ECEMP

European Climate + Energy Modelling Platform

European Climate and Energy Modelling Platform 2024 (ECEMP)
Brussels and online
16th to 17th October 2024

Energy Transition Scenarios for a Climate Neutral Europe

ECEMP 2024 is on! Reaching climate neutrality will require large-scale deployment of renewable energy technologies, improving energy efficiency, and strengthening energy security. This demands significant investment in energy infrastructure and incentivizing innovation in the Energy Transition. Energy and climate models offer valuable insights to chart a path towards a carbon-neutral future. **ECEMP 2024** is dedicated to showcasing the latest policy-relevant findings derived from analyses of climate and energy models. It also offers a unique opportunity to share advancements in energy and climate modelling with policymakers, peers, and the interested public.

The conference is co-hosted by the European Commission through the Directorate-General for Energy, the Directorate-General for Climate Action, the Directorate-General for Research and Innovation, and the European Climate Infrastructure and Environment Executive Agency (CINEA). ECEMP aims to serve as a platform for discussing research results and providing policy insights. The ECEMP 2024 Conference will span two days, featuring a diverse range of sessions, plenary discussions, and networking opportunities.

Day 1 – 16th October: Policies to reach Climate Neutrality

09:45-10:00 **ECEMP Welcome**

10:00-11:30 **Plenary I:** Energy Vision Scenarios for Europe: Latest trends, results, and EU reference scenario

11:30-13:00 **Parallel sessions I:**

Energy Policy	Net-Zero Targets & Sectors	Climate Change Impact	Policy and Socio-Econ impacts

13:00-13:45 **Lunch**

13:45-15:15 **Parallel sessions II:**

Climate Change Impact	Industrial Sector	Decarboni-zation Strategies	Circular Economy

15:15-15:45 **Coffee break**

15:45-17:00 **Plenary II:** The European Energy and Climate modelling landscape

19:15-21:00 **Conference Dinner**

Day 2 – 17th October: Frontiers in Energy and Climate Modelling

09:45-10:00 **Welcome**

10:00-11:30 **Plenary III:** Inter-operability in energy and climate models, researcher needs, data needs, and transparent insights

11:30-13:00 **Parallel sessions III:**

Building Sector	Energy Carriers & Materials	EU Projects in Africa	Data and modelling approaches

13:00-13:45 **Lunch**

13:45-15:30 **Parallel sessions IV:**

GHG Emission Targets	Energy Systems Modelling	Energy Scenarios in Global South	Skills Workshop

15:30-16:00 **Coffee break**

16:00-16:30 **Towards ECEMP 2025 and Closing**

ECEMP 2024 will feature segments dedicated to policy-relevant research results (mostly Day1) as well as in-depth discussions on the latest trends in modelling development (Day 2). The conference will be streamed online, with some parallel sessions available exclusively for online attendees. **ECEMP has a hybrid format, allowing for both online and in-person attendance. For online participants please register to this link,** for in-person attendance please email organizers.

For further information please visit the conference website or contact us at: ecemp@ecemf.eu.

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ECEMP 2024 - Programme at a Glance

Plenary I: Energy Vision Scenarios for Europe: Latest trends, results, and EU decarbonisation strategies

How to make climate and energy modelling sexy? Jan Rosenow (RAP/Oxford U.)

Exploring EU's energy system transformation in the context of climate neutrality, Maria Kannavou(E3M)

European Energy Vision 2060: Charting Diverse Pathways for Europe's Energy Transition. Mostafa Barani (NTNU) and Hans Auer (TUW)

European Climate targets and Energy System Transformation Bert Saveyn (DG Energy, EU Commission) and Alban Kitous (DG Clima, EU C.)

Plenary II: The European Energy and Climate Modelling Landscape

EC vision for optimizing climate and energy modelling to better serve EU policy objectives, Philippe Tulkens (Head of Unit Climate and Planetary Boundaries, DG RTD, EU Commission)

The EFECT forum for developing policy and industry relevant insights based on modelling missions, Asgeir Tomasgard (Director NTNU Energy)

The ECEMF forum as a legacy structure to coordinate energy and climate modelling in Europe, Will Usher (KTH)

Plenary III: Inter-operability in energy and climate models, researcher needs, data needs, and transparent insights

Working with data across different model types for research purposes. Christoph Schimeczek (DLR)

Data and Modelling Challenges for EU energy and climate scenarios. Francesco Ferioli (DG Energy, EU Commission)

The modelling process of the Dutch Climate and Energy Outlook. Marit van Hout (PBL)

Parallel Session I

Energy Policy
- *Efficiency and Equity in Green Transitions,* **Camilli (Prometeia)**
- *Market Designs and Values in TradeRES,* **Schimeczek (DLR)**
- *IAM and Policy Response Mechanism,* **Heussaff (Bruegel)**
- *Interconnector expansion: A Pareto Efficiency,* **Emelianova (Köln)**

Net-Zero Targets and Cross-Sector Interactions
- *Transformation of the energy supply sector,* **Baka (E3M)**
- *Towards climate-neutrality in the EU,* **Pietzcker (PIK)**
- *Methanol production and imports,* ***Maenner (Fraunhofer)***
- *Transport Decarbonization in the Basque Country,* **Golab (TUW)**

Climate Change Impacts (online)
- *Climate Targets and Demand-Side Policies,* **Vivier (CIRED)**
- *Green transition and macro-financial risks,* **Ciola (UNIBS)**
- *Industry-specific effects of GHG reduction,* **Gumin & Lee (Seoul)**
- *Narrative on the decarbonisation process,* **Cotroneo (ENEA)**
- *Estimating Climate Damage Functions,* **Mekki (SEURECO)**

Policy and Socio-Economic Impacts (online)
- *Fit-For-55 and beyond,* **Di Bella (Politecnico di Milano)**
- *Assessing the Impact of CDR on the EU ETS,* **Osorio (PIK)**
- *China's strategies to the EU CBAM,* **Vielle (EPFL)**
- *Integrated Energy and Land Planning Policies,* **Ferreras (CARTIF)**

Parallel Session II

Industrial Sector
- *Co-optimizing industry and energy system,* **Burghardt (Freiburg)**
- *Narratives of SSP 3.0 for the industrial sector,* **Maczek (IIASA)**
- *Effects of Industrial Policy Nationalism,* **Baka (E3M)**
- *Advancing hydrogen infrastructure planning,* **Namazifard (Vito)**

Climate Change Impacts
- *Economics of climate policy instruments,* **Antosiewicz (Kobize)**
- *Climate change impact on power generation,* **Schoeninger (AIT)**
- *Analyze Climate Heterogeneity,* **Ramos (UC3M)**
- *Climate Projections and Agent-Based Modelling,* **Guven (ITU)**
- *Energy investments of a 1.5°C target,* **Van der Vorst (EC)**

Decarbonization Strategies (online)
- *Decarbonization Strategies in Building Stock,* **Oezer (TU Wien)**
- *Demand-Side Mitigation Potentials,* **Muessel (PIK)**
- *Green H2 Ambition and Implementation Gap,* **Odenweller (PIK)**
- *Policies of the European green hydrogen sector,* **Kirchem (DIW)**

Circular Economy and Industry (online)
- *Circular Strategies and Low-Carbon Buildings,* **Mastrucci (IIASA)**
- *Circular Economy and Low-Carbon Industry,* **Lotz (Fraunhofer ISI)**
- *Modelling Material and Energy Flows,* **Martin (ip-Paris)**

Parallel Session III

Building Sector
- *Agent-based modeling of the building stock,* ***Alibas (Fraunhofer)***
- *Data-driven demand-side management,* ***Papantonis (IEECP)***
- *Lessons from Climate City Action plans,* ***Mougin (eurocities)***
- *Building stock life cycle scenario assessment,* ***Roeck (Leuven)***

Energy Carriers & Materials
- *Electrification, hydrogen and e-fuels,* ***Zhang (PSI)***
- *Integrated energy system and materials flow model,* ***Fortes (FCT)***
- *GHG along the construction value chain,* ***Simões (LNEG)***
- *Capacity expansion & production cost models,* ***Kleanthis (UNIPI)***

Data and Modelling Approaches (online)
- *The Joint Research Centre's Integrated Database*, **Jaxa-Rozen (EC)**
- *Sharing model instances between models*, **Kiviluoma (VTT)**
- *Georeferenced Building Characterization*, **Arrizabalaga (Tecnalia)**
- *Integrated Modelling Capacities for industry*, **Munoz (Tecnalia)**
- *Screening Curves in Net-Zero Energy Systems,* ***Walde (Köln)***

Advancing Africa's Energy System (online)
- The Continental Master Plan, **Crispen Zana (AUDA NEPAD)**
- *Open Modelling Toolbox for Africa,* ***Gashaw (Veritas Consulting)***
- *Potential of Off-Grid Systems in Mozambique*, **Cuamba (UEM)**
- *Hydrogen and Ammonia trade: Europe and MENA*, **Fattahi (TNO)**
- Advancing long term planning (panel discussion)

Parallel Session IV

GHG Emission Targets
- *Black box of fair emission reduction targets,* **Dekker (PBL)**
- *2040 EU GHG reduction targets,* **Rodrigues (PIK)**
- *Socio-economic implications of EU climate targets,* **Garaffa (EC)**
- *Disruptive events and related scenarios,* **Al Khourdajie (Imperial)**

Energy System Modeling
- *Sectoral and full-system model comparison,* **Gusheva (TU Delft)**
- *Role of nuclear in France and Europe,* **Juergens (Fraunhofer)**
- *Downscaling energy system models,* **Launer (TU Delft)**
- *Energy system modeling and regional policy,* **Prina (EURAC)**

Energy Scenarios in Global South (online)
- *Designing the Future Power System of Kenya,* **Shen (NTNU)**
- *Energy Trade Between Africa and Europe,* **Kousoulos (Cyprus)**
- *Bolivian Path to a Sustainable Energy Mix,* **Balderrama (UMSS)**

Skills workshop (online)
- *A Recursive Dynamic CGE model,* **Fragkiadakis (E3M)**
- *A post-Keynesian Modelling Framework*, **Pirie (Cambridge)**
- *Residential Energy Demand,* **Pflugradt (Juelich)**
- *Household Electricity Consumption,* **Quesada (Deusto University)**

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Day 1 | 16th October | Policies to reach Climate Neutrality

Brussels location: European Commission at CDMA Building, 21 Rue du Champ de Mars / Marsveldstraat 21, B-1050 Brussels

Online Teams link: Ms Teams

09:45-10:00	**ECEMP Welcome**	*Pedro Crespo Del Granado, NTNU (Chair of ECEMP 2024 and Coordinator of iDesignRES)*
10:00-11:30	**Plenary I: Energy Vision Scenarios for Europe: Latest trends, results, and EU decarbonization strategies**	Plenary Presentations and Panel Discussion | Chair: *Sebastian Zwickl-Bernhard, TUW/NTNU* • **How to make climate and energy modelling sexy?** – *Jan Rosenow, RAP/Oxford* • **Exploring EU's energy system transformation in the context of climate neutrality** – *Maria Kannavou, E3M* • **European Energy Vision 2060: Charting Diverse Pathways for Europe's Energy Transition** – *Mostafa Barani, NTNU and Hans Auer, TUW* • **European Climate targets and Energy System Transformation** – *Bert Saveyn, DG Energy, EU Commission, and Alban Kitous, DG Clima, EU Commission* **Panel Discussion –** Chair: Hans Auer
11:30-13:00	**Parallel Sessions I**	In-Person Room 1: **Energy Policy** | Chair: *Will Usher* (KTH) • Efficiency and Equity in Green Transitions: A Fiscal Policy Perspective – *Andrea Camilli, Prometeia* • Assessments of Market Designs and Market Values in TradeRES Considering Actor Decisions – *Christoph Schimeczek, DLR* • Advancing policy-relevant, stakeholder-driven integrated assessment modelling through a novel approach: the Policy Response Mechanism – *Conall Heussaff, Bruegel* • Redistribution through interconnector expansion: How to achieve Pareto – *Polina Emelianova, University of Cologne*

In-Person Room 2: **Net-Zero Targets and Cross-Sector Interactions** | Chair: *Juha Kiviluoma (VTT)*

- Domestic Production versus Imports: How to Supply Europe with GHG-neutral Methanol – *Wolfgang Maenner, ISI Fraunhofer Cologne*
- Transformations of the energy supply sector towards EU's net-zero goal – *Maria Iro Baka, E3M*
- Understanding the transformation towards climate neutrality in the EU - decade by decade – *Robert Pietzcker, PIK*
- *M*odelling spatio-temporal transport decarbonization pathways in the Basque country – *Antonia Golab, TUW*

11:30-13:00 **Parallel Sessions I**

Online Teams Room 1: **Climate Change Impacts (online)** | Chair: *Jody Dillon (Energy Reform)*

- Meeting Climate Targets with realistic Demand-Side Policies in the residential sector in the EU-27 – *Lucas Vivier, CIRED*
- Taking the green pill: Directed technical change, green transition and related macro-financial risks in the MATRIX model – *Rizzati Massimiliano and Emanuele Ciola, UNIBS*
- Industry-Specific Effects of GHG Reduction on Korean Corporate Value: A Differential Target Management Approach – *Jung Gumin & Shin Lee, University of Seoul*
- The Narrative on the Decarbonisation and Energy Transition Process in Brindisi Municipality – *Rossana Cotroneo, ENEA*
- Estimating climate damage functions by type of damage for EU countries – *Hayat Mekki, SEURECO*

Online Teams Room 2: **Policy and Socio-Economic Impacts (online)** | Chair: *Erik Delarue (KU Leuven)*

- Fit-For-55 and beyond: European power system transition and its social impact – *Alice Di Bella, Polimi*
- Assessing the Impact of CDR on the EU ETS – *Sebastian Osorio, PIK*
- Trade War to Cooperation: Scrutinizing China's strategies to the EU Carbon Border Adjustment Mechanism – *Marc Vielle, EPFL*
- Evaluation of integrated energy and land planning policies to alleviate undesired impacts of the energy transition – *Noelia Ferreras, CARTIF*

13:00-13:45 **Lunch**

13:45-15:15 **Parallel Sessions II**

In-Person Room 1: **Industrial Sector** | Chair: *Antonia Golab (TUW)*

- Efficiency and Equity in Green Transitions: A Fiscal Policy Perspective – *Celia Burghardt, INATECH*
- Assessments of Market Designs and Market Values in TradeRES Considering Actor Decisions – *Florian Maczek, IIASA*
- Economic and Environmental Effects of Industrial Policy Nationalism – Maro *Baka, E3M*
- Advancing Hydrogen Infrastructure Planning: A Scalable Bottom-Up Approach to Demand and Supply Scenarios for Optimal Network Configuration in Belgium, The Netherlands, and North Rhine Westphalia, Germany – *Namazifard, Vito*

In-Person Room 2: **Climate Change Impacts** | Chair: *Pedro Crespo del Granado (NTNU)*

- Energy investments and supply chain implications of a 1.5°C target – *Camille Van der Vorst, EC*
- Economic interaction between climate policy instruments – Marek *Antosiewicz, Kobize*
- Climate change impact on electricity generation and demand profiles in Europe until 2100 – *Franziska Schoeninger, AIT*
- An Unconditional-Quantile Vector Error Correction Model to Analyze Climate Heterogeneity – *Andrey Ramos, UC3M*
- Integration of Climate Projections into Agent-Based Modelling for Electricity Sector Analysis in Türkiye – Denizhan *Guven, ITU*

Online Teams Room 1: **Decarbonization Strategies** | Chair: *Diego Tejada Arango (TNO)*

- Evaluating Decarbonization Strategies in Building Stock: A Multi-Model Comparison of Electrification and Alternative Approaches – *Ece Oezer, TUW*
- Demand-side mitigation potentials: An integrated modeling perspective on shifts in transport activity – *Jarusch Muessel, PIK*
- The green hydrogen ambition and implementation gap – *Adrian Odenweller, PIK*
- Policies of the European green hydrogen sector – *Kirchem, DIW*

Online Teams Room 2: **Circular Economy and Industry** | Chair: *Glenn Reynders (KU Leuven)*

- Circular strategies for a low-carbon building sector in Europe – *Xiaoyang Zhong, IIASA*
- Moving towards a circular economy and a low-carbon industry – *Meta Thurid Lotz, Fraunhofer ISI*
- Integrated Modelling of material and net energy flows: towards a dynamic and system Energy Return on Energy Invested – *Tristan Martin, ENPC*

15:15-15:45 **Coffee break**

15:45-17:00 **Plenary II:**

The European Energy and Climate Modelling Landscape

Plenary Presentations and Panel Discussion | Chair: *Johannes Emmerling*, EIEE

- **EC vision for optimizing climate and energy modelling to better serve EU policy objectives** – *Philippe Tulkens, Head of Unit Climate and Planetary Boundaries, DG RTD, EU Commission*
- **The EFECT forum for developing policy and industry relevant insights based on modelling missions** – *Asgeir Tomasgard, Director NTNU Energy*
- **The ECEMF forum as a legacy structure to coordinate energy and climate modelling in Europe** – *Will Usher, KTH*

19:15-21:00 **Conference Dinner**

Day 2 | 17th October | Frontiers in Energy and Climate Modelling

Brussels location: Lombardy Region Delegation office, Place du Champ De Mars, 1/3 - B 1050 Bruxelles

Online Teams link: Ms Teams

09:45-10:00 **Welcome**

10:00-11:30 **Plenary III:**
Inter-operability in energy and climate models, researcher needs, data needs, and transparent insights

Plenary Presentations and Panel Discussion | Chair: *Juha Kiviluoma, VTT*

- **Working with data across different model types for research purposes** – *Christoph Schimeczek, DLR*
- **Data and Modelling Challenges for EU energy and climate scenarios** – *Intervention by DG Francesco Ferioli, DG Energy, European Commission*
- **The modelling process of the Dutch Climate and Energy Outlook** – *Marit van Hout, PBL*

11:30-13:00 **Parallel Sessions III**

In-Person Room 1: **Building Sector** | Chair: *Johannes Emmerling* (EIEE)

- Modeling Decarbonization Scenarios of the Building Stock in Germany: An Agent-Based Approach – *Sirin Alibas, ISI Fraunhofer*
- Advancing integrated and smart renovation packages for efficient, sustainable, and inclusive energy use: A modelling analysis of real-life residential pilots across the European Union – *Dimitris Papantonis, IEECP*
- Data-driven insights for accelerating climate neutrality action in the 112 European cities: Lessons learnt from Climate City Contract Action plans – *Charline Mougin, Eurocities*
- Building Stock Life Cycle Scenario Assessment for supporting EU Reduction Roadmaps on Whole Life Carbon of Buildings – *Martin Roeck, KU Leuven*

11:30-13:00 **Parallel Sessions III**

In-Person Room 2: **Energy Carriers & Materials** | Chair: Sebastian Zwickl-Bernhard (NTNU)

- The Role of Electrification, Hydrogen and E-fuels on the Road to Climate Neutrality – *Meixi Zhang, PSI*
- Can circular economy strategies support EU decarbonization targets? Insights from an integrated Energy System and Materials Flow modelling framework – *Patricia Fortes, FCT NOVA*
- Modelling GHG mitigation along the construction value chain: how to consider energy and materials flows in the EU – *Sofia Simões, LNEG*
- Bidirectional soft-linking of a Capacity Expansion Model with a Production Cost Model to evaluate the feasibility of transition pathways to carbon neutrality in the power sector – *Nikos Kleanthis, TEESlab*

Online Teams Room 1: **Data and Modelling Approaches** | Chair: *Juha Kiviluoma (VTT)*

- Sharing model instances between models – *Juha Kiviluoma, VTT*
- The Joint Research Centre's Integrated Database of the European Energy System (JRC-IDEES-2021): Supporting high-resolution energy sector modelling in the European Union – *Marc Jaxa-Rozen, EC*
- Data processing for georeferenced building characterization aimed at energy modelling of different NUTS level 2 regions of Europe – *Eneko Arrizabalaga, Tecnalia*
- Expanding integrated modelling capacities for EU industry: lessons learnt in regional workshops with stakeholders and their needs – *Inigo Munoz, Tecnalia*
- Screening Curves in Net-Zero Energy Systems: Insights and Limitations – *Maximilian Walde, Köln University*

Online Teams Room 2: **Advancing Africa's Energy System** | Chair: *hosted by EU related projects*

- The Continental Master Plan - *Crispen Zana,* AUDA NEPAD
- Open Modelling Toolbox for Africa (OM4A) - Case Study for Eastern African Region - *Kanchwodia Gashaw, Veritas Consulting*
- The Potential of Off-Grid Systems in Enhancing Rural Electrification and Securing SDG7 in Mozambique - *Boaventura Cuamba*, *Gilberto Mahumane*, *University Euduardo Mondlane*
- Implications of Hydrogen and Ammonia trade between Europe and MENA - *Amir Fattahi, TNO*

- Advancing long term planning, collaboration and capacity development. (panel discussion)

13:00-13:45 **Lunch**

13:45-15:30 **Parallel sessions IV**

In-Person Room 1: **GHG Emission Targets** | Chair: Benjamin Mitterrutzner (NTNU)

- Navigating the black box of fair emissions reduction targets – *Mark Dekker, PBL*
- Sensitivity Analysis of 2040 EU GHG Reduction Targets – *Renato Rodrigues, PIK*
- Socio-economic implications of different options for a 2040 EU climate target – *Rafael Garaffa, EC*
- Navigating the unexpected: The impact of disruptive events on mitigation scenarios – *Alaa Al Khourdajie, Imperial College London*

In-Person Room 2: **Energy System Modelling** | Chair: Alessandro Onori (NTNU)

- Intercomparison of sectoral and full-system models for the energy transition – Ema *Gusheva*, *TU Delft*
- Energy transition in France and Europe: the role of nuclear in a sector coupled energy system – Patrick *Juergens*, ISE Fraunhofer
- From continental to local: Downscaling energy system models to detect local barriers and benefits – Jann *Launer*, *TU Delft*
- The role of hydrogen in global mitigation scenarios across sectors – an index decomposition analysis – Matteo Giacomo *Prina*, *EURAC*

Online Teams Room 1: **Energy Scenarios in Global South** | Chair: Sergio Balderrama *(UMSS)*

- Climate Change Impacts on Designing the Future Power System of Kenya – *Haiping Shen, NTNU*
- Transcontinental Electricity and Gas Trade Between Africa and Europe: model-supported scenario exploration – *Elias Kousoulos, Cyprus*
- Bolivian path to a sustainable energy mix using a bi-directional coupling for energy planning and power system expansion tools – *Sergio Balderrama, UMSS*

Online Teams Room 2: **Skills workshop** | Chair: *Oxana Soimu (Deusto University)*

- Introducing rational expectation on investment decision in a recursive dynamic CGE model – *Konstantinos Fragkiadakis*, *E3M*
- Modelling the low carbon transition in a post-Keynesian modelling framework with the E3ME model – *Jamie Pirie*, *Cambridge Econometrics*
- Residential Energy Demand - *Katharina Rieck, David Neuroth, Noah Pflugradt*, *Forschungszentrum Jülich*
- Household Electricity Consumption – *Carlos Quesada Granja*, *Desuto University*

15:30-16:00 **Coffee break**

16:00-16:30 **Towards ECEMP 2025 and closing**