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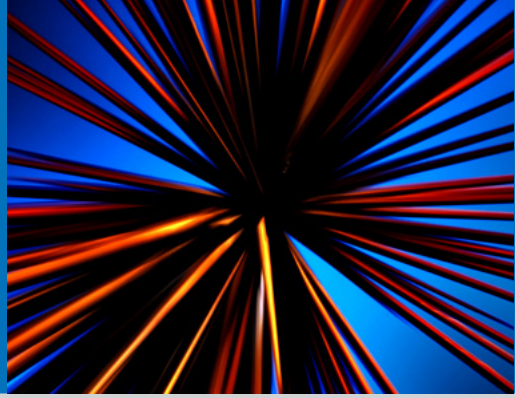
The University of Manchester

MARC Research Profile

Challenging Lock-in through Urban Energy Systems (CLUES)



Challenging the lock-in of the current centralised UK energy system is essential to delivering the deep carbon cuts required over the period to 2050 to moderate climate change. Decentralised energy initiatives are currently being promoted, increasingly within the urban locations where the majority of the population and economic activity is located. Such decentralisation of energy infrastructure and associated decarbonisation initiatives would considerably change the nature of urban environments to 2050. But, to date, the research emphasis has been on identifying and transferring best practice from project to project without consideration of the limits to decentralisation, the implications for interconnected energy systems and the overall impact on urban areas. There is an urgent need to understand the implications of these decentralisation initiatives from the point of view of energy systems at different scales - urban, regional and national - and in terms of the overall sustainability of future change within urban areas. This involves considering how far such decentralisation could be pursued and what the carbon and other impacts would be.

This project takes a much-needed critical look at the scope for challenging lock-in through urban energy initiatives. Such energy initiatives are understood to include a combination of decentralised technologies for energy generation with strategies for energy and carbon reduction operating at different scales within urban areas. It will examine the range and types of urban energy systems that could be put in place from an international review and it will consider the issues raised by the need for such initiatives within the UK to integrate with energy systems at urban, regional and national scales in order to deliver energy and carbon reductions effectively. This will be explored through UK implementation studies and examination of innovative initiatives as yet untried in the UK context. The context will be scenario development to 2050 based on existing Foresight scenarios on energy management and the built environment. The project will then undertake a scaling-up exercise to consider the potential contribution to national carbon reduction of aggregating up individual urban energy initiatives. This will involve analysis of the extent to which such initiatives could be rolled out across the country and their carbon impact, given different mixes of energy technologies and carbon reduction strategies. The scaling up exercise will also consider the implications for future urban change using the developed 2050 scenarios. The result will be a critical assessment of future change in urban areas as a result of energy decentralisation and, therefore, the potential contribution of energy inititives within urban areas to carbon reductions at a national scale and urban sustainability to 2050.

Principal Investigator
Yvonne Rydin (UCL)

Co-Investigators
Chris Goodier (Loughborough University), Lester Hunt (University of Surrey), Simon Guy (MARC), Jim Watson (University of Sussex), Patrick Devine-Wright (University of Exeter)

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www.ucl.ac.uk/clues

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Contact
Simon.Guy@manchester.ac.uk