Arian Mahzouni is a Postdoctoral Researcher in the Technology and Sustainable Futures research group, Department of Informatics at the University of Oslo. He has obtained his BSc and MSc in Management & Organisation Studies from Stockholm University and his PhD in Urban and Regional Studies from Technical University of Dortmund. He was awarded the 'mobility starting grants' from the Swedish Formas to carry out his postdoctoral research project "Governance of Low Carbon Sociotechnical Transitions: Lessons from the Cities of Stockholm and Freiburg". The Royal Institute of Technology (KTH) in Stockholm and University of Freiburg acted as host institutes for this project. He has addressed energy transition pathways and practices in housing and mobility sectors in several European cities e.g., Stockholm, Freiburg, Basel and Sion about which he has published, among other, five single-authored papers in international peer reviewed journals and two book chapters. He is currently working with the cross-faculty and interdisciplinary research project EMPOWER funded by University of Oslo: Energy and Environment. He contributes to the WP1 to provide a sustainability framework for the project with particular focus on the Electric Vehicle battery life cycle, future battery use and its integration in urban energy systems. He draws on a wide range of conceptual frameworks from social sciences.

Project at IAS-STS: The role of electric vehicle batteries in enhancing sector coupling for lowcarbon urban energy transitions: energy-mobility-digitalisation nexus

This project will study the role of sector coupling in a smart and multi-energy system (energy, mobility, digitalisation and infrastructure) by conceptualising the results of my literature review for the EMPOWER project aimed at gaining synergies for sustainable urban energy transition beyond the single system of EV batteries. Drawing on the sector coupling concept, the underlying causal processes of interactions between these systems will be unpacked, which includes the key elements of energy systems transition, e.g., actors, technologies, institutions, policies, etc.

The main forms of interactions are between grid to vehicle (G2V) for charging EV batteries, vehicle to grid (V2G) for discharging EV batteries and stabilising the grid system, vehicle to building (V2B) as a substitute for grid system for powering buildings and for mitigating fluctuations from renewable energies, bidirectional EV charging, and solar PV. The key research questions for this project would be: Why and how do actors and their associated activities generate new structural couplings between different systems related to EV batteries? What are the institutional obstacles to applying sector coupling?

Selected Publications:

Mahzouni, A. (2022). Reducing Mobility-Related Energy Use in Future Cites: The Planning Process for Urban Mobility in the City-District of Dietenbach in Freiburg, Germany. Chapter 22 In K. Araujo (Eds.), Routledge Handbook of Energy Transitions. Routledge, Taylor & Francis Group. Published on 29 December 2022, website url

Mahzouni, A. (2019). Towards an Analytical Framework for Sociotechnical Urban Retrofit: Cities in the Upper Rhine Region. In P. Hamman & S. Vuilleumier (Eds.), Sustainability Research in the Upper Rhine Region: Concepts and Case Studies (pp. 269–288). Presses universitaires de Strasbourg (PUS), Strasbourg.

Mahzouni, A. (2019). The role of institutional entrepreneurship in emerging energy communities: The town of St. Peter in Germany. Journal of Renewable and Sustainable Energy Reviews, 107(2019), 297–308. http://doi.org/10.1016/j.rser.2019.03.011

Mahzouni, A. (2019). The institutional challenges of scaling-up housing retrofit: the Swiss cities of Basel and Sion. Journal of Facilities, 37(11/12), 780–798. http://doi.org/10.1108/F-02-2017-0025 Mahzouni, A. (2018). Urban brownfield redevelopment and energy transition pathways: A review of planning policies and practices in Freiburg. Journal of Cleaner Production, 195(2018), 1476– 1486. http://doi.org/10.1016/j.jclepro.2017.11.116