

PhD research project: Future Energy-Environment Dependencies of the Infrastructure Network (FEED-IN)

Researcher: [Daniel Murrant](#), October 2013 – October 2016

My research considers future energy-environment dependencies of the infrastructure network. It focuses on the UK water-energy nexus, and its implications on a future UK energy network that has to evolve to cope with the “trilemma” of providing affordable, secure energy to a rising population, whilst also adapting to and mitigating the effects of climate change.

The PhD is co-sponsored by the [Energy Technologies Institute](#) which aims “*to accelerate the development, demonstration and eventual commercial deployment of a focused portfolio of energy technologies, which will increase energy efficiency, reduce greenhouse gas emissions and help achieve energy and climate change goals.*”

To achieve this, the ETI have developed the Energy Systems Modelling Environment, [ESME](#), a national energy system design tool used to inform not only technology development choices and targets, but also policy for the ETI’s members. In its current form EMSE does not account for environmental constraints which may occur when two infrastructure networks interact. It is the aim of this PhD to identify how the UK water-energy nexus may constrain the future UK energy system, and to ensure that ESME accounts for these constraints.

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