# Low carbon transport priorities for Northern Ireland

Transport in Northern Ireland (NI) is the second largest contributor to emissions after agriculture, accounting for 23 per cent of emissions in 2018, though this is a smaller proportion than in the rest of the UK. This figure has remained relatively stable over recent years, with increased vehicle efficiency offsetting increases in vehicle ownership[1]. NI has reduced its emissions the least out of the four UK nations between the base year (1990) and 2018 – 20 per cent reduction compared to 43 per cent for the UK overall, meanwhile transport emissions have increased by 29 per cent[2]. Transport is projected to remain a significant source of emissions in 2030, accounting for a 25 per cent share[3]. Car dependency is high in NI with many choosing their cars over public transport, particularly in rural and semi-rural areas where public transport provision is not as comprehensive as in the cities.

Despite these challenges, significant opportunities exist across the traditional sustainable transport hierarchy to decarbonise transport in NI. The NI Executive has reconvened after an almost three-year hiatus. In the intervening period important opportunities have been missed and is now more important than ever that past successes are built upon and greater consideration is given to low carbon transport policy in NI. Since returning, the Executive has made it clear that it wants to make up for lost time and is in the process of formulating a wide-ranging Energy Strategy that looks promising in its scope and ambition. Energy Saving Trust responded to the consultation on the Energy Strategy[4] (see Appendix 1).

NB Whilst we recognise that issues around transport decarbonisation encompass more than active travel, public transport, and electric vehicles (EVs), we will be focusing in on these key areas here. We have chosen to do this partly because these are areas in which we are able to speak with some experience and expertise and because they represent policy areas for which we have ready solutions and examples to draw upon, as well as being sectors which the NI Executive has expressed an interest in addressing. The decarbonisation of aviation and various forms of shipping will be increasingly important as we draw closer to 2050 and are sectors which NI relies upon for trade and connectivity. We will not be discussing these areas here, but this does not mean they should not be important considerations for the NI Executive moving forward.

Although the measures implemented to control the spread of coronavirus (COVID-19) are likely to have significant impacts on travel, particularly in public transport, the majority of the priorities proposed here remain the same post-COVID. It has been widely reported that across the UK, and the world, the public have appreciated the cleaner air that lockdown has provided, and the number of people opting for active travel options has increased significantly, a note of positivity amongst what has otherwise been a devastating global crisis. The calls for a green recovery have been wide-ranging and persistent. It will be crucial to harness this public support for sustainable travel and sustainable policy more generally.

[1] NI Carbon Intensity Indicators 2019, 2019
[2] Northern Ireland Greenhouse Gas Emissions 2018, 2020
[3] Northern Ireland Greenhouse Gas Projections Update, 2020
[4] Energy Saving Trust Response to Northern Ireland Energy Strategy, 2020

## Active Travel

The most recent statistics for NI show that 19 per cent of journeys are made on-foot (compared to 27 per cent in England[5]) with only 1 per cent of journeys being made by bicycle[6] (compared to 2 per cent in England). The COVID-19 pandemic has heightened calls for a modal shift to active travel options, particularly cycling, which has seen a 70 per cent increase in some areas since lockdown[7]. This provides an opportunity to assess what is required to allow a future scenario in which active travel is the natural choice for shorter journeys and make investments at a time when the public are valuing the opportunity to walk and cycle more. We welcomed the news that the NI Executive plans to accelerate the creation of active travel routes. This, more than ever, needs to be a priority in as many urban and peri-urban areas as possible as the coming months and years will likely see the public deciding between increasing car use or active travel, as fears over the coronavirus (COVID-19) may work to slow the uptake of public transport – potentially reversing a positive trend towards greater public transport use in NI in recent years. We would like to see the Executive, working alongside local councils, leveraging its powers over the planning process to make provision for active travel options at new developments, as is the case in Wales[8].

The Bicycle Strategy for Northern Ireland[9] represents a positive and welcome approach but has seen progress slow in recent years. When introduced in 2015, the 25-year plan sought to build an extensive network of bike lanes, support those who chose to cycle, and promote cycling as a suitable mode of transport for everyday use. This programme must be reevaluated and enhanced with priority given to increasing the incentives for more NI citizens to engage in active travel through subsidies for traditional, and ebikes, ideally through grants, or interest free loans. The ebike interest free loan has seen a surge in demand in Scotland with applications in 2020 up by 200 per cent compared to 2019. A project that Energy Saving Trust administers in England, sees the public offered a £50 bike repair voucher, redeemable at certified traders, to be used for minor repairs to make bikes roadworthy. A similar scheme introduced by the NI Executive could prove popular.

## Public Transport

At the same time as rates of walking and cycling have increased, public transport use has experienced a precipitous drop in passenger numbers following the lockdown. In NI the proportion of journeys made via public transport is lower than the rest of the UK at 5 per cent[10]. It is unlikely that public transport will see a 'V-shaped' recovery in passenger numbers once restrictions and government guidance on travel are lifted[11]. Public transport operators must be protected during the current crisis, so that they are still operational in the medium to long term.

Developing a Transport Transition Plan, similar to that being produced by Scottish Government[12], is a worthwhile endeavour as it allows government to be strategic in its investments. The Transport Transition Plan will prioritise keeping the public safe in the short term when using public transport, assess ongoing demand for travel and plan ahead – adapting the transport system as required, and

[5] Evans, Kelly and Slocombe, 2019
[6] Travel Survey for Northern Ireland Headline Report 2016-2018, 2019
[7] Davey and Shirbon, 2020
[8] Planning Policy Wales, 2020
[9] A bicycle strategy for Northern Ireland, 2015
[10] Travel Survey for Northern Ireland Headline Report 2016-2018, 2019
[11] Consumers set to abandon public transport as a result of COVID-19, 2020
[12] Transport Transition Plan, 2020

continue to engage with stakeholders to determine the most effective way of tackling the immediate coronavirus (COVID-19) threat and planning for a sustainable transport future. The expected lull in passenger numbers could prove to be a useful window in which to invest in rail line improvements, updating bus fleets, and other light rail or tram solutions in urban areas. The fact that public transport is largely under public ownership in NI gives the government greater scope to implement the changes required to upgrade the public transport sector, including the rollout of rail electrification and electric and low carbon alternative fuel buses.

**Ultra Low Emission Vehicles (ULEVs)**

Despite the strong ambition shown in the unsuccessful 2015 Go Ultra Low Cities bid, NI currently lags behind the other UK nations in support for EVs with minimal charging infrastructure and no dedicated NI-specific support programmes for uptake[13]. This, along with lower average household incomes[14], and a range of other factors have resulted in limited uptake of EVs in NI. It is likely that the transition to net zero in NI will require a strong reliance on EV rollout, both because of the high share of total emissions that come from transport in NI and a higher reliance on personal vehicles in NI than in the other nations of the UK. Once again there exist a number of opportunities in this area for the NI government to capitalise on. As a preliminary step, promoting positive behaviour, such as ecodriving, offers considerable scope for reducing transport emissions through driver behaviour change whilst encouraging the public to consider the environmental impacts of their transport choices. In terms of geography NI is relatively small and the average length of a journey is only 6.5 miles[15]. This is likely to mean that public concerns around EV range are not such an issue, with home charging being the main source of energy and EVs providing ample range for consumer's daily car use. Businesses operating vans will also be likely to adopt electric vans as shorter distances will mean their use is viable.

Adequate charging infrastructure, including in rural areas and on residential streets with minimal capacity for off-street parking, is essential to supplement home and business charging. Until recently, the commercial rollout of EV chargers was constrained by the Maximum Resale Price (MRP) mechanism which prohibited ULEV charging companies from selling the electricity supplied to them at a profit, resulting in only one commercial EV charging company being active in NI as recently as last year. Following a consultation into the MRP it has been amended, with an "exemption for the resale of electricity where it relates to the propulsion of a ULEV"[16]. This amendment is a positive step in the facilitation of greater EV charger rollout and shows vision on the part of the Executive.

The NI Executive is at something of a crossroads given the relatively low levels of EV charger penetration. They could opt to be more strategic in their approach by following a course of action more in-line with the Scottish Government who were able to invest ahead of demand, and so arguably provide a better network that addressed concerns around range, supplied sufficient chargers, and was able to provide for challenging locations such as rural areas and urban areas with minimal off-street parking options. Alternatively, the Executive could maintain a more 'hands off' approach, similar to that undertaken in England, which left the provision of charging infrastructure in

[13] ecarNI Electric Vehicles and Cars Northern Ireland, 2020
[14] Regional gross disposable household income, UK: 1997 to 2018, 2020
[15] Travel Survey for Northern Ireland Headline Report 2016-2018, 2019
[16] Consultation on Maximum Resale Price as it applies to Ultra Low Emission Vehicles (ULEVs), 2019

the hands of local councils and individual developers. This approach will likely minimise cost in the short term but is demand-driven and may result in particular communities being left behind.

**Personal**

Support for personal EV uptake should include:

- Improved charging infrastructure, with the considerations expressed above taken into account, and both home and workplace chargers provided.
- Grants/subsidies/interest free loans for EV purchases perhaps through a generous scrappage scheme for older fossil fuel-powered vehicles.
- Supporting dealerships and the public with easily accessible information on EVs. Energy Saving Trust is involved in a programme to upskill and provide resources to the retail sector, with participating dealerships receiving easily recognizable 'Electric Vehicle Approved' accreditation[17]. Recent analysis has shown the importance of communication and engagement in promoting EV uptake[18].

**Fleets**

EV fleet procurement provides an excellent opportunity to demystify EVs for the general public and have a significant impact on the new car sales market, and subsequently on the second-hand market. Though the number of private fleets in NI is small, there is significant potential through public sector procurement given the 7,600-vehicle public sector fleet[19] and this should be prioritised as soon as possible. Energy Saving Trust delivers a Fleet Support[20] programme to help fleet purchasers make the switch. There are a number of councils across the UK who are committing to ULEV procurement for their public sector fleets, and lessons could be drawn from these case studies[21,22]. Public sector and government fleets have been priorities in England, Scotland and Wales, so a scheme to support public fleets to lead from the front will be important to support NI in catching up with the rest of the UK.

[17] National Franchised Dealer's Association (NFDA)'s Electric Vehicle Approved (EVA) pilot scheme to certify EV retailers' excellence endorsed by Office for Low Emission Vehicles (OLEV), 2018
[18] Report reveals what has been learnt from the Nottingham ULEV Experience - ULEV, 2020
[19] Contract for motor vehicle insurance for the NI public sector fleet, 2020
[20] Transport and Fleet, 2020
[21] Barlow, 2020
[22] Dundee City Council, 2020

# Appendices

Appendix 1: Energy Saving Trust response to transport-related sections of the NI Energy Strategy consultation

**Q30. What would be an appropriate pathway to decarbonised energy for transport to 2050?**

Energy Saving Trust plays a significant part in supporting the UK's transition to a zero emission transport system. We promote ULEVs and the development of charging infrastructure, fuel efficiency and active travel by working with businesses, local authorities, national government fleets, private drivers, and supply chains. Funded by the UK's Department for Transport and Office of Low Emission Vehicles (OLEV), Energy Saving Trust delivers the UK Government's Road to Zero strategy and delivers a wide-range of services under an innovative programme for Transport Scotland.

Any pathway to decarbonised transport should be based on the sustainable transport hierarchy and must ensure that walking, cycling, and wheeling are seen as preferred options for shorter journeys. For longer journeys, where public or shared transport is not viable, EVs should be the preferred alternative to petrol and diesel vehicles.

Investing in public transport, including electric buses, and other forms of low carbon, shared mobility, should be a priority particularly in rural areas where there could be less incentive for private investment.

An appropriate pathway will seek to incentivise uptake, build confidence in the technology among Northern Ireland's communities, and will need to consider the specific challenges for different sectors and user groups. Encouraging public and private sector fleets to buy or lease electric cars and electric vans could be a highly effective initial step for Northern Ireland. Adopting these vehicles is often cost-effective for the organisation and normalises the use of EVs among staff.

Additionally, encouraging the uptake new EVs by fleets is essential to generate the lower cost, used vehicles for those in the community who cannot afford new EVs. Government action is recommended to accelerate the creation of a strong EV supply chain, including used EV market and aftersales support, within NI as this impact purchase decisions and affordability.

While some training will be delivered through manufacturers for franchised retail sites, government support is particularly valuable for independent businesses and to ensure accurate advice is delivered as the market is established. Energy Saving Trust is working with the used vehicle supply chain in England and Scotland, including used car and van dealers and motor auctions, to train their sales and administration staff so that they can confidently buy and sell EVs, thereby allowing customers to take advantage of the lower running costs with the initial purchase or lease premium. Energy Saving Trust also supports the development and delivery of the popular Electric Vehicle Approved scheme for retail sites, led by the National Franchised Dealers Association. Mechanics also require additional training to safely service and repair EVs.

Developing a reliable, convenient and smart charging network across NI is essential to enable the transition to EVs at scale. Ensuring a fair and equitable transition to decarbonisation across NI is

important to make sure that low income, or more rural areas are not disadvantaged. Additional financial incentives, like grants, or low interest loans can improve the affordability of EVS and can positively influence purchasing decisions for businesses and individual drivers. Energy Saving Trust would be pleased to share the success of the EV Loan and related programmes that are delivered by Energy Saving Trust in Scotland, funded by Transport Scotland.

It is worth noting that air quality improvement, rather than decarbonisation, has been the major policy driver for many cities across the UK to date, leading to investment in sustainable transport initiatives and implementation of Clean Air Zones. The NI Executive may wish to consider targeting initiatives which tackle local pollution hotspots or specific businesses such as taxi/private hire and delivery fleets.

**Q31. What role should active travel have in the decarbonisation of the transport sector and what should government do to support this?**

Active travel has a key role to play in the decarbonisation of the transport sector if NI is to become net zero by 2050. As noted above, we believe that walking, cycling, and wheeling should be the preferred options for shorter journeys. In this context, the NI Executive might find the Scottish Government's active travel framework of interest. For longer journeys, where public or shared transport is not viable, promotion of EVs should be the preferred alternative.

There are a range of interventions that the NI Executive could make to support the uptake of active travel in Northern Ireland. Firstly, there is a need for the NI Executive to accelerate the creation of active travel routes. Secondly, there is a need for incentives for NI citizens to engage in active travel; ebikes are growing in popularity due to their ease and inclusivity.

Energy Saving Trust propose that the NI Executive offers grants and loans to support the purchase of ebikes and eCargo bikes. Currently, businesses, non-profits and local authorities in England can apply to the eCargo Bike Grant Fund (up to 31 March 2020), and in Scotland, individuals, businesses, public sector and communities can access grants or interest-free loans for ebikes. In Scotland ebikes are also offered on a free of cost trial basis to individuals, businesses, and community groups. These have proved incredibly popular since launching in 2018 and provide a key route to uptake via loan and grant funding support. We also propose that the government offers its own national 'cycle to work' scheme, offering support and discounts to organisations that allow employees to opt-in to a salary sacrifice scheme that provides savings on bike purchases. Rather than saving 42 per cent on the price of a bike and accessories (as under the current UK-wide Cycle to Work Scheme), the government could offer an enhanced 50 per cent saving for those living and working in Northern Ireland.

**Q32. What energy infrastructure is needed to facilitate the uptake of EVs in line with UK Government's 'Road to Zero' targets?**

The timely delivery of a reliable, affordable, and convenient public charging infrastructure network across Northern Ireland, supported by home and workplace chargepoints for those with off-street parking, is necessary to facilitate the EV transition. Across the UK, some perceived barriers to widespread EV adoption remain but well-designed, scalable, interoperable and cross-border public

charging networks can help support driver confidence in EVs, as a viable option for regular and longer journeys alike.

As far as Energy Saving Trust is aware, there is only one commercial chargepoint operator in NI which is in part attributable to the impact of the Maximum Resale Price of electricity preventing profit being made on the electricity tariff at chargepoints, discouraging private investment. This was the subject of consultation in November 2019. Whichever option is adopted, a high priority should be to publish the outcomes and take the necessary legislative steps as this could be a major step towards unlocking investment in public charging infrastructure.

Additionally, Energy Saving Trust does not recommend that the charging network remains free to use, especially where one operator dominates. Whilst attractive to EV drivers, this situation is unlikely to be financially sustainable in the longer term as EVs become mainstream, is a disincentive for private investment at scale and can discourage ongoing maintenance and upgrades. In most situations, the running costs of EV are already much cheaper than those of petrol and diesel vehicles. Energy Saving Trust can share its experience of the introduction of tariffs on the ChargePlace Scotland network, and by local authorities across England on previously free networks.

**Electricity grid investment**

Before considering what infrastructure is needed in NI in terms of numbers and locations of chargepoints, it is important to address the implications for the energy system, and some of the unique challenges presented by transport.

The low carbon economy will lead to an increase in electricity demand from electrified heat and vehicles. The electrification of road transport based on the RTZ targets could increase today's electricity consumption by 30 per cent by 2050 (EV Energy Taskforce, p8). Unless intelligently controlled, an increase in peak demand will be problematic, however EVs and chargepoints also present benefits for the electricity system by providing enhanced, flexible, and distributed energy storage capacity.

The Electric Vehicle Energy Taskforce: Energising Our Electric Vehicle Transition summarises the recommendations generated by a wide coalition of stakeholders, many of which will be highly relevant to Northern Ireland. It is vital that the transition to EVs is developed in a policy environment which places a strong emphasis on the three priorities identified: interoperability and data sharing, effective local and national planning, and smart charging and connectivity, whilst keeping consumer needs at the heart of the transition. The taskforce also highlighted the importance of impartial advice for drivers and households through impartial organisations, such as Energy Saving Trust.

Technologies such as local renewable energy generation, storage, and alternative transmission models such as vehicle-to-grid (V2G) also will have an important role to play in mitigating the risks to the grid.

## Charging infrastructure

### Charging infrastructure requirements

Different driver groups each have their own operational needs and charging networks need to be designed with a range of power specifications to make charging convenient. For on-street, workplace or destination charging, where drivers leave vehicles for extended periods, slower rates of charge, such as 7kW might be adequate, but for en-route charging, rapid rates of charge (50kW and above) will be required. There are other aspects to consider, such as dimensions of charging bays for electric goods vehicles and disabled access and the distance to facilities for drivers. A balanced charging infrastructure that considers different driver needs will help ensure that the best network is delivered, with the most efficient use of investment.

Through the Switched on Towns and Cities programme, funded by Transport Scotland, Energy Saving Trust has provided Scottish local authorities with technical analysis, helping develop an evidence base for infrastructure plans.

This support has included:

- insights demonstrating chargepoint use on a half hourly basis
- local engagement surveys
- modelling and forecasting of EV local uptake
- chargepoint site identification and mapping
- evaluation of grid connectivity and capacity (where available)
- modelling of operational cost models.

### Charging infrastructure targeted support

As a starting point to help ensure a fair transition, government investment in charging infrastructure should be focused on ensuring access to overnight charging in residential areas without off-street parking (i.e. by encouraging or match funding ORCS applications) and in rural areas. Investing in strategic locations on the road network would also improve the drivers' confidence to undertake longer journeys. The NI Executive may wish to consider targeted funding pots for different types of chargepoints to accelerate the growth of the network.

In Scotland, Energy Saving Trust has delivered a varied chargepoint funding programme including top-up grants for EV drivers with off-street parking to install a home chargepoint, for workplaces looking to install infrastructure for their pool cars, staff and clients, and a strategic scheme to enable 'hosts' such as cafes to install public charging infrastructure.

Additionally, funded by the Department for Transport, Energy Saving Trust has a dedicated Local Government Support team offering independent consultancy support to councils in England, initially to support air quality improvements. The programme was developed in response for the need for

greater coordination between authorities and central government and highly varied levels of officer expertise in charging infrastructure and related initiatives and has been highly successful. A similar impartial team or resource would enable local authorities (and/or business fleets) to fully understand their choices and take advantage of the opportunities presented by EVs and charging infrastructure.

**Approaches to funding charging infrastructure**

It is worth noting at the outset that charging infrastructure in England and Scotland has developed in different ways as a result of differing approaches taken by the respective governments. The UK Government, through the OLEV, sees an important role for private sector investment to enable the delivery and operation of a "self-sustaining public network", as outlined in the Road to Zero. A range of commercial and regional network operators are established with different offerings for businesses, local authorities, and drivers. To date, UK Government support tends to target specific areas of market failure, such as streets without off-street parking or particular user groups, such as taxis. The 2020 Budget also announced £500m for rapid charging hubs.

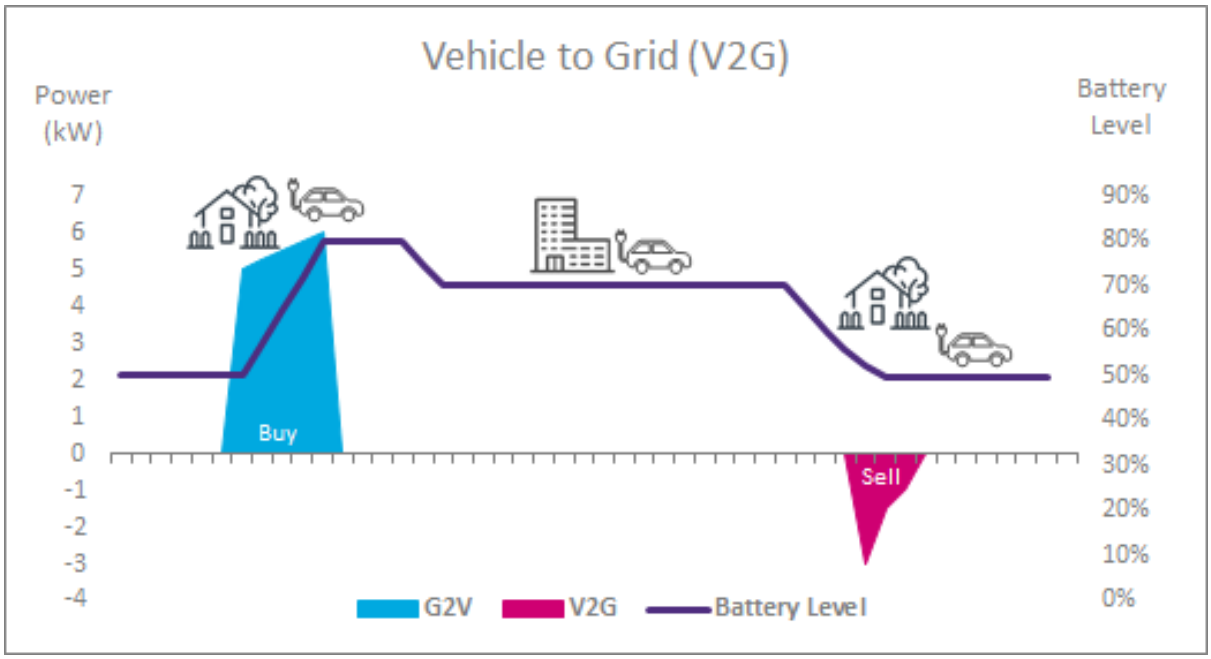
Meanwhile, the Scottish Government has invested heavily ahead of demand and the Chargeplace Scotland network now has over 1,000 chargepoints, providing excellent coverage throughout key areas of Scotland including the highlands and islands and other remote areas. The distributed and rural nature of Scotland's geography means that, on aggregate, the existing network could be presented as under-utilised and over-supplied. However, analysis of chargepoint distribution highlights that the least used chargepoints are often providing critical network resilience for the more rural areas, supporting connectivity and green tourism, and ensuring a just transition across all communities in Scotland, regardless of location.

Energy Saving Trust would be happy to discuss delivering charging infrastructure in more detail, drawing on our experience of supporting the infrastructure programmes of both governments.

**Q33. How will transport integrate with other energy uses (e.g. homes with solar generation, battery storage, EV charging) and what can government do to optimise the opportunities represented by this integration?**

As EVs are in essence mobile batteries, the transition presents a huge range of opportunities for households and businesses, which are at various stages of market readiness. The NI Executive should review the proposals of the EV Energy Taskforce as they are highly relevant to developing this new market and ensuring it works in the interest of the consumer.

V2G technologies are advanced forms of smart charging and enable drivers of compatible vehicles, with V2G enabled chargepoints to export electricity back to the grid at times of undersupply, or when there is a price incentive to do so. Conversely, these vehicles can charge at times of grid oversupply, or where there is a price incentive to do so, see diagram created by Energy Saving Trust.




*Source: Energy Saving Trust*

As electricity generated by renewable sources increasingly becomes the cheapest source of electricity, V2G charging algorithms will harmonise with fluctuations in renewable availability, lowering the carbon intensity of EV charging.

V2G and other smart charging technologies are highly compatible with solar PV, domestic home battery storage solutions and specialist EV energy tariffs, maximising the opportunities to self-consume on-site renewable generation. For those who are able to afford harmonising these technologies, there can be a significant cost incentive where on-site, renewably generated electricity is used to displace petrol or diesel mileage. Powerloop, one of the first domestic trials of V2G technology offers a leased EV, chargepoint and tariff bundle and £30 cashback a month, depending on how frequently the vehicle is plugged in.

On-site renewables and battery storage also present opportunities for commercial fleets where expensive grid upgrades would be required to adopt EVs, either due to the nature of the site, the number of EVs (i.e. SEUL project involving UPS)or where sites are leased (to avoid sunk costs).

The NI Executive could offer a funding competition or additional top-up grants for households, businesses or local authorities using cutting-edge smart charging devices and developing integrated projects.

**Q34. To what extent can alternative low carbon transport fuels contribute to the decarbonisation of the transport sector.**

It is likely that alternative fuels will have a role to play in decarbonising heavier vehicles, such as HGVs. As this is not Energy Saving Trust's areas of expertise, we recommend speaking with the Low Carbon Vehicle Partnership.

**Q35. Do you have any data/research to help inform and reduce the carbon intensity of our transport energy in order to achieve net zero carbon by 2050?**

Energy Saving Trust has a range of data and learnings stemming from the various transport grants, engagement, and analytical programmes we manage on behalf of governments across Great Britain to support individuals, fleets, and local authorities. We would be happy to discuss the data that we are able to share publicly with the NI Executive if this would be useful.