

The Committee on Climate Change – Call for Evidence  
7 Holbein Place  
London  
SW1W 8NR

4<sup>th</sup> December 2018

Emailed to - communications@theccc.gsi.gov.uk

## **Building a zero carbon economy – Call for Evidence**

We are writing in response to the above call for evidence, with input from research under the Horizon 2020 funded TRANSrisk project. Our response to the call for evidence focuses purely on question 11 (Costs, risks and opportunities). This is not to say, however, that we consider these issues on isolation, but this is where we feel we can add new knowledge.

### **1. Response to Consultation Questions**

#### **Question 11 (Costs, risks and opportunities): How would the costs, risks and economic opportunities associated with cutting emissions change should tighter UK targets be set, especially where these are set at the limits of known technological achievability?**

TRANSrisk's UK case study examined the feasibility of reaching current UK climate targets under two scenarios: nuclear expansion of up to 40GW by 2050; and no new nuclear (nuclear phase out), with expansion of renewables as alternative technological options. These two pathways were developed in consultation with stakeholders; they are intentionally extreme, in an attempt to explore both the emission and economic impact of nuclear policy.

Our modelling results suggested that meeting (and by implication, going beyond) current UK emissions targets only occurs on the nuclear expansion pathway. Additional new technology deployment (not all of which were included in our modelling) is needed for the no new nuclear pathway to meet current targets.

For economic policy, modelling suggests that both mitigation pathways would have little impact on economic growth and employment. This is an important point, as it suggests that fears around the negative economic impact of following a low carbon pathway are unfounded.

For emissions policy, the nuclear phase out mitigation pathway implies reliance on other technologies (e.g. CCS, large-scale electricity storage) which are untested at scale, have uncertain costs and may not be available on a 10-15 year timescale. This implies a risk that either climate targets could be missed, or that the cost of meeting them could substantially escalate. The nuclear pathway of course is not without risks either, particularly around the cost of both the technology and its legacy. For example, the NDA has estimated cleaning up the UK's current nuclear legacy will cost £234 billion provision (2018 value) over 120 years. There are also risks regarding potential nuclear accidents and proliferation of nuclear weapons.

This research used a mixed method approach, which involved qualitative and quantitative methods to identify and assess risks and uncertainties using a purpose-built framework. Interviews, surveys and face-to-face engagement were used to incorporate the expertise of 95 stakeholders from 33 different organisations (e.g. Government, private sector, universities and NGOs).

Stakeholder engagement was used to: identify the transition pathways, assess the implementation (and consequential risks and uncertainties) associated with transition pathways, and subsequently develop scenarios. These scenarios were translated to inform the macro-econometric energy-environment-economy model 'E3ME' to iteratively test the feasibility of the mitigation pathways.

The results of our work are summarised in the attached poster. They will be published in full during early 2019 in the book '*Narratives of low-carbon transitions: understanding risks and uncertainties*' (Routledge. Taylor & Francis Group).

## **2. About SPRU and the TRANSrisk Project**

With over 50 years of experience, SPRU (Science Policy Research Unit) at the University of Sussex is internationally recognised as a leading centre of research on science, technology and innovation policy. With over 70 faculty members, SPRU remains at the forefront of new ideas, problem-orientated research, inspiring teaching, and creative, high impact engagement with decision makers across government, business and civil society. <http://www.sussex.ac.uk/spru/>

TRANSrisk is a Horizon 2020 funded project studying risk and uncertainty in low carbon transitions across the globe. The project brings together 12 leading universities and research institutes from Europe and beyond. It is coordinated by SPRU at the University of Sussex. In the UK, TRANSrisk studied the potential role for nuclear energy in the decarbonisation of the UK power sector. <http://transrisk-project.eu/>

## **3. Contact Us**

If you require any further information on the views expressed in this response, please contact [transrisk@sussex.ac.uk](mailto:transrisk@sussex.ac.uk).

Yours faithfully

Ed Dearnley  
TRANSrisk Project Manager

Dr Rocio Alvarez Tinoco  
Research Fellow