closing	

Thursday 18 September 2025 at 08:20 - 11:30 CET

Technical Tour: Energy renovation of buildings

Introduction to building renovations and visit to renovated building
Building renovation plays a vital role in the green transition. With buildings responsible for nearly 40% of global energy consumption and a significant share of CO_2 emissions, energy-efficient building renovation is essential to meet climate targets. In Europe, up to 95% of the 2050 building stock already exists – making renovation, rather than new construction, the key to a sustainable future. During the tour of Industriens Hus, State of Green will first present their latest White Paper on "Building Renovations" in the "House of Green", an interactive showroom and visitors' centre, followed by a tour of the "Confederation of Industry's" renovated building.

Meeting place: Industriens Hus (Danish Industry), H.C. Andersens Boulevard 18, DK-1553 Copenhagen

Programme
08:20: We meet at the Reception in Industriens Hus. Participants can leave luggage and coats at the reception.
08:30-09:30: Walk to House of Green. Coffee and introduction to the green transition of Denmark and presentation on Energy Renovation of Buildings.
09:40-11:00: Guided tour in the renovated building and presentation of green, smart energy solutions. During this part, participants are divided into groups.
11:00-11:15: View from roof top.
11:15-11:30: Refreshments and end of tour

Limited number of seats

More information and registration via Conference website