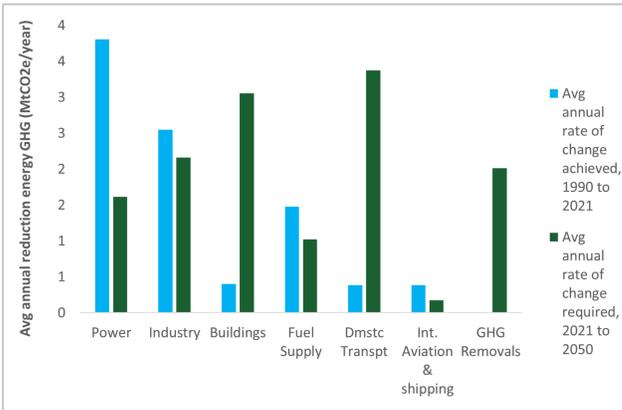# The UK energy research investment landscape and its fit with the pathway to net zero energy
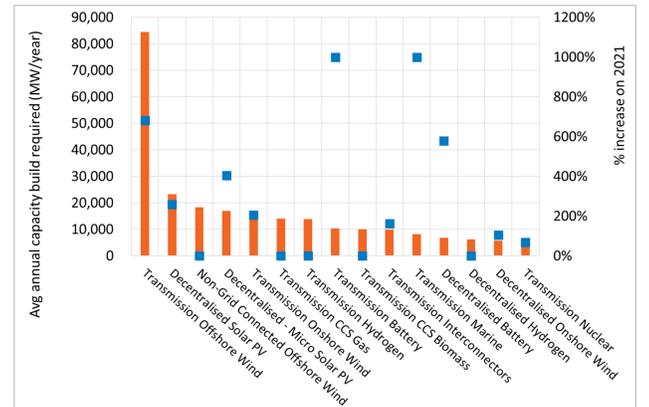
Dr Rachel Freeman. Senior Research Fellow, Bartlett School of Energy, Environment and Resources,

Net zero requires large amounts of (i) demand efficiency and fuel switching, (ii) new low-carbon generation capacity, (iii) new GHG removals capacity (iv) new flexibility capacity, and (v) changes to energy distribution systems


Required rates of reductions in GHG emissions in buildings and transport are much higher than achieved.

Rate of addition of GHG removals is very challenging for a new and complex technology.

Future achievements in industry require going beyond efficiency

Data: CCC, 2022 progress report to parliament; Balanced Pathway scenario

This poster presents early work from the Energy Research Investment Map (ERIMap) project.

Net zero requires a whole systems approach, drawing on expertise from all areas of energy research and industry.

The ERIMap platform will support collaboration and connectivity across a very large and diverse community of experts and implementers—all working to achieve national socio-technical energy transformation by 2050.

ERIMap is funded by UKERC *(ukerc.ac.uk)*

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Average annual addition of electricity capacity required, for the largest 15 combinations of connection and generation types (2021 to 2050).

Right axis shows percentage increase on installed capacity in 2021 (blue squares). (Note: Where 2021 capacity is 0, 0% increase is shown.)

*Data: National Grid, FES 2022; system transformation scenario*

Research funding is being invested across the energy landscape, from early to late technology development stages.

Data: UKRI and Ofgem active projects related to energy research. Funding values are sum of average award£ per year of project.
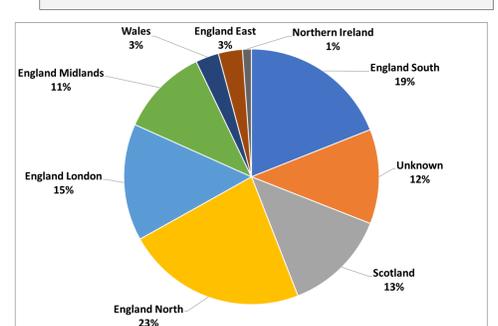
Number of projects by category and award £
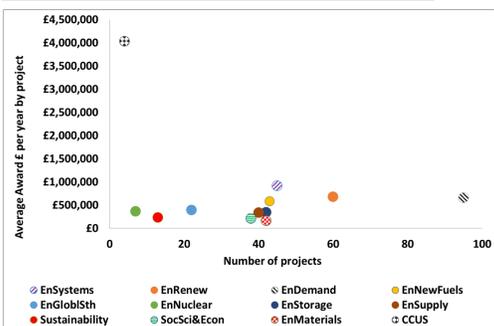
Spread of total award £ by principal investigators
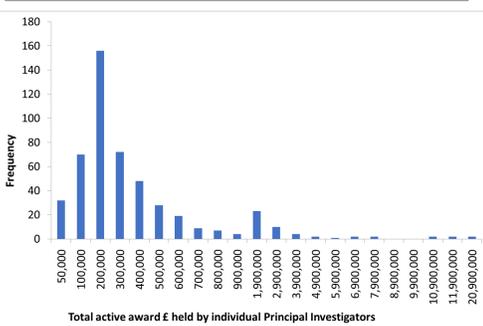
Share of award £ by region of lead organisation

Total active award £ per year, assigned to key technology areas, sectors, development stages