TRACK: Resilience of Coupled Energy and Transport Systems under Deep Decarbonization

International Conference on Resilient Systems

ICRS 2026 Delft, the Netherlands, 23-25 March, 2026

INTRODUCTION TO THE TRACK

This track explores the intersection of energy systems and transport, focusing on how to build resilient energy supplies for the transportation sector in the face of technological shifts, climate change, and extreme events. Similarly, it explores how the transport sector can make the energy system more resilient. With the global push for decarbonization, integrating renewable energy, hydrogen, and synthetic fuels into transport networks has become critical. Yet, supply chain vulnerabilities, grid reliability, and system interdependencies remain significant. This track will advance discussions on innovative strategies, tools, and policies to ensure robust energy support for transport systems, and vice versa, under dynamic and uncertain conditions.

TRACK TOPICS

1. Geopolitical risks and energy supply chain vulnerabilities
This area addresses the impact of geopolitical factors on energy supply chains for transport. It will analyse vulnerabilities related to critical materials for renewable energy technologies and propose strategies to mitigate risks arising from international dependencies and supply chain disruptions.

2. Integration of renewable energy and demand-side management
This topic examines the challenges of incorporating renewable energy sources and alternative fuels (e.g., hydrogen, e-fuels, ammonia) into transport energy systems. It will also explore how demand-side management and consumer behaviour can enhance system resilience and reliability.

3. System-of-systems approach to resilience
This area focuses on the interdependencies between energy, transport, and communication infrastructures. It will investigate how adopting a system-of-systems approach can improve the resilience of coupled energy-transport networks by mitigating cascading failures and ensuring coordinated responses.

4. Community and consumer contributions to resilience
This topic highlights the role of consumer actions, community initiatives, and local solutions in

building resilient transport-energy systems. It will cover the potential of demand response programs, distributed resources, and local solutions to enhance system robustness.

5. Scenario planning and strategic policy development
This area emphasizes scenario analysis and robust decision-making tools to anticipate and plan for disruptions in supply and demand of the coupled systems. It will also focus on developing adaptive policies that promote resilient interdependent energy-transport infrastructure systems.

6. Resilience metrics and methodologies for coupled energy-transport Systems
This topic explores novel metrics for assessing the resilience of energy systems that support transport networks and vice versa. It will cover methodologies for evaluating supply robustness in decentralized and low-carbon energy systems, focusing on how they perform under disruptions and stress-testing scenarios.

TYPE OF CONTRIBUTIONS:

This track will accept research papers and case studies showcasing innovative models, policies, and technologies in resilient energy supply for transport and transport for resilient energy. The session will feature interactive formats, including presentations, and a panel discussion aimed at reflecting on key insights from the presentations.
To encourage new ideas and fresh perspectives, speakers will primarily be selected based on conference submissions, with a broad call for participation advertised widely through our networks. In the event of low submissions, we will extend invitations to known experts, supported by our reviewer board, to ensure a high-quality discussion and robust attendance. This approach balances inclusivity and innovation while fostering engaging discussions on the future of resilient energy and transport systems.

1. **Call for Extended Abstracts** (1.000 words) - see website for the template.

    Including the possibility of submitting a Case Study - in this same template

TRACK CHAIR AND CO-CHAIR

Both chair and co-chair will attend the conference and will actively promote the conference track through various channels.

Sonia Yeh*

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Prof. Yeh brings extensive experience in organizing and leading international conferences and workshops, including serving as General Co-Chair for the 11th International Conference on Computational Social Science (IC2S2 2025), host of the International Energy Workshop (IEW) 2018 and representing Chalmers University assisting the City of Gothenburg hosting the

	International Electric Vehicle Symposium EVS38 (2025). She is the co-founder of the International Transport Energy Modeling (iTEM) workshop since 2014. Recent research on resilience include Designing Resilience for Multi-System Dynamics of Future Transportation and leadership on the two EU projects on ports resilience, underscores a strong academic foundation and a commitment to advancing transport and energy resilience.
	**Jasper Verschuur** Assistant Professor in Engineering Systems & Climate Security, Delft University of Technology, The Netherlands **Email:** j.verschuur@tudelft.nl Dr. Verschuur has a strong academic track record in the field of infrastructure risk and resilience, including transport and energy systems. He twice organised a conference session on critical infrastructure risk and resilience modelling at the EGU conference in Vienna. He has published widely on climate and non-climatic risk to transport and energy infrastructure systems, global supply-chain risks, emerging supply networks of green fuels, and resilience and adaptation modelling. He also advises organisations such as the ITF-OECD, IEA, World Bank and GCA on topics of system-wide risks and resilience of transport and energy systems.

**Corresponding Chair*