Recovery from health, energy, and economic shocks requires better understanding of our responses to the dynamics of all three

Summary and context

The core aim of the CREDS Heat Theme has been to explore strategies for decarbonisation of heat in the UK, within an overarching Energy System Architecture Framework. Our initial findings suggest that existing energy system models are inadequate to handle multiple policy goals and that this undermines their usefulness for exploring strategies for energy system decarbonisation. The heavy emphasis placed by the energy research community on achieving net-zero sits uncomfortably with the multiplicity and emergent nature of other system objectives. This makes envisioning possible future energy system options and negotiating a feasible pathway towards a successful energy transition difficult. Our finding that different Energy System stakeholders hold divergent opinions on available technologies and strategies for decarbonisation reflects this.

Our most recent piece of work, System Shocks, Response, and Recovery (HCC_C-19) sought to engage with disadvantaged communities, professionals and expert system stakeholders to explore the aftermath and implications of the COVID Pandemic, the Energy Price Shock and the impending economic crisis. In this document we set out policy recommendations based on engagement with more than 200 participants, in a variety of settings, in this programme.

Current policies and impasse

March 2022 turned out to be an opportune time for the HCC-C19 integration project to engage with the disadvantaged communities and system stakeholders to discuss the decarbonisation of the UK energy system in the light of ongoing events. Participants illuminated the predicaments that they find themselves in. We have found that participants' experiences of health, energy, and economic shocks have exacerbated climate anxiety. Among system experts, DESNZ's recent decision to rebalance the goals of decarbonisation, system resilience and energy security, has led to concern that the UK's 2050 carbon target will not be met.

While emergency packages and support to help households with rising energy bills were in place in the UK by February 2022, community participants expected rising fuel prices and ongoing general inflation to be a protracted problem that would continue to erode their living standards. Professionals were concerned about whether their organisation's net-zero objectives could be met. And system stakeholders and experts were perplexed by the slow progress of the transformation of the country's energy infrastructure.

While there is a wide acceptance of the issue of Climate Change and support for an energy transition on the part of most of our participants, the combination of earlier policy responses to COVID, and current energy shocks, impacts negatively on a substantial portion of the population. In this light and to mitigate the risks of fracturing societal cohesion and trust in UK governments' competence to get us back onto a road to recovery and to steer us through a complex and profound energy and economic transition, we recommend the following:

Policy recommendations

- The research community needs to fully investigate, understand and articulate the policy decisions and contextual and structural factors that have led to the multiple system shocks experienced by the UK population since 2019.
- The Infrastructure Commission, Climate Change Committee (CCC) and the wider research community should urgently investigate emerging issues around energy and materials scarcity and constraints on substitution.
- Given the complexities of the overall situation, the question of how fast or slowly to decarbonise UK energy infrastructure has to be an open one. Rational debate about the pace of transition cannot be made in isolation from other system objectives and constraints.
- The CCC and the Health Security Agency need to promote public understanding of the processes for, and uncertainties associated with attribution of changing climate to anthropogenic emissions, in order to reduce climate anxiety.
- Grant-giving bodies should appraise and evaluate the effectiveness and inclusiveness of current policies and measures such as energy grants and energy advice, in order to improve energy equity, affordability, and accessibility.

Recent research communications

Abstracts and links to videos of keynote presentations to the Conference of the Association of Environment Conscious Building, 29-30 September 2023, are provided below:

Dr Lai Fong Chiu | Impacts of the pandemic and energy crisis responses on health and energy systems

Presentation abstract

From a system perspective, we analyse system shocks, responses, and recovery to reveal what makes systems either vulnerable or resilient. Using current and past quantitative and qualitative data, we investigate responses to the COVID_19 pandemic and to the energy price crisis that began in 2019. We will show that the health system and the energy system are not separate but are parts of wider system that sustains us. The pandemic has not only put our biological health at risk, but the responses to it appear to have triggered a deep economic recession, with implications for both material and human resources that could impede an energy transition.

- Video of Dr Lai Fong Chiu presentation
- Dr Lai Fong Chiu Academic profile

Prof Robert J. Lowe | Energy, economy and life: scarcity, substitution and the energy system transition

Presentation abstract

This presentation covers the relationship between energy, population and the economy, the Hubbert Curve, evidence for declining EROEI for fossil fuels, the logistic nature of energy system transitions, practical limits to energy substitutability, and the problems of negotiating multiple energy, material, economic and geopolitical constraints through the 21st Century.

- Video of Prof Robert Lowe presentation
- Video of joint Q&A
- Prof Robert J. Lowe Academic profile

Disclaimer:

The content and hyper-links in this briefing are intended for educational purposes and to support policy research. Data displayed in our presentations have been selected from peer-reviewed journals, grey literature, web articles, and reports, which we have interpreted and reinterpreted to the best of our abilities. But if you want to test our arguments, and to be sure that you are up-to-date with respect to the issues we discuss, you will need to conduct your own research.

Contact details

Lai Fong Chiu: laifong.chiu@ucl.ac.uk

This briefing should be referenced as:

> Chiu, L.F. and Lowe, R. 2023. Recovery from health, energy, and economic shocks requires better understanding of our responses to the dynamics of all three. CREDS Policy brief 029. Oxford, UK: Centre for Research into Energy Demand Solutions.

About CREDS

The Centre for Research in Energy Demand Solutions (CREDS) was established as part of the UK Research and Innovation's Energy Programme in April 2018, with funding of £19.5M over five years. Its mission is to make the UK a leader in understanding the changes in energy demand needed for the transition to a secure and affordable, net-zero society. CREDS has a team of over 140 people based at 24 UK universities

CREDS is funded by UK Research and Innovation, Grant agreement number EP/R035288/1

www.creds.ac.uk **@CREDS_UK**