



3 – Acceleration of electric vehicles (EVs) and EV infrastructure

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Introduction

Why is this sector important for the environment?

Petrol and diesel vehicles remain a significant contributor to the UK's domestic emissions, with up to 91% of the CO₂ produced by the transport sector coming from road travel¹¹. This represents about a fifth of the UK's overall greenhouse gas emissions. Among these emissions are many other harmful products, including carbon monoxide, nitrogen oxides and solid carbon particulates.

Atmospheric concentrations of CO₂ have increased rapidly in the last 70 years, reaching the highest levels the planet has seen in over three million years. There is clear evidence of the impact man made emissions are having on climate change and on long term public health, as air pollution contributes to 36,000 premature deaths a year in the UK¹².

What contribution could it make to future economic growth and job creation?

The automotive industry is an important contributor to the global economy, with estimates of up to 1.6% of global GDP coming from the sector¹³. The Government committed to bringing forward the phase-out date for internal combustion engine (ICE) vehicles from 2040 to 2035 earlier this year, so a nationwide public and private charging network, resilient supply chain and the skills to deliver these will be crucial to the sector's future success.

Surveys¹⁴ carried out by the National Grid suggest range anxiety is a prevailing factor in consumer aversion to EVs. Connecting our highways and rural communities to reliable charging is essential, building on the Government's current vision that nobody will be out of range of a rapid public charger.

What is the opportunity?

Throughout this pandemic we have seen spirited collaboration across our society, with Government, businesses and local communities coming together to transform production lines, innovate new medical technology to treat COVID-19 patients and protect the most vulnerable. Much of this has been done to timescales that would have previously been thought of as impossible.

As we restart our economy, we should embrace this collaborative spirit and sense of urgency to clean up our transport sector. These are potentially life-saving solutions with serious implications for

¹¹ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/878642/decarbonising-transport-setting-the-challenge.pdf

¹² <https://www.bmj.com/content/362/bmj.k3632>

¹³ https://greensillwebsite.s3.amazonaws.com/uploads/2020/04/drive_to_survive.pdf

¹⁴ <https://www.nationalgrid.com/document/125116/download>

public health. Air pollution is projected to cause 2.5 million new cases of acute health conditions such as heart disease, stroke and asthma if current levels persist¹⁵.

A move to electric vehicles will also save considerable costs to Government. In 2017, health conditions caused by air pollution were estimated to cost the NHS £157m; this is expected to rise to as much as £18.6 billion by 2035 on a, 'do nothing', scenario¹⁶.

Shifting to EVs will cut our contribution to greenhouse gas emissions, improve air quality and have huge benefits for the health of our communities and public expenditure.

It also provides an opportunity to secure the UK's share of future economic growth in this industry, generating high-quality, green jobs across the UK.

What is the current size and economic health of the sector?

The automotive industry is experiencing a global contraction as a direct result of COVID-19. Yet, against a backdrop of falling sales, the EV market continues to show signs of resilience. Here in the UK, where automotive sales are among the hardest hit¹⁷, the number of new registrations of EVs increased compared to this time last year, while petrol and diesel registrations fell as far as 66%. Remarkably, registrations of new battery electric vehicles (BEVs) even grew this May, up 21.5% on May 2019¹⁸.

The transition to an electric future is well underway in European markets. In March 2020, over 75% of new vehicle sales in Norway were reported to be electric¹⁹, and market insights point to there being 330 different EV models available to buy in Europe by 2025²⁰, representing a groundswell of consumer choice and industry competitiveness.

What the Government has done recently

The Government continues to consult on ways to advance its vision for the charge point network.

Alongside its commitment to bring forward the phase-out of petrol and diesel cars to 2035, the Government committed over £500 million in the March 2020 budget for a nationwide public charging network. Extra spending was also directed towards consumer incentives like the plug-in car grant. This is coupled with a round of private capital raised in 2018, backed by HM Treasury, bringing the private sector on board and directing significant and meaningful investment to the EV supply chain.

¹⁵ <https://www.imperial.ac.uk/news/186406/air-pollution-england/>

¹⁶ Ibid.

¹⁷ <https://ihsmarkit.com/research-analysis/covid19-global-auto-demand-tracker.html>

¹⁸ <https://www.smm.co.uk/vehicle-data/evs-and-afvs-registrations/>

¹⁹ <https://cleantechnica.com/2020/04/02/norway-ev-market-share-breaks-all-records-75-of-vehicles-sold-have-plugs/>

²⁰ <https://thedriven.io/2019/07/24/electric-vehicle-sales-to-surge-across-europe-with-2020-seen-as-new-tipping-point/>

What are the policies?

Beyond continued funding for the public charge point network, creative solutions focusing on smart charging in homes, supporting the supply chain and re-skilling could have a high impact on the recovery of the industry.

Smart charging in all new homes

The retrofitting of homes with certain types of charger is already subsidised by the Government under the Electric Vehicle Homecharge Scheme. According to a 2019 Government consultation, the average cost saving of installing chargers in new homes over retrofitting them into existing homes is £1,064 per charge point. As the Government continues to fund local council charging schemes and invest in electric public transport, it's equally important that future homebuilding is compatible with the emerging EV landscape.

Legislating to ensure that all new homes in future developments include personal charging points as standard would make a huge impact on personal charging infrastructure and help secure demand for EVs. Secondary legislation to ensure that all new home chargers are 'smart' could reduce the impact of charging EVs during peak electricity times by 83%, according to some studies²¹.

Where this might not be possible, developers should be required to contribute to local authority on-street charging schemes, similar to the Section 106 and Community Infrastructure Levy contributions already made towards local infrastructure.

Supporting the supply chain

Studies²² suggest that, even with generous fiscal support, the global financial impact of COVID-19 will be severe on the automotive industry. Backing the wider EV supply chain is important for the growth of the sector following this pandemic.

Through the Charging Infrastructure Investment Fund, the Government has set a precedent in raising private funding to aid the national EV rollout. The Government could further engage in Supply Chain Finance, securitising the invoices of small, supply-side companies and offering these as attractive bonds to investors at a time when interest rates are otherwise low. This would unlock liquidity in the supply chain and help the many businesses involved in automotive supply to stay competitive and reinvest in themselves, growing their production lines or boosting their spending on Research and Development.

²¹ https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2019/May/IRENA_EV_smart_charging_2019_summary.pdf?la=en&hash=8A4B9AB5BAB3F2341B366271DCA6FF7EE802AED4

²² <https://cdn.ihsmarkit.com/www/pdf/0520/IHS-Markit-Automotive-Rapid-Response-Vol-8-13MAY2020-Final.pdf>

Re-skilling and job creation

Even before coronavirus, the job market had started to undergo huge change as new technologies in automation, data analytics and mobile connectivity begin to revolutionise ways of working and the skills required by employers.

Investing in the roll-out of EV's and their associated infrastructure provides an opportunity for the UK to get ahead. As this investment takes effect, industry demand for high-quality manufacturing jobs and re-skilling will increase. This demand could be met by training people in charge point installation and maintenance, and creating Green Apprenticeships certified at NVQ Level-6 (degree equivalent) in areas such as battery technology.

The number of people enrolled on Degree Apprenticeships has grown year-on-year since their introduction, with many having been with their employer for over 12 months before choosing to further enhance their skills²³. By incentivising industry and universities to focus on green technologies, there is opportunity to create both a resilient, green workforce and new revenue streams for Higher Education providers in the recovery from this pandemic.

Further mechanisms for delivering training could include social enterprises and Zero Carbon Academies. Social enterprises offer a low-cost solution to train and re-skill people for the green economy, including the EV rollout. These could be particularly effective when focused on training specific groups such as armed forces veterans, or within specific geographical areas where a large industry or employer has closed.

Zero Carbon Academies could be located on strategic sites around the country where the Government is looking to level up investment and create opportunity for nearby communities. One such location is the site of the Ratcliffe-on-Soar Power Station in Nottinghamshire, which is soon to be decommissioned and re-purposed as a zero-carbon technology and energy hub, with an expected 25,000 jobs to be created once the project is complete.

A more ambitious target

The coronavirus pandemic has shown that we can achieve a great deal in a very short time when circumstances dictate that we must. Therefore, we also recommend that the Government adopt the more challenging target set by the Committee on Climate Change, to phase out ICE vehicles by 2030 instead of 2035. This nearer end-date will provide the catalyst to ensure that the roll-out of EVs gets the focus and investment it needs.

²³ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/766962/Apprenticeship-and-levy-statistics-December-2018-2.pdf

Recommendations

- 3) Legislate to ensure new homes include personal electric vehicle smart charging points or contribute to local authority on-street parking schemes;
- 4) Support supply chain finance for small EV supply-side companies;
- 5) Train for charge point installation and maintenance, and create green apprenticeships certified at NVQ Level-6 in related areas such as battery technology;
- 6) Support social enterprises and zero carbon academies to train and re-skill people for the green economy; and
- 7) Adopt the Committee on Climate Change's recommendation to phase out internal combustion engine vehicles by 2030.