

Program

40th International Energy Workshop

May 25-27, 2022 | Freiburg, Germany
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Wednesday, 25.05.2022

08:00 - 09:00 **Admission & Networking**

08:00 - 09:00
Admission & Networking

09:00 - 10:15 **Runder Saal**

Welcome & Plenary Session 1 (Part I)

09:00 - 09:45
Welcome and opening remark
Prof. Dr. Hans-Martin Henning, Fraunhofer ISE
Martin Horn, Mayor of Freiburg im Breisgau

09:45 - 10:15
Keynote: Challenges in decarbonising the energy industry
Dr. Georg Stamatelopoulos, EnBW

Chair
Prof. Bob van der Zwaan
TNO and University of Amsterdam

10:15 - 10:45 **Coffee Break**

10:15 - 10:45
Coffee Break

10:45 - 12:30 **Runder Saal**

Welcome & Plenary Session 1 (Part II)

10:45 - 11:15
Keynote: Climate policy in times of crisis, building a resilient energy transition
Francesco Ferioli, DG Energy

11:15 - 11:45
Keynote: Understanding climate action
Prof. Dr. E.M. Linda Steg, University of Groningen

11:45 - 12:30
Discussion

Chair
Prof. Bob van der Zwaan
TNO and University of Amsterdam

12:30 - 14:00 **Lunch**

12:30 - 14:00
Lunch

12:40 - 14:00 **Runder Saal**

IRENA Session

12:40 - 14:00
Energy scenario communication for strengthened inputs and trustworthy outputs

14:00 - 15:40

Konferenzraum 9

Energy Policy

14:00 - 14:25
International climate finance to accelerate the low-carbon transition in emerging countries? A global assessment of financial de-risking potential
Thibault Briera, CIRED

14:25 - 14:50
Trade-offs between CO2 utilization and CO2 transport and storage in the global energy transition
Lucas Desport, MINES Paris

14:50 - 15:15
How do Climate Policy Events Shape the Pricing of Carbon in ETS Compliance and Voluntary Carbon Credit Markets?
Papa Orgen, Hochschule Fulda

15:15 - 15:40
Deployment of CO2 Capture and Storage in Europe Under Limited Public Acceptance: an Energy System Modeling Perspective
Prof. Bob van der Zwaan, TNO and University of Amsterdam

Chair
Dominik Peper
Fraunhofer ISE

Konferenzraum 8

Carbon Neutral Future

14:00 - 14:33
Achieving Economy-Wide Net-Zero Carbon Emissions in the U.S.
Dr. Geoffrey Blanford, Electric Power Research Institute

14:33 - 15:06
Investigation of New Energy Storage in Chinese Carbon-neutral Optimal Power Expanding Plan by 2060
Ye Yi, University of Tokyo

15:06 - 15:40
Insights from the German modeling project ARIADNE: Scenarios and pathways for Germany on its way to climate neutrality in 2045
Christoph Kost, Fraunhofer ISE

Chair
Verena Fluri
Fraunhofer ISE

Konferenzraum 6+7

Energy and Households

14:00 - 14:33
The Elasticity of Electricity Demand and Carbon Emissions Reductions in the Residential Sector: Evidence from a tariff shift in Russia
Salim Turdaliev, Institute of Economic Studies, Faculty of Social Sciences, Charles University

14:33 - 15:06
Decarbonization pathways for the residential sector in the United States
Dr. Peter Berrill, TU Berlin

15:06 - 15:40
An Investigation of Energy Self-sufficiency of Bangladesh for Different Socio-economic Scenarios using Dynamic Energy Economic Model
Dr. Jubair Saeed, University of Tokyo

Chair
Jessica Thomsen
Fraunhofer ISE

Konferenzraum 2+3

Energy System Modeling

14:00 - 14:33
Assessing flexibility options and operational impact of a renewable-dominant power grid in China
Dr. Jiang Lin, UC Berkeley

14:33 - 15:06
Developing decarbonisation pathways in changing TIMES for Irish homes
Jason Mc Guire, University College Cork

15:06 - 15:40
An Econometric Model to Improve the Predictability of Electricity Load in the Presence of Distributed Renewable Energy: The Case of Ireland
Dr. Kevin Forbes, Energy and Environmental Data Science

Chair
Julian Brandes
Fraunhofer ISE

Konferenzraum 1

Mobility

14:00 - 14:25
Competing Forces in the German New Car Market: How do they Affect Diesel, PHEV, and BEV sales?
Prof. Anna Alberini, University of Maryland

14:25 - 14:50
Modeling geographic density of electric vehicles chargers in a metropolitan area
Giovanni Santoboni, Transurban, USA

14:50 - 15:15
Co-benefits of air quality and net-zero carbon mitigation pathways: Case of the road transport sector in Ireland
Vahid Aryanpur, Energy Policy and Modelling, University College Cork

15:15 - 15:40
Charging and refueling demand for heavy-duty zero emission trucks in Norwegian transport corridors
Janis Danebergs, IFE

Chair
Patrick Jürgens
Fraunhofer ISE

15:45 - 16:15 **Coffee Break**

15:45 - 16:15
Coffee Break

16:15 - 17:55	Konferenzraum 9	Konferenzraum 6+7	Konferenzraum 8	Konferenzraum 1
	Energy Policy	Buildings	Carbon Neutral Future	Mobility
16:15 - 16:48	What is the Future of Nuclear Power in Ukraine? The Role of Policy Decisions and Techno-Economic Drivers Dr. Oleksandr Diachuk, Institute for Economics and Forecasting	16:15 - 16:40 A retrofitting obligation for French dwellings - A modelling assessment Lucas Vivier, CIRED	16:15 - 16:48 The role of biomass and carbon capture in the power system aligned with the European Green Deal Rebeka Beres, Energy and Sustainability Research Institute Groningen, University of Groningen	16:15 - 16:40 Do we need cities to decarbonise transportation? Modelling local strategies under strong national policies in TIMES-Västerbotten Jonas Forsberg, Luleå University of Technology
16:48 - 17:21	A global stocktake of COP26: implications of the Glasgow pledges for the decarbonisation of the energy system Rafael Garaffa, European Commission - Joint Research Centre	16:40 - 17:05 Municipal heating system modelling towards urban energy transition : integration of spatial dimension based on a participatory approach Hyunkyo Yu, Chalmers University of Technology	16:48 - 17:21 Switzerland's national mitigation pathways: towards net-zero CO2 emissions in 2050 Dr. Evangelos Panos, Paul Scherrer Institute	16:40 - 17:05 Providing the transport sector in Europe with zero-emission fuels - a model-based analysis under consideration of the MENA region Larissa Doré, Wuppertal Institut für Klima, Umwelt, Energie
17:21 - 17:55	The impact of climate change, policies, and redistribution on within-country inequality Dr. Johannes Emmerling, RFF-CMCC European Institute on Economics and the Environment	17:05 - 17:30 Analysis of a Residential Power-to-Hydrogen-to-Power System using MILP Optimization and the Energy Hub Concept Josien de Koning, Empa / ETH Zürich	17:21 - 17:55 Pathways to climate neutrality 2045 of the German energy system Julian Brandes, Fraunhofer ISE	17:05 - 17:30 Fuel Economy Standards and Public Transport Dr. Waldemar Marz, ifo Institute/LMU Munich
	Chair Patrick Jürgens Fraunhofer ISE	17:30 - 17:55 Decarbonizing industrial small and medium enterprises: novel solutions to known challenges Natapon Wanapinit, Fraunhofer ISE	Chair Christoph Kost Fraunhofer ISE	17:30 - 17:55 Electrification Futures Study: Impact of Electric Vehicles on Bulk Power Systems Dr. Matteo Muratori, National Renewable Energy Laboratory
		Chair Jessica Thomsen Fraunhofer ISE		Chair Dominik Peper Fraunhofer ISE

19:00 - 21:00 **Fraunhofer Institute for Solar Energy Systems ISE**

Reception

19:00 - 21:00
Reception

Thursday, 26.05.2022

08:30 - 09:00 **Admission & Networking**

08:30 - 09:00
Admission & Networking

09:00 - 10:30 **Runder Saal**

Plenary Session 2

09:00 - 09:30
Keynote: Innovation for deep decarbonization: from empirical research to modelling insights
Prof. Elena Verdolini, EIEE

09:30 - 10:00
Keynote: Decarbonization regulation by a tax-transfer system: The Carbon Tax-Climate Basic Income (CaTaBi) Scheme
Prof. Dr. Bernhard Neumaerker, University of Freiburg

10:00 - 10:30
Keynote: Decarbonization in the Global South: Embedding efforts to mitigate climate change with those to achieve decent standards of living for all
Dr. Shonali Pachauri, International Institute for Applied Systems Analysis (IIASA)

Chair
Dr. Geoffrey Blanford
Electric Power Research Institute

10:30 - 11:00 **Coffee Break**

10:30 - 11:00
Coffee Break

11:00 - 12:40

Konferenzraum 1	Konferenzraum 2+3	Konferenzraum 6+7	Konferenzraum 8	Runder Saal
Energy System Modeling	Renewables	Emission Trading	International Cases	Energy Policy

11:00 - 11:25
Multi-Objective Optimization to identify carbon neutrality scenarios for the Italian electric sector
Alice Di Bella, Post Degree Researcher

11:25 - 11:50
What adds more exibility? An energy system analysis of storage, demand-side response, heating electrification, energy efficiency and distribution reinforcement
Arthur Rinaldi, Assistant PhD

11:00 - 11:20
MAPSEN Project - Methods and Analyses to Determine the Impact of Decentralized Prosumers and Energy Storage on Germany's Power Generation and Electricity Grid
Verena Fluri, Fraunhofer ISE

11:20 - 11:40
Battery storage bends the curve of solar and wind integration costs in India
Ahmad Murtaza Ershad, Potsdam Institute for Climate Impact Research

11:40 - 12:00

11:00 - 11:33
Allowance Transactions in the EU ETS – Evidence from Austrian Companies
Dr. Claudia Kettner, Austrian Institute of Economic Research

11:33 - 12:06
Pricing and Competition with 100% Variable Renewable Energy and Storage
Prof. Tommi Ekholm, Finnish Meteorological Institute

12:06 - 12:40
What buildings

11:00 - 11:25
Minigrid sizing and the issue of data-paucity in developing countries. A case study in rural Rwanda.
Nicolò Stevanato, Politecnico di Milano

11:25 - 11:50
Reducing externalities from road freight transportation in Europe: can hydrogen play a role?
Julien Lafaille, Grenoble Ecole de Management

11:50 - 12:15
Impacts of grid electricity access on rural non-farm

11:00 - 11:25
Should models account for governance regimes? Insights from retrospective modeling of electricity system transitions in European countries
Xin Wen, University of Geneva

11:25 - 11:50
Assessment of the role of green Hydrogen for the long term development of the energy system - a case study for Algeria
Naima Chabouni, MINES Paris Tech - CMA, Center for Applied Mathematics

11:50 - 12:15 TIMES-Europe: A Novel European Integrated Energy System Model Dr. Stefan Luxembourg, TNO Energy Transition Studies	The multi-facets of increasing the renewable energy integration in power systems Sophie Chlela, MINES Paris, PSL University	decarbonisation means for the EU ETS Dr. Sebastian Osorio, Potsdam Institute for Climate Impact Research	entrepreneurship and employment in Ethiopia and Nigeria Setu Pelz, International Institute for Applied Systems Analysis	11:50 - 12:15 Electricity Market Design and Market-Based Environmental Policy in India Dr. Shefali Khanna, Imperial College London
12:15 - 12:40 "It takes two to tango" – Modeling detailed power sector dynamics by coupling hourly investment and dispatch energy system model with IAM Chen Chris Gong, Potsdam Institute for Climate Impact Research	12:00 - 12:20 Harmonising utility-scale solar PV auction results globally Dr. Malte Jansen, Imperial College London	Chair Charlotte Senkpiel Fraunhofer ISE	12:15 - 12:40 Measuring the Impacts of Renewable Energy Deployment on Employment: An Empirical Study in Thailand Phawida Jongsuwanwattana, Kyoto University	12:15 - 12:40 Distributional effects of carbon pricing and structural change in India Dr. Marian Leimbach, Potsdam Institute for Climate Impact Research
Moderator Markus Kaiser Fraunhofer ISE	12:20 - 12:40 The role of Rooftop Solar PV in global energy transitions James Glynn, Columbia University in the City of New York		Chair Patrick Jürgens Fraunhofer ISE	Chair Franziska Riedel Fraunhofer ISE
	Chair Verena Fluri Fraunhofer ISE			

12:45 - 14:00 **Lunch**

12:45 - 14:00
Lunch

14:00 - 15:40	Konferenzraum 1	Konferenzraum 2+3	Runder Saal	Konferenzraum 6+7	Konferenzraum 8
	Energy and Households	Renewables	Energy Policy	Impact Assessment	Power to X
14:00 - 14:33 Buildings Energy Consumption If Work-From-Home Is Here To Stay Giacomo Marangoni, Politecnico di Milano / RFF-CMCC-EIEE	14:00 - 14:25 The role of offshore wind in the Norwegian low-carbon transition Kristina Haaskjold, Institute for Energy Technology	14:00 - 14:25 The impact of major emitters mid-century strategies and Glasgow pledges Dr. Lara Aleluia Reis, RFF-CMCC EIEE	14:00 - 14:25 Optimal emissions under exogenous and endogenous learning Léo Coppens, University of Mons	14:00 - 14:25 Establishing low-carbon hydrogen trade relations - where to go and who to partner with? Johannes Brauer, CERNA, MINES Paris PSL	
14:33 - 15:06 Analysing and predicting the impact of spatial development on energy service demands to aid deep mitigation pathway development Ankita Gaur, Energy Policy and Modelling, University College Cork, Ireland	14:25 - 14:50 As simple as possible but not simpler - Comparing detailed and simplified representations of a deterministic hydropower model Hanna Ek Fälth, Chalmers University of Technology	14:25 - 14:50 Mapping national development priorities under the Sustainable Development Goals framework – a systematic analysis Auriane Meilland, CIRED	14:25 - 14:50 System-level Effects of Increased Energy Efficiency in Global Low-carbon Scenarios: a Model Comparison Dr. Francesco Dalla Longa, TNO	14:25 - 14:50 Assessing green energy growth in Nepal with a hydropower-hydrogen integrated power grid model Dr. Khem Gyanwali, Tribhuvan University	
15:06 - 15:40 How to support residential energy conservation cost-effectively? An analysis of public financial schemes in France Bettina Chlond, ZEW Mannheim	14:50 - 15:15 Wind power potentials in models – A GIS based reality check Prof. Fredrik Hedenus, Chalmers University of Technology	14:50 - 15:15 Efficiency in Wholesale Electricity Markets: On the Role of Externalities and Subsidies Dr. Sylwia Bialek, New York University	14:50 - 15:15 An open-source IAM for Energy-Land-Material-Climate Scenarios Nadine Freistetter, Finnish Meteorological Institute	14:50 - 15:15 Import options for chemical energy carriers from renewable sources to Germany Johannes Hampp, Justus-Liebig Universität Gießen	
	15:15 - 15:40 Return of crop production and energy use for	15:15 - 15:40 Reaching climate targets with carbon pricing -	15:15 - 15:40 The Low Carbon Lifestyle Module: A Dynamic Mechanism for Incorporating Lifestyle	15:15 - 15:40 On the cost competitiveness of blue	

<p>Chair Charlotte Senkpiel Fraunhofer ISE</p>	<p>irrigation: Empirical Evidence from Ethiopia Dr. Rahel Deribe Bekele, International Food Policy Research Institute (IFPRI)</p>	<p>Analysis of the German buildings sector Alexander Burkhardt, IER Universität Stuttgart</p>	<p>Change into Global Integrated Assessment Models Dr. Hazel Pettifor, University of Oxford</p>	<p>and green hydrogen Dr. Falko Ueckerdt, Potsdam Institute for Climate Impact Research (PIK)</p>
	<p>Chair Verena Fluri Fraunhofer ISE</p>	<p>Chair Franziska Riedel Fraunhofer ISE</p>	<p>Chair Julian Brandes Fraunhofer ISE</p>	<p>Chair Christoph Kost Fraunhofer ISE</p>

15:45 - 16:15 **Coffee Break**

15:45 - 16:15
Coffee Break

16:15 - 17:55	Runder Saal	Konferenzraum 1	Konferenzraum 2+3	Konferenzraum 8	Konferenzraum 6+7
	Energy Policy	Electricity System Modeling	Renewables	Energy Investments	Impact Assessment
<p>16:15 - 16:48 Analyzing the impact of energy transition policies on the economy by soft-linking bottom-up and top-down models: the case study of the Netherlands Amir Fattahi, University of Groningen</p> <p>16:48 - 17:21 Carbon pricing: the green modernization of the Russian economy Dr. Alexander Golub, American University</p> <p>17:21 - 17:55 Decarbonization of the global economy: if technologies are so good, why do we still need a carbon price? Dr. Alexander Golub, American University</p> <p>Chair Charlotte Senkpiel Fraunhofer ISE</p>	<p>16:15 - 16:40 Long-term optimisation of the hydrogen-electricity nexus in France Dr. Behrang Shirizadeh, Deloitte Economic Advisory</p> <p>16:40 - 17:05 Intensive and extensive margins of the peak load: measuring adaptation with mixed frequency panel data Dr. Francesco Colelli, Ca'Foscari University</p> <p>17:05 - 17:30 When do consumers want to opt in to real-time pricing for electricity? Dr. Quentin Hoarau, MIT</p> <p>17:30 - 17:55 Prosumage of solar electricity: batteries, heating and mobility Dr. Wolf-Peter Schill, DIW Berlin</p> <p>Chair Jessica Thomsen Fraunhofer ISE</p>	<p>16:15 - 16:40 Global renewable LCOE – including socio-economic factors in assessments of resource potential Xiaoming Kan, Chalmers University of Technology</p> <p>16:40 - 17:05 Renewable Energy Siting: A Major Challenge to Grid Decarbonization and Power System Modeling Dr. Trieu Mai, National Renewable Energy Laboratory</p> <p>17:05 - 17:30 Biomass' role in Greener Albertan Electricity Generation – A Discussion and Analysis Ziad Memon, University of Alberta</p> <p>17:30 - 17:55 Did the Covid-19 pandemic speed up a transition away from coal? An expert elicitation survey Lorenzo Montrone, MCC Berlin</p> <p>Chair Julian Brandes Fraunhofer ISE</p>	<p>16:15 - 16:40 Incorporating consumer choice into an optimization model for the German heat sector: Effects on projected bioenergy use Dr. Matthias Jordan, Helmholtz Centre for Environmental Research</p> <p>16:40 - 17:05 Energy-related financial literacy and collective retrofit investment decisions in post-Soviet bloc countries Fissha Asmare, Vilnius University</p> <p>17:05 - 17:30 An EU ETS paving the way to climate neutrality The right design considering myopic behavior of decision-makers Joanna Sitarz, Potsdam Institute for Climate Impact Research</p> <p>17:30 - 17:55 Modeling the cost-effective gas network in Austria until 2050: from the decision between decommissioning and refurbishment investments Sebastian Zwickl-Bernhard, Energy Economics Group</p> <p>Chair Christoph Kost Fraunhofer ISE</p>	<p>16:15 - 16:35 Paris Agreement targets under uncertain negative emission technologies and climate sensitivity Theresa Schaber, Finnish Meteorological Institute</p> <p>16:35 - 16:55 Good Stick, Bad Carrot: The Impacts of Removing Fossil Fuel Subsidies and Increasing Carbon Taxation in Ireland Dr. Aykut Mert Yakut, Economic and Social Research Institute</p> <p>16:55 - 17:15 Electrification of the hard-to-abate chemical sector: implication for Net-Zero power systems in Europe Meilland Cabot, MINES ParisTech, PSL University</p> <p>17:15 - 17:35 Electricity Outages and Health Outcomes of Children: Empirical Evidence from Transition Economy Yermone Sargsyan, Institute of Economic Studies Charles University Prague</p> <p>17:35 - 17:55 Severity of variable renewably energy droughts in Germany and Europe Martin Kittel, German Institute for Economic Research</p>	

Chair
Markus Kaiser
Fraunhofer ISE

19:00 - 23:00 **Konzerthaus, 1st floor**
Conference Dinner

19:00 - 23:00
Conference Dinner

Friday, 27.05.2022

08:30 - 09:00 **Admission & Networking**

08:30 - 09:00
Admission & Networking

09:00 - 10:30 **Runder Saal**

Plenary Session 3

09:00 - 09:30
Keynote: Hydrogen infrastructures in future integrated energy systems
Hans Christian Gils, German Aerospace Center (DLR)

09:30 - 10:00
Keynote: Prosumers, markets and regulations – can we get the incentives right?
Prof. Dr. Christoph Weber, University Duisburg-Essen

10:00 - 10:30
Keynote: Integrated Energy Systems Modeling – Case Study of Switzerland
Prof. Dr. Gabriela Hug, ETH Zurich

Chair
Massimo Tavoni
EIEE

10:30 - 11:00 **Coffee Break**

10:30 - 11:00
Coffee Break

11:00 - 12:40

Runder Saal

Konferenzraum 1

Konferenzraum 2+3

Konferenzraum 6+7

Konferenzraum 8

Energy Policy

Impact Assessment

Power to X

Flexibility

Electricity System Modeling

11:00 - 11:50
How costly are biofuel mandates? - an analysis of transport fuels and biomass usage to achieve emissions targets in the European energy system
Dr. Markus Millinger, Chalmers University of Technology

11:50 - 12:40
Making the EU Carbon Border Adjustment Mechanism Acceptable and Climate Friendly for Least Developed Countries
Dr. Sigit Perdana, EPFL

11:00 - 11:50
The effects of climate change mitigation strategies on the energy system of Africa and its associated water footprint
Ioannis Pappis, KTH Royal Institute of Technology

11:50 - 12:40
International and intertemporal knowledge spillovers in carbon-free and carbon-efficient technologies
Dr. Yeong Jae Kim, RFF-CMCC EIEE

11:00 - 11:25
Role of P2X in prospective net-zero scenarios: A techno-economic assessment
Kannan Ramachandran, Paul Scherrer Institute

11:25 - 11:50
Who should own storage? A case study of players with large-scale P2X in cross-country electricity markets based on a game-theoretic equilibrium model
Yi Wan, Paul Scherrer Institute

11:50 - 12:15

11:00 - 11:25
Storage requirements in a 100% renewable electricity system: Extreme events and inter-annual variability
Oliver Ruhnau, Hertie School, Berlin

11:25 - 11:50
Flexibility capacities and contributions in the future German energy system
Markus Kaiser, Fraunhofer ISE

11:50 - 12:15
The contribution of distributed energy systems (rooftop PV integrated with

11:00 - 11:25
Reaching net zero emissions in Switzerland: The essential role of biomass and carbon capture and utilization
Dr. Adriana Marcucci, ETH Zurich

11:25 - 11:50
Endogenous Technological Change in Power Market Models - Learning-By-Doing
Jacqueline Adelowo, ifo Institut

11:50 - 12:15
A multi-scale,

<p>Chair Dominik Peper Fraunhofer ISE</p>	<p>Chair Jessica Thomsen Fraunhofer ISE</p>	<p>Endogenous learning for green hydrogen in a sector-coupled energy model for Europe Elisabeth Zeyen, Technical University of Berlin (TUB)</p>	<p>EVs) to carbon neutrality in Shenzhen, China Liya Xue, School of Economics and Management, Harbin Institute of Technology (Shenzhen)</p>	<p>linking&rolling framework for long-term planning of reliable power systems in transition Yacine Alimou, Mines ParisTech</p>
		<p>12:15 - 12:40 Probabilistic feasibility space of scaling up green hydrogen supply Adrian Odenweller, Potsdam Institute for Climate Impact Research (PIK)</p>	<p>12:15 - 12:40 RAMP-mobility: generating stochastic mobility, charging profiles and flexibility constraints for Electric Vehicles and grid integration Francesco Davide Sanvito, Politecnico di Milano</p>	<p>12:15 - 12:40 Materials industry modelling in net-zero emissions scenarios: hydrogen contribution to low-carbon steel Kimon Keramidas, Université Grenoble-Alpes</p>
		<p>Chair Gregor Gorbach Fraunhofer ISE</p>	<p>Chair Markus Kaiser Fraunhofer ISE</p>	<p>Chair Christoph Kost Fraunhofer ISE</p>
