Plenary Keynote: Jan Rosenow

Professor Jan Rosenow is one of Europe's leading authorities on energy and climate policy, with a particular focus on energy efficiency, electrification, and clean heat. He is Professor of Energy and Climate Policy at the University of Oxford, where he leads the Energy Programme at the Environmental Change Institute, and a Jackson Senior Research Fellow at Oriel College, Oxford. He is also a Senior Associate at the Cambridge Institute for Sustainability Leadership at the University of Cambridge. His career path is unusual and non-traditional blending two decades in the private and non-profit sectors with academia. Jan advises governments and international organisations including the World Economic Forum, United Nations, World Bank, and the International Energy Agency, and in 2025 was invited to brief all 27 EU energy ministers at a formal European Council debate on industrial electrification. His work has shaped major energy and climate policies and is widely cited in global media including The New York Times, The Economist, Forbes, and the BBC. In recognition of his impact, he was named the most-read thought leader on the energy transition in 2024.

Electrofficiency: Conversion Efficiency, the Primary Energy Fallacy, and the Demand-Side Case for Electrification

Abstract
Energy efficiency and electrification are conventionally pursued as distinct decarbonisation strategies, yet the distinction is largely artificial. Because electrified end-use technologies, including heat pumps, electric vehicles and electric process heating, convert energy to useful services far more efficiently than their combustion-based

counterparts, large-scale electrification constitutes the single most significant efficiency intervention available to most energy systems. I use the concept of electrofficiency to capture the systemic primary-energy savings that arise when services are delivered through electrons rather than the combustion of fuels. A central obstacle to recognising these gains is methodological: conventional primary-energy accounting attributes the thermodynamic losses of thermal generation, combustion and fossil-fuelled heating to useful demand, overstating the role of fossil fuels and understating the efficiency of electrified alternatives. A useful-energy framing materially alters these results and fundamentally reconfigures energy transition analysis.