Report shows energy demand must be slashed to hit climate targets

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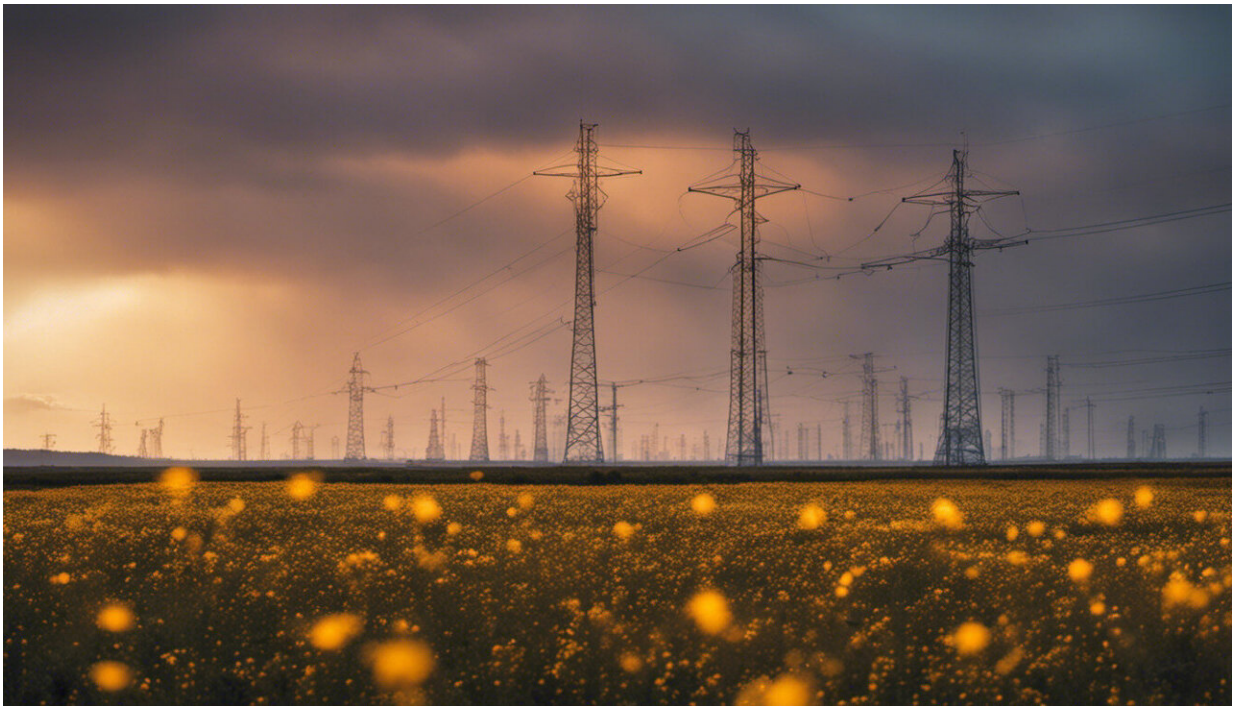

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Demand for energy in the UK must be significantly reduced if net zero targets are to be met, emissions reductions will not be enough, according to a report today from CREDS, the government-funded Centre for Research into Energy Demand Solutions, led by Professor Nick Eyre, Oxford Professor of Energy and Climate Policy.

CREDS Director, Professor Eyre says, "This report adds to the evidence base being assembled by the Oxford-led CREDS research team on the importance of energy use in achieving net zero. We have already shown that improvements in energy efficiency have delivered more carbon emissions reduction than anything else, and that further massive efficiency improvements are possible globally. With this report we set out a detailed analysis of how the UK can halve its energy use by 2050."

According to the report, "Without energy demand reduction we will not achieve the UK's emissions reduction target of 78% below 1990 levels, or our 2050 net-zero target."

But it goes on to set out how it would be possible for the UK to halve energy demand - with measures aimed at cutting usage across areas including transport, food and home heating.

The CREDS' team includes 140 people from 24 universities, including nine Oxford researchers. In addition to Professor Eyre, Professor Tim Schwanen and Dr Christian Brand, from the Transport Studies Unit, are advising on transport and mobility, while Dr Tina Fawcett, from the university's Environmental Change Institute, heads the policy and governance team (see full list below).

CREDS has modeled four possible scenarios for energy:

- Ignore – maintain existing energy demand,
- Steer – maintain existing demand, but aim to reduce emissions to net zero,
- Shift – follow an ambitious program of interventions with existing technology.
- Transform – use transformative technologies and change lifestyle and practices.

Under scenarios three and four, there would be a radical shake-up to daily life, although the report says, "None of our Low Energy Demand (LED) scenarios compromise our quality of life."

Mobility: The report points out three quarters of energy use comes from road transport and 24% from air transport. Its LED recommendations include:

- No road or airport expansion. No greenfield development. Roads to be repurposed for shared and active mobility.
- Investment should be doubled in public transport and cycle networks increased in all urban area.
- Single occupancy car use should become unacceptable. High taxation on more than one car per household.
- The national car fleet should be reduced and transition to 'car usership."
- Lower demand for aviation – because of increased public awareness.

Nutrition: 11% of the UK's greenhouse gas emissions are attributable to agriculture and land use. CREDS recommends:

- Under scenario three, daily adult calorific intake should be reduced by 15% to 2,686. Under scenario four, this should be reduced 27% to the recommended level of 2,500.
- Under both scenarios, the number of 'omnivores' must be reduced dramatically, from some two thirds of the population to less than 20%. Meanwhile, the number of vegetarians should multiply several fold.

Heat in domestic buildings: This accounts for 15.2% of total national greenhouse gas emissions in 2020, a share which has been increasing steadily since the 1990s. Under CREDS' two active scenarios, the report

envisages a range of moves, including:

- Gas boilers being phased out. Heat pumps phased in.
- A four day week being considered and more working from home.
- Gas hobs and ovens phased out by 2035

According to the report, by adopting the most radical measures, the UK could halve energy demand and by following scenario three, this could be reduced by 40%.

But, it says, "Energy efficiency improvements from heat pumps, electric vehicles and home retrofit, for example, are not the only options to reduce energy demand. In fact, our scenario analysis shows that by implementing energy efficiency alone without considering broader shifts in consumption patterns and reduction in energy service demands, net-zero is very difficult to achieve."

CREDS's report concludes, "Without energy demand reduction we will not achieve the UK's emissions reduction target of 78% below 1990 levels, or our 2050 net-zero target. The UK Government has yet to define how energy demand will contribute to achieving our climate ambitions. Given the evidence presented in this report, it is imperative that the UK Government outline a detailed strategy and supporting policies to enable energy demand reduction to fulfill its necessary role in achieving rapid emissions reductions in the UK.

More information: Report: low-energy.creds.ac.uk/the-report/

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