

Supporting large-scale transition to electric cars

Moving to a low-carbon economy is an important part of the Government's Industrial Strategy. A large-scale uptake of electric cars will enable significant cuts in carbon emissions, but needs policy support.

Policy implications

- The UK and other countries with high or increasing car ownership should ensure that new car CO₂ legislation and pricing incentives after 2020 are beneficial for plug-in vehicle (PIV) market development, and support the emerging PIV manufacturing base.
- Government should actively support the development and financing of new rapid charging services to ensure adequate roll-out of charging facilities across the UK.
- A range of financial and non-financial policy measures to support uptake are likely to be needed for some time. These could include continuation of the lower tax rate for Benefit-in-Kind company cars; an equivalent capital support for leased and rental fleets; and the use of revenue-neutral 'feebates' which combine a system of CO₂-graded vehicle pollution fees and PIV purchase rebates.
- Local and national government should provide further non-financial benefits, such as preferential parking and road access (as used in Norway).
- Moving towards a 100 per cent PIV uptake by the 2040s will require further infrastructure investment, as well as regulations that phase out

non-PIVs. Such action could be direct (procurement rules, emission zones) or indirect (increasingly stringent car CO₂ regulation, or penalties on petrol/diesel car production making them more expensive).

- The considerable 'co-benefits' (better air quality, less noise) will help meet health and other policy objectives.

About the research

The mass-market adoption of electric vehicles is widely seen as a cornerstone of the strategy to achieve the legally required carbon emissions cuts in the UK transport sector. An analysis by the UK Committee on Climate Change suggests that nine per cent of new car sales should be electrical vehicles by 2020, 60 per cent by 2030, and 100 per cent by the 2040s to meet carbon budgets cost-effectively – a rate of nearly doubling mass-market adoption of plug-in vehicles (PIV) year on year.

However, the uptake of PIV has been slow, with key barriers being recharging requirements, concerns about vehicle range, higher upfront purchase costs, lack of knowledge and limited choice of vehicles. Many of the transport modelling studies informing UK policy ignore the varied and segmented nature of the car market, as well as the psychological and sociological factors affecting consumer behaviour.

Researchers from the UK Energy Research Centre have developed a model to explore

About the research - continued

different scenarios of timing and scale for PIV uptake in the UK car market. The results show the importance of accounting for the complex and changing nature of the car market and the potential effects on wider lifecycle emissions from different uptake scenarios – providing policy-focused evidence on likely scenarios for mass-market transition to PIVs.

Key findings

- The predicted low uptake of PIV towards 2020 suggest that targets may have to be revised and other policy measures implemented, including demand measures that do not rely on the relatively slow turnover of car stock.
- To achieve the deep emissions cuts needed for the Government's carbon emission targets through large-scale transition to electric cars, we may need a wider set of 'push' and 'pull' measures than the current focus on vehicle technology and supporting fiscal incentives.
- The car market is highly varied and segmented, both in terms of supply (choice of vehicles) and demand (private/fleet, consumer segments). A strategy that attempts to integrate these aspects is likely to be more effective than a strategy focusing purely on technological change.
- The measures needed to transform the UK car market may have to go well beyond what recent modelling studies suggest: none of the ambitious scenario pathways achieved the 2030 target of 60 per cent PIVs proposed by the Committee on Climate Change.

The uptake of plug-in vehicles has been slow, with key barriers being recharging requirements, concerns about vehicle range, higher upfront purchase costs, lack of knowledge and limited choice of vehicles.

BRIEF DESCRIPTION

Research from the UK Energy Research Centre, outlined in the paper *Modelling the uptake of plug-in vehicles*, examines the timing, scale and impacts of the uptake of plug-in vehicles in the UK car market from a consumer perspective. The results show the importance of accounting for the varied and segmented nature of the car market, social and environmental factors, as well as considering how different uptake scenarios affect wider lifecycle emissions.

Web: www.ukerc.ac.uk/publications/modeling-the-uptake-of-plug-in-vehicles-in-a-heterogeneous-car-market-using-a-consumer-segmentation-approach.html

FURTHER INFORMATION

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