



# 1<sup>st</sup> International Symposium on Energy System Analysis (ISESA)

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

November 11<sup>th</sup> and 12<sup>th</sup>, 2024

ZSW, Meitnerstraße 1, 70563 Stuttgart, Germany

## Program

Monday, November 11	
12:00 – 1:00	Light lunch
1:00 – 1:45	Welcome (Prof. Dr. Frithjof Staiß) and Keynote 1 <i>TITLE tbd.</i> (Prof. Dr. Russell McKenna, ETHZ)
1:50 – 3:20	Session 1 <ol style="list-style-type: none"> <li>Resilient strategies for the European energy system in an era of unpredicted uncertainty (Igor Riepin, TU Berlin)</li> <li>Can success be planned? China's path to technology leadership in green electricity and hydrogen and its implications for Europe and the United States (Viktor Paul, Fraunhofer ISI)</li> <li>Policy Mixes for a Just, Effective, and Public Budget-Conscious Household Energy Transition in Switzerland (Alexandre Torné, University of Geneva)</li> <li>How has the concept of Energy Security evolved in Europe? A geopolitical-economical risk mapping approach (Annabelle Livet, Fondation pour la Recherche Stratégique, France)</li> </ol>
3:20 – 3:45	Coffee break
3:45 – 5:15	Session 2 <ol style="list-style-type: none"> <li>Ready for the unexpected? resilience in the electricity sector (Erdal Tekin, University of Stuttgart, IER)</li> <li>Explorative scenarios in strategic planning – societal change and resulting effects in demand for energy services (Sigrid Prehofer, University of Stuttgart, ZIRIUS)</li> <li>Review on Modeling Disruptive Events in Renewable Energy Supply (Lovindu Wijesinghe, FZ Jülich)</li> <li>Integration of P2X process to grid: needs for plant models for a smooth transition (Mariana Corengia, Instituto de Ingeniería Química, Facultad de Ingeniería, Udelar, Uruguay)</li> </ol>
5:15 – 6:00	Poster session
6:30	Social Event (self-pay) at Römerhof, Robert-Leicht-Straße 93, 70563 Stuttgart-Vaihingen

Tuesday, November 12	
9:00 – 9:45	Keynote 2 <i>TITLE tbd.</i> (Prof. Dr. Armin Grunwald)
9:50 – 11:20	Session 3 <ol style="list-style-type: none"> <li>Wings of Change: Evaluating Economic and Technical Realities of Sustainable Aviation Fuel Production in the EU (Patrick Wolf, ZSW)</li> <li>Energy security and climate uncertainty in renewable energy systems (Leonard Göke, ETH Zürich)</li> </ol>

	<ul style="list-style-type: none"> <li>3. Resilience monitoring of future sector-coupled energy systems (Madhura Yeligeti, DLR Institute of Networked Energy Systems)</li> <li>4. Two-Stage Stochastic Optimisation – A Method for Robust Energy System Planning (Lennart Trentmann, TU Munich)</li> </ul>
11:20 – 11:45	Coffee break (including another chance to chat at the posters)
11:45 – 1:15	<p>Session 4</p> <ul style="list-style-type: none"> <li>1. The role of electric vehicles in catastrophic events (Moritz Bergfeld, DLR Institute of Vehicle Concepts)</li> <li>2. Exploring near-optimal-solutions of energy system models to increase energy system resilience (Tino Mitzinger, Universität Bremen)</li> <li>3. Quantitative Resilience Assessment of Hydrogen-Based Energy Systems (Ann Kathrin Seyfried, Fraunhofer ICT &amp; University of Bremen)</li> <li>4. Addressing supply risks in energy system models with multi-objective optimization (Jonas Finke, Ruhr-Universität Bochum)</li> </ul>
1:15 – 2:15	Farewell and light lunch

## Overview of posters

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

## Organizing Committee



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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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