



Who ultimately pays for the electricity network upgrade for EVs?

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Introduction

The UK and Scottish Governments have set ambitious targets for the roll-out of electric vehicles (EVs). The predicted rapid expansion in EV ownership over the next couple of decades will see a shift in demand away from petrol and diesel fuels and towards electricity. The mass roll-out of EVs is likely to require upgrades to the electricity network itself, which will carry significant costs. The Centre for Energy Policy is partnering with SP Energy Networks in a National Centre for Energy Systems Integration (CESI) project that integrates energy and economic system modelling approaches to investigate the crucial question of who ultimately pays for the costs of upgrading the power network to facilitate the intended roll-out of EVs.

What do we mean when we ask ‘who ultimately pays?’

We propose three underpinning principles in analysing ‘who ultimately pays’ **the costs** for the network upgrade required for EVs. *NB. This is prior to any consideration of how EV uptake may offset these costs particularly at aggregate level:*

1. **To fund the necessary investment, costs are passed on to consumers through their bills.** The cost can be recovered over a relatively long (multi-year) time period, and may ultimately be recovered more directly from EV users as uptake increases.
2. **Commercial customers are likely to pass on their increased costs through their own prices.** Ultimately this will ripple through to domestic consumers in prices of other goods and services. Where firms export their output, the impact on UK households may be less direct, through the employment and income effects of any loss in competitiveness.
3. **The process of large scale investment in electricity network infrastructure could cause price increases and negative wider impacts**

across the economy as the construction sector in particular draws in additional labour and capital resources. The nature and extent of any negative impacts will depend on the extent and time period over which the investment activity to upgrade the network takes place.

Focusing on this latter point to start with, our initial analysis suggests that the lowest income households would suffer the least if the economy contracted in this way. This is because lower income households get less income from the economy. The highest income households would also suffer less where they have an ownership stake in construction activity through their investments. Middle income families would be likely to be the biggest losers because of their reliance on wage incomes earned across all sectors of the economy.

The next stage of our project investigates this further considering a range of investment scenarios, with initial focus on 2030/32 interim time frames and the RII02 price control period. We will also begin to explore how the **costs of the network upgrade** may be increasingly offset by **benefits** accruing to many UK households as the roll-out and uptake of EVs gains pace.

Next Steps

We are engaging with a broad range of stakeholders to inform our scenarios and to ensure our project outputs are as useful as possible. Anyone interested in engaging directly with the project should contact christian.calvillo@strath.ac.uk. We published a [project Research Briefing](#) in November 2018. The current briefing paper will be followed by a fuller one discussing our final conclusions in Spring 2019.