

November 20th, 2019
10:15 – 12:15
Amphi Atrium, ESPRIT Building, University of Lille

“Is Energy Storage Good for Emissions?”

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Abstract:

Energy storage, in the form of both batteries and non-battery technology, has great potential. While it is a valuable complement to variable-output wind and solar generation, it enables greater use of low-cost fossil generation, with uncertain health and environmental effects. In this talk, I will discuss current research on the effects that new energy storage has on electricity system emissions. This complex topic includes analysis of both the marginal and long-run effects of storage adoption, as well as consideration of which technologies win and lose financially when energy storage is added. We find that revenue-maximizing storage tends to increase the emissions from current electricity grids, but there are a variety of important caveats. When deployed with renewable energy, such as in the case of solar plus storage systems, the combined system is a net emissions benefit. And when compared in the same units (dollars), the arbitrage benefits are consistently higher than the health and environmental damages of the increased emissions, meaning that new storage consistently delivers net benefits. The complexity of the topic illustrates the importance of system-level analysis when considering the effects of new electricity technologies.

About the Speaker



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 a Visiting Researcher with the Laboratoire D'Electrotechnique et D'Electronique de Puissance (L2EP) at the University of Lille and holds an appointment as an Associate Professor in Public Policy and Affiliated Faculty at the Golisano Institute for Sustainability at Rochester Institute of Technology. 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 (Campus of University with Mobility based on Innovation and carbon Neutral) of University of Lille.

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