



**Speaker:** Christine Gschwendtner

**Title:** The Potential of the Energy Demand-Side: Leveraging Technology Adoption to Reduce Infrastructure Needs

**Abstract:** The demand-side of the energy system becomes increasingly important as low-carbon end-use technologies need to be adopted at large scale. In addition, demand-side management, i.e., changing energy demand according to energy supply or grid constraints, can have implications for infrastructure needs. If we neglect the potential of demand-side management, an opportunity to reduce energy storage, peak generation capacity, or grid reinforcement costs might be missed. Conversely, overly optimistic demand-side management expectations could lead to infrastructure constraints. Therefore, a deeper understanding of the interconnections between infrastructure needs, human-technology interactions, and industry processes is required. This presentation will discuss three related questions:

- 1) What factors drive low-carbon technology adoption in the case of heat pumps?
- 2) What are the most effective demand-side management strategies for integrating electric vehicles at the distribution grid level?
- 3) How can industrial demand-side management reduce electricity system costs by reducing energy storage needs at high renewable energy penetration?