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Energy Security: Understanding the Situation and Finding Solutions Through Research and Innovation

There are few subjects more topical than energy security. This evening we heard from four expert speakers about the UK's position with regards to energy security. Prof. Jim Watson, Professor of Energy Policy and Director at UCL's Institute for Sustainable Resources, outlined recent developments in energy security. Dr Rebecca Ford, Senior Lecturer and Chancellor's Fellow at the University of Strathclyde's Centre for Energy Policy, outlined how these factors effect peoples' daily lives. Prof. John Barrett OBE, Professor of Energy and Climate Policy in the School of Earth and Environment at the University of Leeds, discussed the role of demand-reduction in improving our energy system. Lastly, Dr Lucy Martin, Deputy Director of Cross-Council Programmes with the Engineering and Physical Sciences Research Council at UKRI, discussed UKRI's role in energy security and gave examples of how to improve the UK's energy system. We had an energetic Q&A session, mostly focusing on the implementation of the necessary changes to the energy system.

The International Energy Agency defines energy security as the uninterrupted availability of energy sources at an affordable price. Due to recent developments this idea has become more poignant to many. Prof. Watson explained how the UK's energy system is vulnerable to geopolitical events, with 25% of our oil and 57% of our gas being imported. After a decline due to the pandemic, we saw a rapid increase in the price of oil due to Russia's invasion of Ukraine, and similarly with gas we've seen the price go up six-fold to what we're used to paying. This has a direct effect on people's lives. Dr Ford outlined how the average annual energy bill has over doubled since 2020, and this may triple by April. Over this same time period there's only been a 10% average salary increase, meaning we're seeing more people in fuel poverty; in 2020 there were 3 million households in England

in fuel poverty, we're now expecting this to rise about 7 million.

The UK energy system needs to evolve. Both Dr Ford and Prof. Barrett emphasised how reducing demand for energy will be crucial over the next few decades. Prof. Barrett was part of a recent study looking into how to reduce energy demand undertaken by the Centre For Research into Energy Demand Solutions. The study found that through changes in social behaviour and efficiency programmes, the UK's energy demand can be reduced by 52% by 2050. Importantly, the social changes were only considered if they would maintain or improve individuals' quality of life. The study also found that without concerted efforts to reduce energy demand the UK will fall short of its 2050 net zero target.

Dr Martin outlined UKRI's guiding principles with regards to energy research, with reduction being one of them. She outlined a few examples of how such reduction could be achieved. The installation of heat pumps was one such example, which was also emphasised by Prof. Barrett and Dr Ford. The UK is currently performing worst in Europe on this front. Dr Martin also outlined how researchers at Cardiff had developed an energy positive household, which exports 1.3 times more electricity to the grid than it consumes.

Energy policy is crucial for any government, with it directly effecting people's everyday lives and having a profound effect on the environment. All the speakers outlined the need for a comprehensive energy plan with focuses on demand reduction and efficiency.

Alfie Hoar

P&SC Discussion Meeting, 'Energy Security: Understanding the Situation and Finding Solutions Through Research and Innovation'

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