

Benefits of smart grids could bypass consumers, new report warns

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Hard-pressed consumers could miss out on benefits delivered by revolutionary energy smart grids unless they are clearly publicised and explained, a ground-breaking new study has said.

The pioneering report, produced by the UK Energy Research Centre

(UKERC), explores the emerging role of smart grids in the UK. It presents a vision of the near future where energy use is monitored in real time, home appliances are automated, and Britain is powered by a network of community run energy schemes.

Findings from the research show that there is a real appetite for change, both from industry and the public. However, the benefits of smart grids need to be clearly communicated and shared.

Developed using expert and public feedback, the research identifies four possible smart grid futures or 'scenarios'; from a world dominated by gas with little smart grid development ('Minimum Smart'), to one where renewables and electric vehicles are strongly incentivised and developed; leading to a consumer driven smart grid ('Smart 2050').

Of the scenarios developed, the least popular with the public was the 'Minimum Smart' scenario with just 8% support. The preferred option, with 53% support, was the 'Groundswell' scenario, which predicts a future where a significant amount of electricity is generated by households and through community led schemes. Participants chose the 'Groundswell' scenario because it showed a strong commitment to [renewable energy](#) (cited by 68% of public participants) and offered the opportunity to decrease energy bills (cited by 66%).

Smart meters which can monitor and control energy usage at domestic level are widely seen by experts as being an important part of smart grid development. However, a lack of strong data protection and privacy measures (cited by 60%), as well as consumer apprehension about sharing energy data (cited by 49%), were seen by the public as the biggest barriers to future UK [smart grid](#) development.

There was also concern that those on lower incomes would not be able to afford smart appliances and that vulnerable people could be taken

advantage of by companies, or miss out on potential benefits. Ensuring that the benefits of smart grids flow to consumers will play a key role in encouraging householders' participation. The report also highlights the critical need for a long-term, cross-sector policy vision for smart grids, which is likely to significantly enhance investor confidence.

One of the lead authors Dr Peter Connor, Senior Lecturer at the University of Exeter's Renewable Energy Group, said: "There is a real need to upgrade the UK's electricity grid to cope with the new technologies and new behaviours which are essential to ensuring we can keep the lights on while reducing emissions and keeping bills down.

"Increased use of intermittent renewables and new home based technologies such as heat pumps and electric vehicles will require smarter management and delivery of energy. Naturally energy consumers will have concerns about this transition and energy suppliers and the Government need to be switched on to their concerns."

The report suggests that key challenges must be overcome in preparing for the 'smart' revolution – such as low levels of public understanding of smart grids, misuse of data and concerns over energy suppliers remotely controlling [home appliances](#), as well as more fundamental difficulties in predicting how smart grids will develop over time.

'Smart grids' include a range of intelligent network options designed to transform the way we produce, deliver and use energy. However, smart grids face a chicken and egg problem; there is little incentive to develop them until [electric vehicles](#), heat pumps and renewables are more widely used, but increased deployment of these technologies will require smarter systems in order to maintain a reliable supply of electricity.

Dr Connor, who is based at the University's Penryn Campus in Cornwall added: "Making electricity delivery smarter could allow consumers' to

benefit from lower energy bills by matching tariffs to variations in their demand, as well as enabling more efficient energy use and more effectively integrating large amounts of renewable energy.

"However, appropriate policy will also need to address long-term issues around rising uncertainty in the energy sector and how it can be managed, the incentivisation of innovation and investment to develop smart technologies, as well as social equity so that vulnerable consumers are not disadvantaged."

Provided by University of Exeter

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