

Kathryn G. Logan Presentation Information

Presentation title

Trade-offs between greenhouse gas emissions, climate regulation and ecosystem services within a transport context.

Talk abstract

Transitioning from internal combustion engine private vehicles in favour of electric and hydrogen alternatives is an essential part of the solution to meet net zero in the UK by 2050. Adapting low carbon transport will result in an increase in electricity demand which will impact both ecosystem services (ES) and natural capital (NC), however long term environmental impacts are likely to remain lower than what may happen with the continual use of conventionally fuelled vehicles.

Robust projections of societal energy demands post low carbon transition are required to ensure adequate power generation is installed. By projecting energy demand for electric and hydrogen cars, buses and trains, the spatial requirements of additional renewable energy (onshore/offshore wind and solar), nuclear and fossil fuels, on ES and NC can be predicted.

Results will discuss the mix between hydrogen and electric transport types in the future and how this will be dependent on geographical location and resource availability. To reduce the requirements for additional electricity and for carbon outputs to decrease, minimising the impact on NC and ES, policy makers need to focus on encouraging a modal shift towards low carbon public transport and to ensure a more sustainable route to decarbonising transport.

Brief biography

Dr Kathryn G. Logan is a Postdoctoral Research Fellow in the Arizona Institutes for Resilience (AIR). As part of the University Climate Change Coalition (UC3) programme, her role focuses on urban climate action working with the University of Arizona and the City of Tucson to aid their climate neutrality targets.

Prior to this, Kathryn worked as an Energy Policy Researcher at the University College Dublin, Ireland. In this role, Kathryn took a multidisciplinary approach to bring together research focusing on energy systems, energy management and energy in society to inform policy and research objectives.

Kathryn completed her PhD in Environmental Science at the University of Aberdeen, Scotland in 2021. Kathryn's PhD project involved applying quantitative analysis methods to the project entitled '*Investigating the Impact of the Electrification of Transport to Reduce Carbon Emissions on Natural Capital.*' Her project focussed on infrastructure changes, including electricity supply, and the related trade-offs between greenhouse gas emission reductions, climate regulation and the potential impact upon ecosystem services. Kathryn had the opportunity during her PhD research to work as a visiting researcher at Tsinghua University (China) and Kyoto University (Japan) to understand what lessons can be learned from other countries regarding policy, decarbonisation, and low emission transport.