

Written evidence submitted by the National Grid (EVP0117)

Introduction

National Grid sits at the heart of Britain's energy system, connecting millions of people and businesses to the energy they use every day. We understand our responsibilities to the environment and future generations, and we are working to develop solutions to make the transition to a clean economy, in which nobody is left behind. Furthermore, as we look ahead towards recovering from the COVID-19 pandemic, it is important that we seize the opportunity to be world leading in decarbonising our economy as a driver of economic growth.

The delivery of net zero energy infrastructure will be a central component of the green recovery, providing an opportunity to unlock hundreds of thousands of skilled and meaningful jobs whilst simultaneously delivering on the UK's net zero commitment. Research conducted for National Grid¹ in 2020 showed that to reach our net zero target, the energy industry would need to recruit for 400,000 jobs by 2050, with around 120,000 of these needed this decade. Importantly, these opportunities will be generated right across the country. To realise this opportunity, delivery at pace from Government and the private sector, working in partnership, will be key in both 2021 and beyond.

National Grid is an enabler of future clean transport by ensuring clean power can be efficiently moved from where it is generated to where the transport sector needs it. Given that the transport sector is the largest contributor to UK carbon emissions, National Grid has been working to support the roll out of Electric Vehicle (EV) charging infrastructure for domestic vehicles for some time. More recently we have also been considering the role we can play in supporting the transition of other transport modes, including Heavy Goods Vehicles (HGVs) and buses, which remain the two largest elements of road transport yet to be on track to decarbonisation.

The electricity networks operators, together, can enable a smooth and efficient consumer transition to EVs by providing the future-proofed electricity network infrastructure required to deliver a pan-UK network of ultra-rapid EV charge points. This network of high-powered chargepoints will be required to provide mass-market EV drivers with the consistency and confidence in charging infrastructure to overcome a key barrier to EV uptake, range anxiety.

We are continuing to work with a broad set of stakeholders across both industry and Government to further explore how to efficiently deliver the underlying electricity network infrastructure required to support the drive towards transport decarbonisation. This response aims to provide National Grid's perspective on the energy infrastructure required for transport decarbonisation to be successful.

Understanding National Grid

National Grid Electricity Transmission (NGET) owns the high voltage electricity transmission network in England and Wales. The network covers some 7,212km of overhead line and 2,239km of underground cable. We connect sources of electricity generation to the network and transport it onwards to the distribution system, so electricity can reach homes and businesses. Following the legal separation of the Electricity System Operator (ESO) from NGET, its views are not represented in this submission.

Alongside this, National Grid also owns, manages and operates the high-pressure gas transmission network across Great Britain, taking the gas to where it's needed. Outside of National Grid's core regulated businesses in the UK our National Grid Ventures business develops, operates and invests in energy projects, technologies and partnerships to accelerate the development of our clean energy future. This diverse portfolio includes sub-sea electricity interconnectors and liquefied natural gas assets.

National Grid is committed to running safe and reliable networks at the best cost to consumers whilst enabling Britain to meet its net zero carbon emissions target by 2050.

Accelerating the shift to zero emission vehicles

National Grid welcomes the Government's announcement to bring forward the date on the ban on the sale of internal combustion engine (ICE) cars and vans. We believe the electricity system can cope with the increased demand from EVs, especially with the utilisation of smart charging.

EVs present a huge opportunity to improve our air quality and for the UK to be a leader in mobility. However, consumer "range anxiety" still presents a significant barrier to EV uptake, and infrastructure is essential to provide confidence and continuity in EV charging across the country, as set out in the Office of Zero Emission Vehicles' (OZEV) Project Rapid² vision announcement. A high-powered EV charging backbone along the strategic road network will unlock the necessary investment and, alongside other charging options, provide everyday consumers with the confidence to purchase an electric vehicle.

In 2019, National Grid developed some analysis which identified a minimal electricity network infrastructure solution to overcome consumer range anxiety. We identified sites along the strategic road network (SRN) where an upgraded electricity network connection would enable EV drivers in England and Wales to be within range of an ultra-rapid charging station – with the ability to charge a vehicle in the time it takes to purchase a coffee.

We welcomed the announcement in the 2020 Spending Review to increase the Rapid Charging Fund to £950m (from its previous £500m) to support the roll out of sufficiently high-powered EV charging infrastructure and to overcome the cost barrier of connecting to the electricity network for service stations along the strategic road network. We support OZEV's ambition to deploy this enhanced Rapid Charging Fund to deliver 'futureproof' electricity capacity.

Given each electricity network connection could take on average two and a half years to build, it will be important for Government to ensure the timely deployment of this fund. This will be vital to ensuring the energy network infrastructure is in place to deliver the EV charging capabilities required to drive mass-consumer confidence. In order to ensure the most economic and efficient delivery of infrastructure, the Government needs to be ambitious, and ensure the Rapid Charging Fund is deployed to deliver fully future-proofed electricity network capacity, fit to accommodate the longer-term demand for EV charging, such as HGVs.

It is also crucial that nobody is left behind in the transition to low-carbon transport. In addition to providing consumers with confidence that there is consistency of charging infrastructure, it is right that all nations and regions feel the benefits from decarbonised

transport, including cleaner air. It is therefore crucial that the devolved nations and regions are supported to deliver on their transport decarbonisation ambitions.

We also support the Government's ambition to phase out ICE HGVs, which are a large contributor to carbon emissions. There are 300 HGV parks on the Strategic Road Network, which includes 75 Motorway Service Areas (MSAs). Broadening the scope of Project Rapid to support HGVs in these locations, will provide an opportunity to efficiently support the decarbonisation of HGVs. Cars and HGVs could share the same electricity connection for en-route charging and/or localised electrolysis for hydrogen, at those sites. The Government could consider using the existing £81m R&D fund to trial this at some sites. This would help to drive efficiencies for this in the long term.

Whilst en-route charging will be essential for HGVs it will only form part of the infrastructure solution required. HGVs will also need dedicated charging hubs, at strategic locations around the country - which could act as "home" charging for HGVs, when they are parked up.

These hubs could also support other modes of transport, such as bus fleets, council and blue light vehicles could all be served by large scale hubs supporting the charging of all these vehicles in one location, closer to the existing electricity network, which will minimise disruption and cost. This could also provide an opportunity for town and city planners to make better use of land use in central locations where bus depots currently occupy premium space.

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Endnotes

¹ National Grid (January 2020), [Building the Net Zero Energy Workforce](#)

² [Government Vision for Project Rapid](#)