

## Catapult Researchers in Residence (RiR) Programme: Opportunity Description

### Whole System Modelling and Analysis

<b>Name of the Catapult(s)</b>	Energy Systems Catapult
<b>Location(s)</b>	Birmingham / Derby
<b>Description of the Catapult(s)</b>	<p>The Energy Systems Catapult is one of a network of elite technology and innovation centres set up by Innovate UK. The Energy Systems Catapult works with companies that are focused on exploiting the opportunities created by the need to transform global energy systems; not only playing a part in accelerating technology-based solutions, but also engaging with Government to address the market mechanisms and business models that will be required to enable such solutions.</p>
<b>Description of the Challenge</b>	<p>We are interested in working with Research in Residence candidates to enhance our whole system modelling and analysis capabilities to efficiently address environmental goals.</p> <p>Building on our existing capabilities, we have identified areas where further development can integrate approaches and models to give a fuller understanding and insight to potential outcomes at macro and micro levels of energy systems.</p> <p>We think it is important that the Researcher in Residence is engaged in shaping the project to meet personal as well as ESC goals and therefore welcome dialogue to define the scope of the project in more detail and therefore we invite prospective candidates' consideration of one or more of the following areas:</p> <ul style="list-style-type: none"> <li>• Combining quantitative and qualitative approaches to scenario planning for whole energy system transition at national scale</li> <li>• Approaches for the integration of energy modelling at multiple scales (national - regional - local; possible methods / value and impact)</li> <li>• Methods for visualisation and communication of energy system pathways</li> <li>• Exploring and developing the interface between energy system models and models of other systems (e.g. air quality, land, water, transport, cities etc.)</li> </ul> <p>These research areas will feed into the following EPSRC Ambitions within the Resilient, Connected and Productive Nation Outcomes:</p> <ul style="list-style-type: none"> <li>• R1: Achieve energy security and efficiency</li> <li>• R2: Ensure a reliable infrastructure which underpins the UK economy</li> <li>• R4: Manage resources efficiently and sustainably</li> <li>• R5: Build new tools to adapt to and mitigate climate change</li> </ul>

<p><b>Researcher Specification</b></p>	<p>The candidate should possess enough specialist knowledge in the subject area to develop the existing work within the current academic work on the topic.</p> <p>The candidate should have a PhD in a relevant discipline e.g. systems modelling, engineering, mathematics or economics; familiarity with energy (or other) system modelling, scenarios and integration of qualitative and quantitative techniques; and be able to communicate effectively with a wide range of stakeholders.</p>
<p><b>Other Details</b></p>	<p>The scheme is open to those with a contract of employment at a UK university, or PhD students who have submitted their thesis by the closing date and researchers who are eligible to receive RC funding as Principal Investigators. For more information see the RCUK Eligibility for Research Council funding page at <a href="http://www.rcuk.ac.uk/funding/eligibilityforrcs/">www.rcuk.ac.uk/funding/eligibilityforrcs/</a> and links to individual RC webpages on that page.</p> <p><b>Please contact us to discuss you project idea before you submit your application.</b></p> <p>Michael Edgar at ESC: <a href="mailto:Michael.Edgar@es.catapult.org.uk">Michael.Edgar@es.catapult.org.uk</a>          Scott Milne at ESC: <a href="mailto:Scott.milne@es.catapult.org.uk">Scott.milne@es.catapult.org.uk</a></p>
<p><b>Closing Date for Applications</b></p>	<p>September 21<sup>st</sup> 2018</p>