



# **Electromobility and Society: Social, Economic and urban impacts of electric vehicles and their infrastructures**

**Chair : Prof. Julia Frotey (Institut National de la Recherche Scientifique, QC, Canada) [julia.frotey@inrs.ca](mailto:julia.frotey@inrs.ca)**

**Co-Chair: Prof. Eric HITTINGER (University of Lille, France; Rochester Institute of Technology, USA) [eshgpt@rit.edu](mailto:eshgpt@rit.edu)**

This special session is organized within the Framework of  
the interdisciplinary programme CUMIN  
(Campus of Universities with Mobility based on Innovation and carbon Neutrality)  
and the International Associated Lab eCAMPUS  
(e-mobility for CAMPus of University based on Sustainability)

## **Call for Special sessions**

The transportation sector is the largest contributor to global greenhouse gases (GHG), exceeding even electricity system emissions in most developed countries. The 2016 IEA report on Mobility indicates that rapid adoption of plug-in electric vehicles (PEVs, including plug-in hybrids and battery electrics) is essential to limit global warming to 2°C. Political interest in EVs is also growing, with a variety of policies that range from bans on thermal vehicles to mandated PEV sales quotas. Successfully achieving this transition requires more than just technical solutions. A rapid shift towards EVs requires an understanding of vehicle economics and consumer preferences, informed policy support, new infrastructure, and an understanding of how these different elements interact.

Through this session we propose to offer an overview of the challenges and misperceptions that still hinder the mass adoption of electric such as the costs of electric vehicle ownership and infrastructure, access to charging and range anxiety, knowledge of and access to electric car public policies (purchase aids and charging station installation incentives), controversial territorial constraints (i.e low emissions zones), and social acceptance of a paradigm shift in daily travel behavior (i.e from thermal cars to electric cars).

## **What are the learning objectives?**

The main learning objectives will be to inform researchers and the public about the social, economic and urban planning issues in electromobility. The audience will learn about the non-technical challenges regarding mass adoption of electric cars and their charging infrastructures. We propose that these challenges are often misunderstood or oversimplified by elected officials and the electric car industry (from engineers to car dealers). The challenges are not only technical but also economic (i.e affordability of an electric vehicle for different drivers and households), political (i.e subsidy policy design or charging station installation support), territorial (i.e

implementation of low-emission zones, air quality stickers) and social (i.e acceptability of all those electric car policies). This session should be attractive to engineers and researchers that want to round out their understanding of additional factors that define the progress in transportation electrification.

**Potential Audience.**

This event is for engineers, researchers, public decisionmakers, and entrepreneurs who would be curious about the social and economic context of electromobility technologies as well as the ways they are disseminated in society.

**Has the event previously been presented, if so, where? (100 word max)**

Different special session on this board topic have been organized with success in IEEE-VPPC:

- IEEE-VPPC'17, "Electromobility policies", E. Castex (Univ. Lille, France, M. Messagie (V. Univ. Brussels, Belgium)
- IEEE-VPPC'20, "Social, Economic and societal impact of electro-mobility", E. Hittinger (RIT, USA), E. Castex (Univ. Lille, France)
- IEEE-VPPC'21, "Social, Economic and societal impact of electro-mobility", E. Hittinger (RIT, USA), A. Lepoutre (Univ. Lille, France)
- IEEE-VPPC'23, "Electromobility and the city: Social, Economic and urban impacts of electric vehicles and their infrastructures", J. Frotey (INRS, Canada), E. Hittinger (RIT, USA).

From the previous successful special section in VPPC, an integration of an urban planning dimension has been added in 2023 that is especially original. The session was a great success with a large audience.

**Novelty. What makes this different or necessary.**

This special session is dedicated to the study of social, economic and urban impacts of electro-mobility development. Investigation of these aspects of the electro-mobility transition are a critical complement to technical developments in order to achieve a successful transition towards electrified vehicles. Social science research (i.e economic aspects or urban planning issues) of electromobility still represents a niche area that should be valued and expanded. The perspectives in this session will both complement the technical sessions throughout the VPCC program, but can also inspire ideas for new interdisciplinary research areas.

**Topics of interest include, but are not limited to:**

- Analysis of social or political factors in the switch from fossil-fuel vehicle to electrified vehicles
- Ecological footprint of current or future mobility systems
- Policy analysis of sustainable mobility plans or policies
- Economic or behavioral analysis of electro-mobility
- Social acceptance or impacts of electro-mobility

More information: <https://events.vtsociety.org/vppc2024/>

## Special Session Organizers' short bio:



**Dr. Julia FROTEY** has received a PhD degree in Urban planning from Lille University in 2016, focused on charging stations for Electric Vehicle diffusion in France. She analyzed the regional electromobility business ecosystem as well as the spatial impact of charging stations. She has been a member of several research projects linked to the social and urban impacts of electromobility such as the MOUVE project (Mobility and Use of Electric Vehicles) or the ERICA project (Renewable energy for Charging stations). She is also a member of the research program CUMIN (Campus of University with Mobility based on Innovation and carbon Neutral) since 2016. After a being a postdoc fellow at Trois-Rivières University in Quebec within the eCAMPUS international Lab, she became a professor at the National Institute for Scientific research in Montréal.



**Dr. Eric HITTINGER** holds a BSE in Polymer Science and Engineering and a MS in Macromolecular Science from Case Western Reserve University and a PhD in Engineering and Public Policy from Carnegie Mellon University. Dr. Hittinger is currently an Associate Professor in Public Policy and is Affiliated Faculty at the Golisano Institute for Sustainability at Rochester Institute of Technology. He is also a WILL International Chair at the University of Lille. Professor Hittinger has a background in electricity technology, policy, operation, and economics, with a focus on understanding the benefits and limitations of emerging technologies, including energy storage, electric vehicles, and renewable electricity sources. Before entering the energy field, he was a Project Management Engineer for the US Army, with extensive travel to support military operations abroad. He is currently managing the TESS (Technical Economical Study of Sustainable campuses based on electro-mobility) project of the CUMIN program (Campus of University with Mobility based on Innovation and carbon Neutral) of University of Lille.