



1st International Symposium on Energy System Analysis (ISESA)

“Next level of security of supply: a resilience strategy for the energy transition”

November 11th and 12th, 2024

ZSW, Meitnerstraße 1, 70563 Stuttgart, Germany

Program

Monday, November 11	
12:00 – 1:00	Arrival, Registration, Hanging posters, Light lunch
1:00 – 1:45	<p>Welcome to ZSW (<i>Prof. Dr. Frithjof Staiß, ZSW</i>)</p> <p>Welcome to ISESA (<i>Prof. Dr. Patrick Jochem, DLR Institute of Networked Energy Systems</i>)</p> <p>Keynote 1 What are the trade-offs in achieving (more) resilient energy systems? (<i>Prof. Dr. Russell McKenna, ETH Zürich</i>)</p>
1:50 – 3:20	<p>Session 1 (<i>Chair: Dr. Audrey Dobbins, University of Stuttgart, IER</i>)</p> <ol style="list-style-type: none"> Resilient strategies for the European energy system in an era of unpredicted uncertainty (<i>Bobby Xiong, TU Berlin</i>) Can success be planned? China's path to technology leadership in green electricity and hydrogen and its implications for Europe and the United States (<i>Lin Zheng, Fraunhofer ISI</i>) Policy Mixes for a Just, Effective, and Public Budget-Conscious Household Energy Transition in Switzerland (<i>Alexandre Torné, University of Geneva</i>) How has the concept of Energy Security evolved in Europe? A geopolitical-economical risk mapping approach (<i>Annabelle Livet, Fondation pour la Recherche Stratégique, France and Loye Campbell, Deutsche Gesellschaft für Auswärtige Politik, Germany</i>)
3:20 – 3:45	Coffee break
3:45 – 5:15	<p>Session 2 (<i>Chair: Dr. Wolfgang Hauser, University of Stuttgart, ZIRIUS</i>)</p> <ol style="list-style-type: none"> Ready for the unexpected? resilience in the electricity sector (<i>Erdal Tekin, University of Stuttgart, IER</i>) Explorative scenarios in strategic planning – societal change and resulting effects in demand for energy services (<i>Sigrid Prehofer, University of Stuttgart, ZIRIUS and Felicitas Ortlieb, University of Stuttgart, IER</i>) Review on Modeling Disruptive Events in Renewable Energy Supply (<i>Lovindu Wijesinghe, FZ Jülich</i>) Integration of P2X process to grid: needs for plant models for a smooth transition (<i>Mariana Corengia, Instituto de Ingeniería Química, Facultad de Ingeniería, Udelar, Uruguay</i>)
5:15 – 6:15	<p>Poster pitches (<i>Chair: Evelyn Sperber, DLR Institute of Networked Energy Systems</i>)</p> <p>Poster session</p>
6:30	Dinner (self-pay) at Römerhof, Robert-Leicht-Straße 93, 70563 Stuttgart-Vaihingen

Tuesday, November 12	
9:00 – 9:45	Keynote 2 Security and Resilience of Energy Supply – and what's about Sustainability? (<i>Prof. Dr. Armin Grunwald, Karlsruhe Institute of Technology</i>)
9:50 – 11:20	Session 3 (<i>Chair: Prof. Dr. Kai Hufendiek, University of Stuttgart, IER</i>) <ol style="list-style-type: none"> 1. Wings of Change: Evaluating Economic and Technical Realities of Sustainable Aviation Fuel Production in the EU (<i>Patrick Wolf, ZSW</i>) 2. Energy security and climate uncertainty in renewable energy systems (<i>Leonard Göke, ETH Zürich</i>) 3. Resilience monitoring of future sector-coupled energy systems (<i>Madhura Yeligeti, DLR Institute of Networked Energy Systems</i>) 4. Two-Stage Stochastic Optimisation – A Method for Robust Energy System Planning (<i>Lennart Trentmann, TU Munich</i>)
11:20 – 11:45	Coffee break (including another chance to chat at the posters)
11:45 – 1:15	Session 4 (<i>Chair: Maike Schmidt, ZSW</i>) <ol style="list-style-type: none"> 1. The role of electric vehicles in catastrophic events (<i>Moritz Bergfeld, DLR Institute of Vehicle Concepts</i>) 2. Exploring near-optimal-solutions of energy system models to increase energy system resilience (<i>Tino Mitzinger, University of Bremen</i>) 3. Quantitative Resilience Assessment of Hydrogen-Based Energy Systems (<i>Ann Kathrin Seyfried, Fraunhofer ICT & University of Bremen</i>) 4. Addressing supply risks in energy system models with multi-objective optimization (<i>Dr. Jonas Finke, Ruhr University Bochum</i>)
1:15 – 2:15	Farewell (<i>Prof. Dr. Patrick Jochem, DLR Institute of Networked Energy Systems</i>), Light lunch

Overview of posters

1	Home or workplace charging? Exploring the spatio-temporal flexibility of electric vehicles within Swiss electricity system (<i>Dr. Zongfei Wang, University of Geneva</i>)
2	Raw material requirements for the global energy and transport transition: market and geopolitically related supply risks (<i>Dr. Tobias Naegler, DLR Institute of Networked Energy Systems</i>)
3	Hydrogen bridge bonds – Modelling global hydrogen supply under geostrategic considerations (<i>Oliver Linsel, Ruhr University Bochum</i>)
4	Integrating Power and Water Grids: Unlocking Flexibility and Economic Advantages (<i>Amjad Khashman, Oxford Institute for Energy Studies</i>)
5	Decarbonizing the energy sector in higher educational institutes: A case study of Nordhausen University of applied sciences, Germany (<i>Gokarna Dhungel, Nordhausen U. of appl. sciences</i>)
6	Beyond optimal: Generating alternatives for robust hydrogen strategies in a global energy system (<i>Konrad Telaar, Ruhr University Bochum</i>)
7	Financial burdens in the light of household heterogeneity and options for different energy transition financing mechanisms (<i>Kerstin Haller, University of Stuttgart, IER</i>)
8	Analysis of cost effective decarbonisation pathways for the German iron and steel industry with improved representation of actors (<i>Isela Bailey, University of Stuttgart, IER</i>)
9	Integration of feedstock in an energy system model: Defossilization of the chemical industry (<i>Md Anik Islam, University of Stuttgart, IER</i>)
10	Comprehensive Analysis of Energy Transition Strategies in Rural Germany – A Case Study of Treuchtlingen (<i>Dr. Gerd Hofmann, HS Ansbach</i>)
11	Agent-based investment modelling of the electricity sector (<i>Leonard Willeke, DLR Institute of Networked Energy Systems</i>)
12	Sector-coupled, spatially resolved modelling for assessing energy transition pathways in German federal states (<i>Hannah Nolte, Fraunhofer ISE</i>)
13	Enhancing System Security in Large-Scale Energy System Planning using a Time-Dependent and Technology-Specific Power Flow Linearization (<i>Oussama Alaya, University of Stuttgart, IFK</i>)
14	Too many eggs in one basket: On the vulnerability of the Ecuadorian power system and the need for a more sustainable and resilient strategy (<i>Dr. Mariela Tapia, University of Bremen</i>)
15	Quantitative all-hazard risk assessment of power transmission systems using contingency-constrained optimization (<i>Daniel Jung, DLR Institute of Networked Energy Systems</i>)
16	Modeling an international economy for green hydrogen – a case study on Europe and the MENA-Region (<i>Bastian Weißenburger, Fraunhofer ISI</i>)
17	Estimating Demand Response Potentials of Domestic Appliances: Insights from a Japanese Survey (<i>Febin Kachirayil, ETH Zürich</i>)

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Since 2015, STRise (Stuttgart Research Partnership on Integrated Systems Analysis for Energy) has been advancing the energy transition in Europe, Germany, Baden-Württemberg, and Stuttgart. The interdisciplinary systems research in Stuttgart is unique in Europe and enables new approaches to analyzing and implementing the sector-coupled energy transition with high system complexity and increasing interaction in the socio-technical-economic environment.

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