

Transport for the North Electric Vehicle (EV) State of Play Report

Transport for the North's annual progress report and recommendations to enhance the transition to electric vehicles.

December 2024



About Transport for the North

Transport for the North (TfN) is a statutory sub-national transport body, working with mayoral combined authorities, local transport authorities and other stakeholders across the North of England. We advise central government on the strategic ambitions and priorities for the region's transport system, and work with our partners to enable delivery of investment.

For more information, please visit: www.transportforthenorth.com

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Introduction

Transport for the North (TfN) is a statutory partner of the Department for Transport (DfT). We are a body of elected and business leaders from across the North, who collectively represent the region's 16 million citizens and 1.1 million businesses. Complementing the work of Mayoral Combined Authorities (MCAs) and Local Transport Authorities (LTAs), and with powers devolved from central Government, our role is to add value by ensuring that funding and strategic decisions about transport for the North are informed by local knowledge, expertise and requirements.

Our [Strategic Transport Plan](#) (STP) sets out the opportunities and challenges facing the North of England's economy, people and communities, demonstrating how improved transport links are needed to help the North achieve its true potential.

There is a high level of car dependency in the North, with around 8 million registered cars in the region and 61.1 billion miles driven annually by cars and taxis on our region's roads. Additionally, there are over 970,000 vans, and around 12,000 heavy goods vehicles (HGVs), whilst over 90% of freight lifted by tonnage is moved by road. Motorised road travel is the largest contributor to surface transport carbon emissions in the North of England, with more than 95% of the 26 million tonnes of transport-related carbon emissions per year from road transport. The North's highway network is responsible for 23% of UK road emissions and 6% of total UK emissions.

Our STP has three clear strategic ambitions the North wants to achieve:



Transforming
economic
performance



Decarbonising
our transport
system



Enhancing
social inclusion
and health

The purpose of this report

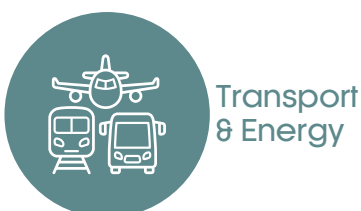
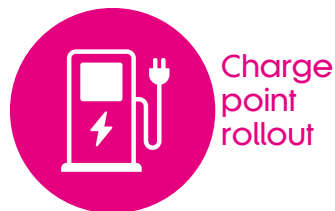
This report aims to:

- Apply our evidence, to monitor, review and evaluate progress of charging infrastructure deployment against our forecasted needs.
- Consolidate the experience, expertise and views of our regional partnership, to highlight key policy related recommendations to government.

We have the ability to monitor chargepoint rollout metrics via our Electric Vehicle Charging Infrastructure (EVCI) Framework, as well as infuse new datasets and enhancements to support planning and delivery, based on partner priorities. Our intention is to provide an annual State of Play horizon report to evaluate progress and inform future decision making.

It is our belief, along with our partners, that the recommendations included in this report will further increase the speed and sustainability of the electric vehicle (EV) transition by highlighting best practice and success, required investment, and current or expected barriers that require intervention to continue a step change in the level of transition to EVs. This report also seeks to highlight what is required for a fair, just and sustainable transition for all.


These recommendations fall into six 'Systems Thinking' themes:



TfN's evidence

Where we are and where we believe we need to be

Figure 1: TfN's forecasts for the region through to 2030

2023/24	2030
256,000 EVs* (cars, vans, HGVs)	1.9 to 2.6m EVs*** (cars, vans, HGVs)
15,600 public charging points** (plugs) in the region. Over double the number from 2 years ago.	178,000 to 240,000 charging points*** (plugs) Up to x15 increase over the next 6 years.
	
	An estimated £3.5bn to £4.9bn of investment required****

*Dec 2023 DVLA data

**Sept 2024 Zap Map data

***TfN EVCI framework range projection

****Estimate based on assessment of hardware, software, installation and maintenance costs

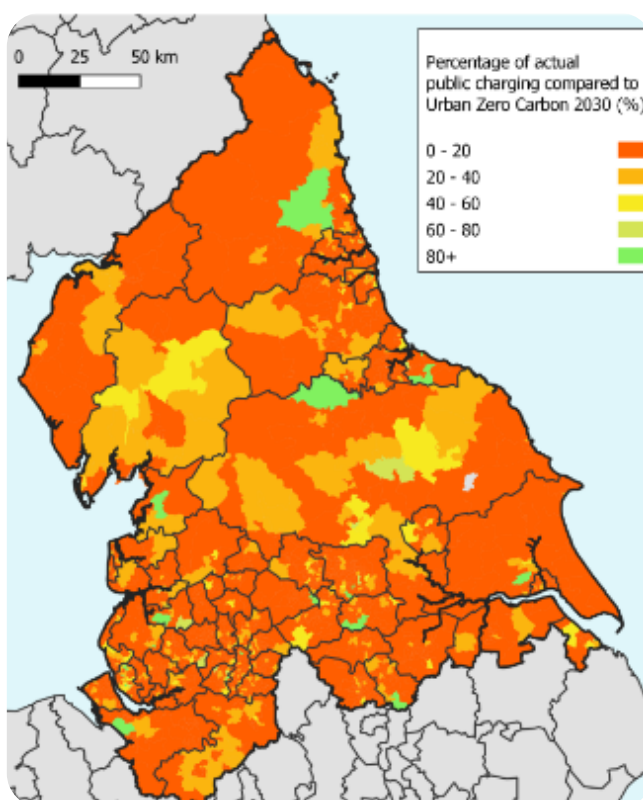
Chargepoint roll out

Provision – where we are and where we need to be

Whilst the number of UK public charging points continues to grow at ever increasing rates (around 70,000 devices in September 2024, a 32% increase since December 2023), there are significant concerns that the pace is still not quick enough to be sufficiently ahead of demand to ensure targets for the transition to EVs are met.

As of September 2024, our region has around 10,000 public charger devices (15,600 plugs), 14% of the total UK chargers, despite having 22% of the UK's population.

Figure 2: Percentage of actual public charging against projected 2030 'Urban Zero Carbon' scenario



An evidenced approach

Our publications and tools are derived from original, empirical, analytic and case study research conducted through detailed consultation and collaboration with partners and through reviewing best practice. Where possible, our primary objective is to make this material available to its MCAs/LTA partners to support and enable delivery across our region.

We are also cognisant of qualitative and statistical analysis from documents published by its partners and the Department for Transport (DfT), utilising those as appropriate to augment our evidence base to support the case for transport investment in the North.

TfN's EV Charging Infrastructure Framework

We strongly advocate the benefits of a 'whole journey' and 'whole network' approach to infrastructure planning.

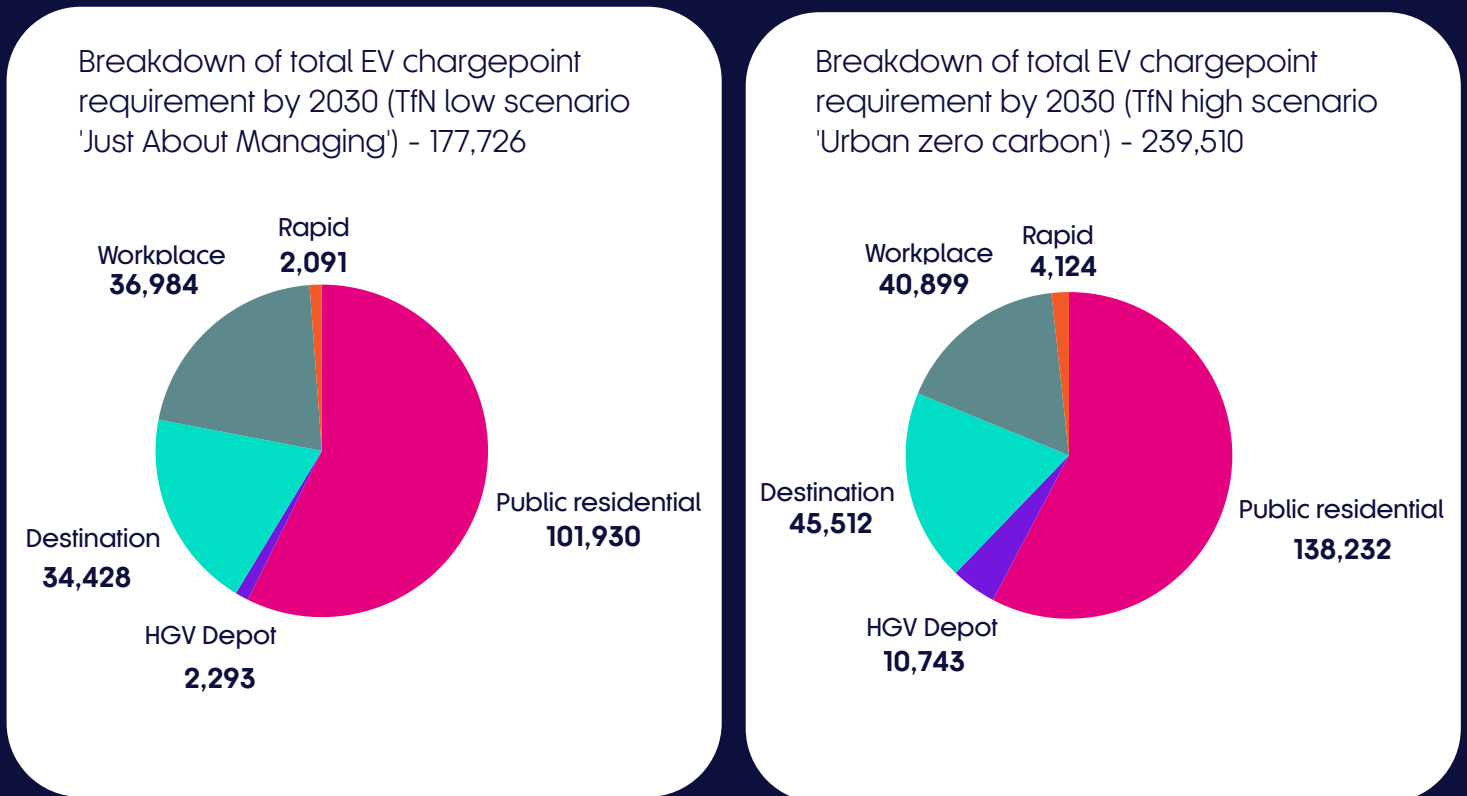
Realising the potential of electric vehicles, including delivering the associated charging infrastructure, requires an approach at a scale beyond individual local authority boundaries. Taking a systems approach, we have developed our openly available toolkit with our MCAs/LTAs, transport and energy organisations, and other partners across the North of England.

Our EVCI framework and [visualiser tool](#) provides current and projected requirements for EVCI provision. Projections are provided across a range of DfT and [TfN future scenarios](#) in order to accommodate future uncertainty to formulate robust and resilient long term planning. This provides outputs depending on a range of factors, such as; future travel patterns, population changes, spatial and behavioural impacts, and technological advancements. For example, using our 'Just About Managing' (JAM) and 'Urban Zero Carbon' (UZC) scenarios, by 2030 the projection is between 178,000 and 240,000 public charging points (plugs) are required in the region, requiring an estimated investment of between £3.5 to £4.9 billion. This estimate accounts for hardware, software, installation and maintenance, but does not include electricity grid enhancements and reinforcements.



Our forecasts break down public charging requirements into the categories below in figure 3. This provision will cater for the charging requirements of electric cars, vans and HGVs, therefore taking into account fleet and freight movements. The range of EVs projected is between 1.9m and 2.6m. Under the Just About Managing (JAM) scenario, around 60,000 vans and 1,500 HGVs will be on the region’s roads, with over 200,000 vans and 5,000 HGVs, in an Urban Zero Carbon (UJC) scenario.

Figure 3: Our forecasted public charge point breakdown for the region in 2030



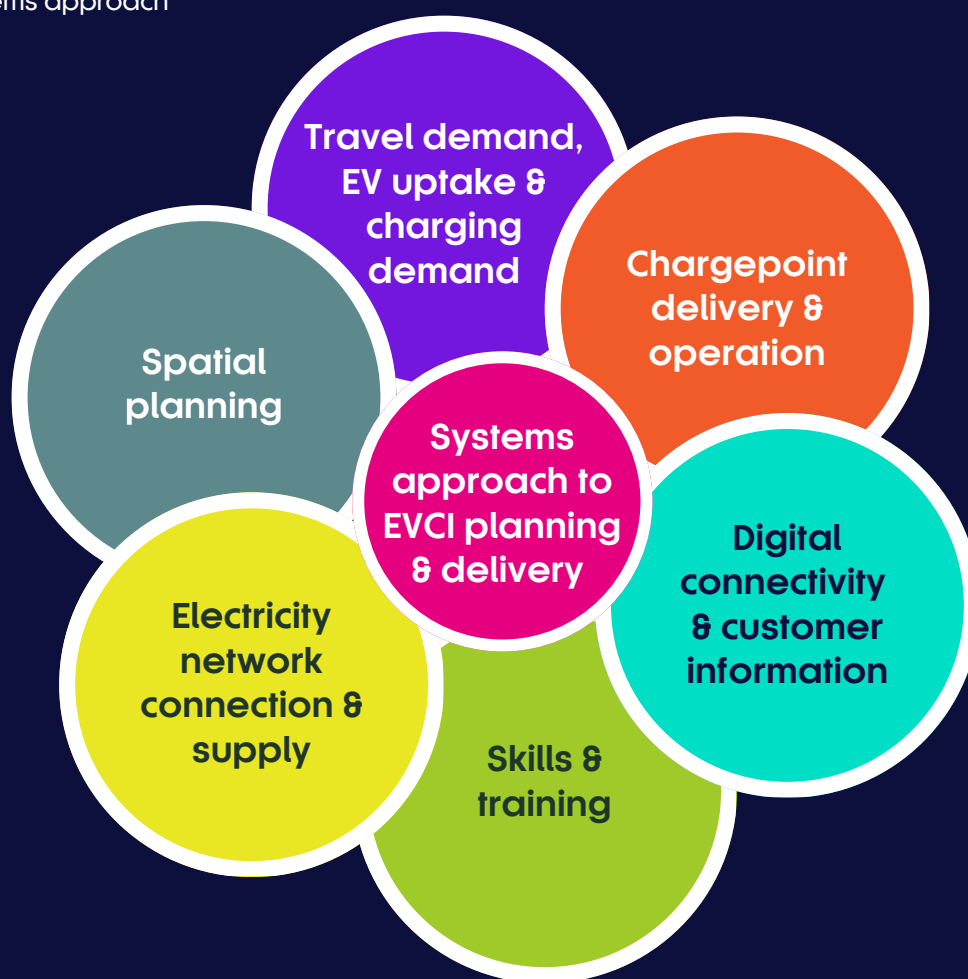
Whilst a sizeable number of chargepoint installations are in the pipeline, it is important that we, along with our MCA/LTA partners, monitor numbers against projections. We have also carried out work to understand the commercial viability of potential chargepoint locations, showing areas that are more or less attractive to chargepoint operators.

Clearly, the transition to EVs and delivery of associated chargepoint provision is going through a significant period of piloting, trials and user behaviour experiences. Despite the fact that an estimated 80%+ of current EV drivers have a home charger, 90% of them still use the public network. In addition, a full transition to EV can only happen if households without off-street parking are provided with adequate near home charging options.

A systems approach

Our [EVCI Framework](#) outlines a regional strategy for EV charging requirements to support the movement of cars, vans and HGVs. Our interactive [visualiser tool](#) applies our powerful regional analytics to develop a robust and comprehensive place-based understanding of charging infrastructure need across the North. This spatial and temporal route map communicates investment opportunities and de-risks investment decisions (both public and private) across sectors by using robust evidence to increase certainty and confidence of infrastructure need; particularly with regard to identifying the different types of charging required in different places, where these will be needed and when.

Figure 4: A systems approach



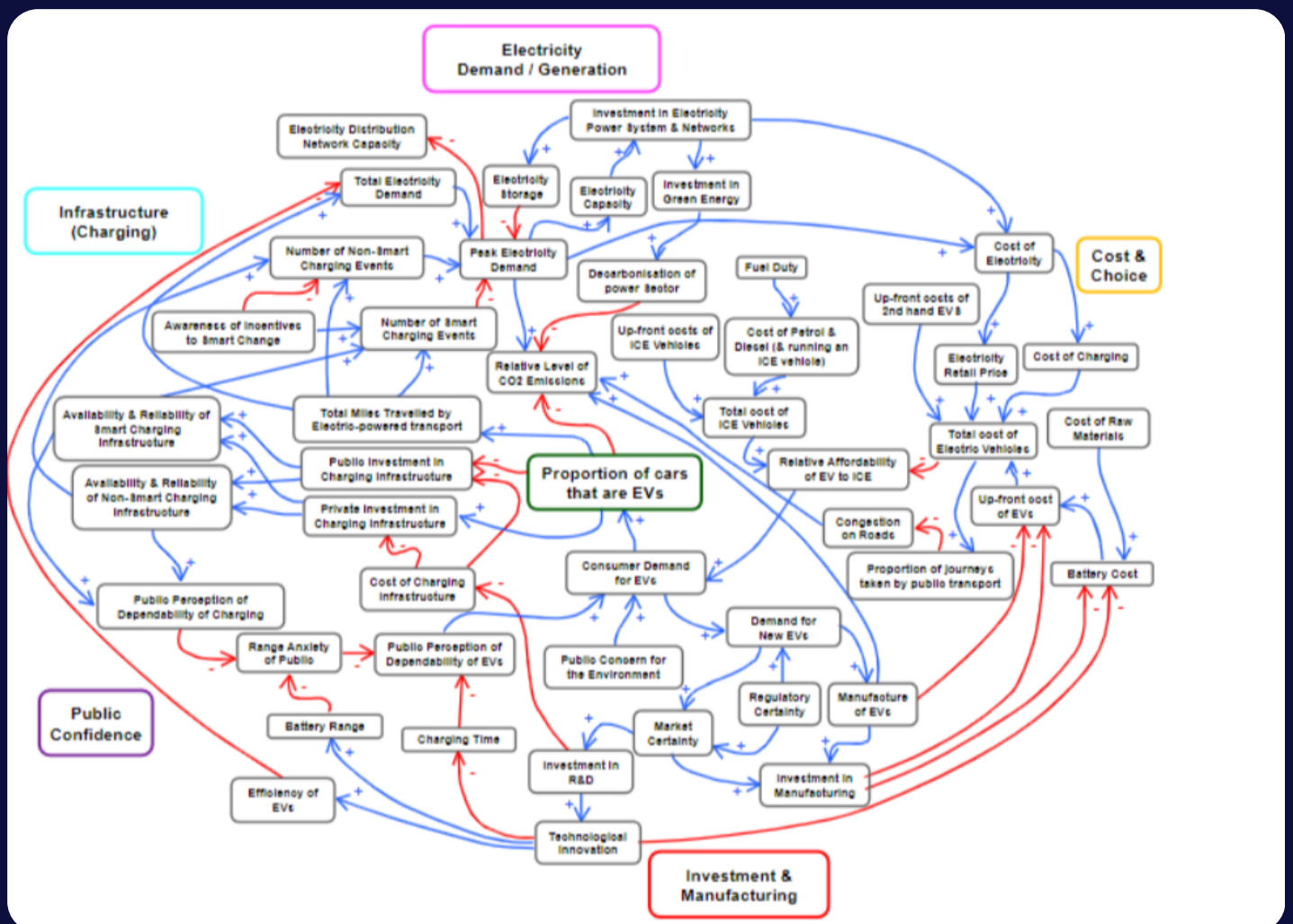
We will continue to enhance the EVCI Framework where it adds value and supports systems delivery across the region. Developments will continue to be tested and prioritised through our regional EV forum and governance structures. Working in conjunction with local authorities and industry collaborations to identify new enabling capabilities and initiatives.

We have also rolled out the EVCI Framework to all of England's other Subnational Transport Bodies (STBs) and their constituent local authorities, as requested by the Department for Transport (DfT).

Next steps:

- Publish the report and use these recommendations as a basis for continued work with regional and national partners, to focus in on what needs to happen to operationalise these actions.
- Continue to engage closely with the Office for Zero Emission Vehicles (OZEV) and other government departments to identify areas of risk or opportunity, applying our EVCI Framework evidence.
- Continue to improve our EV evidence and capabilities, based on our partnership priorities, while appropriately integrating our wider capabilities, such as, buses, freight, connected mobility and transport related social exclusion.
- Further encourage and support a wider ‘systems thinking’ approach across the transport, energy, spatial, digital and skills sectors to operationalise recommendations, to support and deliver actions outlined in this report.

Figure 5: Example systems thinking and cross sector approach required (from the government’s Net Zero Strategy)



Recommendation 1

Monitor second-hand EV accessibility and consider a national scheme providing individuals with targeted financial support to purchase EVs, if intervention is required. Any scheme should be targeted at users who are unable to readily access active travel or public transport for their journeys.

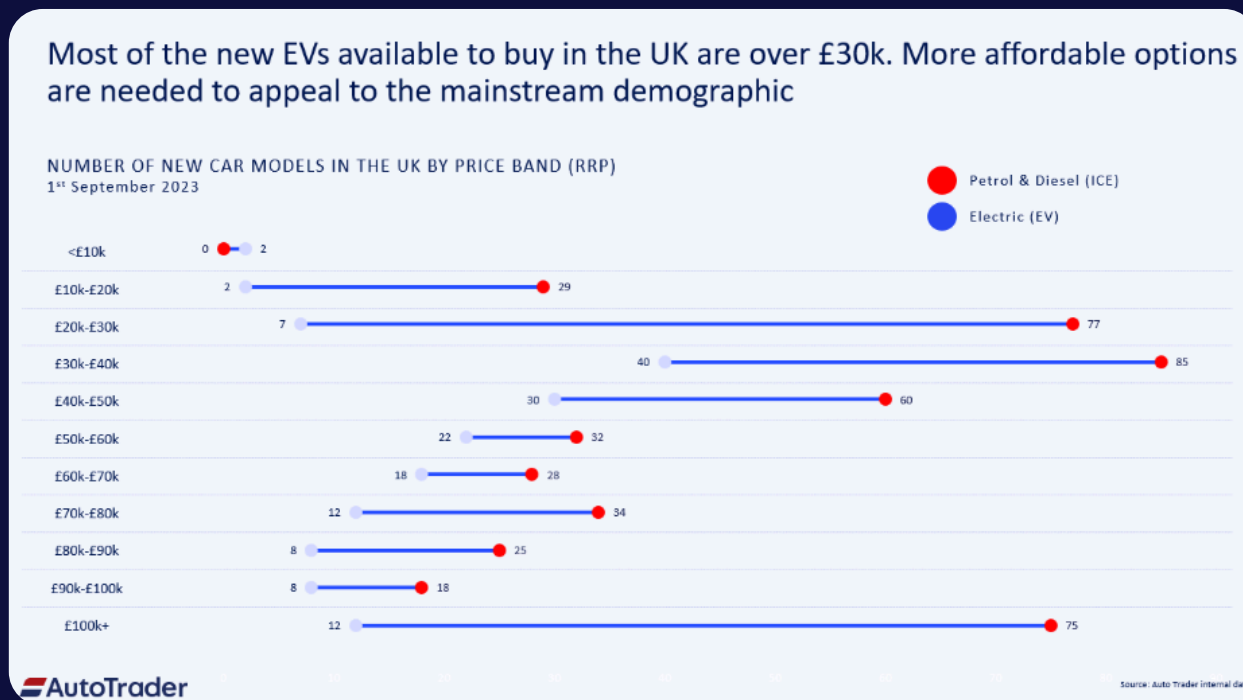
According to 2023 Drive and Vehicle Licensing Agency (DVLA) vehicle registration data, there are around 8.8 million vehicles (cars, vans and HGVs) on the region's roads, with around 250,000 of these being EVs, 2.9% of the overall total. The UK Government is set to reinstate the 2030 ban (currently 2035) on the sale of new internal combustion engine (ICE) cars, with the Zero Emission Vehicle (ZEV) mandate setting out the percentage of ZEV cars and vans that manufacturers will be required to produce. 80% of new cars and 70% of new vans sold will be required to be zero emission by 2030, increasing to 100% in 2035.

Currently, levels of sales of both new (315,000 battery electric cars registered nationally in 2023, 18% higher than 2022) and used EVs are relatively positive, with projections for future market share looking promising. By 2029, Autotrader estimates 43% of sub 5-year old cars on the road will be EVs, and price parity is already happening across certain comparable models.

Whilst this is the case, generally the reality is that the transition is occurring in more affluent demographics. The average price of a used EV is still often out of reach for many sections of society. Whilst costs will reduce over time, due to an older fleet of used EVs being available, as well as an increase in the availability of small and medium models, currently the cost far exceeds the budget of many car buyers.



Figure 6: Number of new models, petrol/diesel v EV (source: Auto Trader, 2023)



This point is highlighted in our own '[Northern Transport Voices](#)' research findings in October 2023, with 56% of respondents looking for lower EV upfront and/or running costs when they replace their current vehicle.

As viewed in our EVCI Framework [visualiser](#), the impact of vehicle costs and user price accessibility on forecasted sales of new EVs based on socioeconomic factors can be understood. This outlines the potential for an uneven transition to EV uptake across our region, highlighting areas which could 'electrify' faster or which are vulnerable to transport related social exclusion associated with decarbonisation of the vehicle stock. Applying this evidence, we can support a stronger correlation between demand and charging infrastructure investment. But also highlight the more difficult task of decarbonising via EVs for some areas of our region. Applications can include:

- Identify priority areas for faster deployment to support early EV uptake, high annual mileages (higher emitting trips) and charging demand; or to be more commercially attractive.
- Link with household compositions to target areas with high earlier EV uptake with no off-street charging.
- Support stimulus for more policy or infrastructure action to improve social access to EVs where uptake may be slower in the short term (including where charging access is a blocker).
- Understand areas of low uptake and possible need for other decarbonised travel options in the short to medium term (i.e. public transport and active travel connectivity).
- Link to distance travelled to target areas of high potential uptake and the high emitting journeys.
- Understand potential first and second-hand market impacts to better inform planning.

It is also important to highlight that there is likely to be an increased role over time for shared car ownership in the form of increased provision of electric [car clubs](#), which have the potential to provide a viable alternative to car ownership.

Any support for such a scheme should be delivered in line with our Strategic Transport Plan road user success metrics and road travel appraisal hierarchy. Delivery assessments could be supported by our transport related social exclusion evidence (i.e. those with least public and active transport connectivity accessibility), with local authorities determining criteria, with the support of national Government.

Providing financial support for those unable to make the switch otherwise, will help to ensure that a package of 'wraparound' vehicle and charging support is available, which should include targeted promotion of the support available. Whilst acknowledging existing UK tax breaks for company cars via salary sacrifice schemes and reduced benefit in kind rates, such schemes are subject to change, and are unlikely to reach those most in need of support. Further qualitative findings from our Northern Voices research, highlighted that a lack of clarity on government incentives for EV purchase, was well as future vehicle taxation, is negatively impacting consumer confidence.

Examples of financial support which could be considered include: the now withdrawn, UK's Plug-in car grant, France's purchase subsidies, an interest free loan option, such as available in Scotland, or a removal or reduction of the 20% VAT on new EVs. It may also be more targeted and effective to provide grants or reduce VAT on used EVs. The focus needs to be on supporting the transition for those on lower incomes or who have insecure pay arrangements. It is also important to support a strong second-hand car market, meaning EVs have a sustainable residual value, encouraging the purchase of new EVs by those able to do so, and avoiding increases in new EV leasing costs.

Further to this, there is a need to ensure car manufacturers provide an adequate selection of small and medium sized EVs that meet the needs of consumers. Many car owners are 'brand loyal' and will only make the switch when an equivalent EV is available.



Recommendation 2

Building on work underway, a national education campaign is required to provide trusted information, in order to increase public confidence in the EV transition. This should be targeted at sections of society that are currently least likely to make the change.

Clear consistent information, both for current and future EV drivers, is vital to encouraging and maintaining EV uptake. Conflicting information is abundant in the public domain and is another key factor affecting the general public's desire to make the switch to an EV. Some of these claims often fuel scepticism about making the change. Context is also important when considering use of petrol and diesel vehicles and what current users of those vehicles experience and accept in terms of cost, maintenance and reliability.

Evidence from MCAs/LTAs' social media communications material responses suggests more is needed to inform the public and support best understanding of facts, evidence and experiences. They have also found it challenging to resource the maintaining and updating of website content due to the quantity of new information in this space. In Spring 2023 we carried out its own research into consumer attitudes to the EV transition via its Northern Transport Voices panel of around 500 people (204 responses). Our results show the barriers to making the switch, with good quality and reliable information highlighted as a key requirement.

We note work to date by government, academics and industry to educate the public, for example the Office of Zero Emission Vehicles (OZEV) recent guidance on costs, charging and infrastructure and Fair Charge's Little Book of EV myths. National Highways is also taking forward an EV 'End-to-End Journey' trial project aiming to improve user experience by improving physical and digital signage and information to increase user confidence (i.e. reducing range anxiety). However, we believe more is needed to reach all sections of society and avoid concerns from many that see EVs as not suitable for their circumstances.

Recommendation 3

Delivery of government funded projects (e.g. the Local Electric Vehicle Infrastructure and Rapid Charge Funds), is monitored by an independent body to provide evaluation and recommendations which shape future funding actions, as highlighted in recommendation 8.

The use of government support to fund the On-street residential chargepoint scheme (ORCS) and the Local Electric Vehicle Infrastructure (LEVI) trials, as well as the main LEVI fund, serves to support on-street provision in areas of the country where households do not have driveways. The government's Rapid Charge Fund is supporting creating grid capacity in the vicinity of strategic and major roads. Household funding is available to support cross-channel pavement solutions. These allow households without off-street parking to install a home charger. Grants towards charging points at state-funded schools are also available. However, MCAs/LTAs must have the necessary approvals, resource and processes in place to be able to support residents' applications.

All such funding is valued by us and our MCA/LTA partners, but it is recognised that a holistic view of the interplay between them and the local authority resource required to apply and deliver, is fully considered. This is also true in terms of ensuring any pilot funding achieves its aim of being delivered and informing wider delivery.

We have the ability to monitor chargepoint rollout metrics via its EVCI Framework, as well as infuse new datasets and enhancements, based on partner priorities. Our intention is to provide an annual State of Play horizon report to evaluate progress and inform future decision making, and is therefore well placed to support this recommendation.

In line with this recommendation, we will look to engage with industry bodies to boost monitoring and evaluation activities, such as National Highways (regarding the Rapid Charging Fund), OZEV (regarding ORCS and LEVI) and the Zemo Partnership's Council for Net Zero Transport, on which we have representation.



Recommendation 4

Solutions to reduce the delay of appointing Chargepoint Operators, as well as speeding up the installation of charging points, are investigated and applied.

Appointing chargepoint operators (CPOs)

Given the relatively recent requirement for EV chargepoint delivery it is understandable that there are administrative delays as processes are worked up and refined. As the number of charging points continues to grow, so does the amount of market engagement and procurement processes. To this end it is vital that the key lessons learned are captured which provide clarity and consistency to future processes. Specific and consistent guidance on the legal aspects is critical to providing the certainty that MCAs/LTAs need to establish robust contracts with CPOs. Standard terms and contracts may not be feasible due to the variety of circumstances and different delivery models.

However, template documentation for different contract options would be of real use to MCAs/LTAs and would speed up the appointment process, particularly for those with a low level of experience in this area. Key areas of a vital feedback loop are around contract length, tariffs, revenue margins and balancing the delivery of commercially viable and non-commercially viable charging points. Where possible and practical, opportunities for aggregation and economies of scale should be taken. It is also important that the CPOs are educated to the realities of public sector procurement processes. Doing so reduces the chances of not adhering to mandatory aspects, as well as reducing the likelihood of failed processes or drawn-out negotiations.



Speeding up installations

We welcome the government's consultation on CPOs being brought into the street works permitting regime, meaning they will no longer face the delay of applying for a section 50 licence, thus speeding up installations.

We have actively engaged with the three distribution network organisations (DNOs) in the region and are seeing positive results. It is clear the DNOs are increasing capacity and improving processes but, with a significant amount of installation requests coming through (e.g. LEVI), monitoring of resource and opportunities to learn from and adapt processes are critical to the speed of chargepoint rollout. DNOs need visibility of the pipeline of projects in order to plan grid reinforcement accordingly. Acquiring land from third party owners can provide a challenge and a delay to all stakeholders involved.

In terms of within local authorities, again, resource and expertise are growing, however, this is far from consistent across localities, with the danger that a varied picture of charging provision, types and usage costs will result.

A clear and consistent national vision is required, with complementary, consistent funding streams, along with clear delivery guidance that provides the opportunity for a chargepoint rollout that is fit for purpose and meets consumer needs. We, along with our partners, recognise the steps taken by OZEV to provide this and are open to working collaboratively to apply lessons learned and evidence to shape this continued effort.

Within local authorities, devolved freedom and flexibility within that vision (and any associated targets) will allow for local place-based solutions to ensure fit for purpose outcomes for the communities they serve. Individuals, teams and departments within authorities should have the skills, knowledge and levels of resource required to ensure joined up processes and quicker delivery.

Improving user confidence

Understandably, there is a clear focus on the roll out and installation of charging points. However, we are aware of current and potential issues that have the potential to negatively affect user experience and thus impact current and future provision. Good work is underway in this area but there must be continued oversight, focus and reporting to ensure a positive user experience and increased consumer confidence in the availability and usage of charging points.

Recommendation 5

Theft, vandalism and safety considerations are embedded, and where possible funded, within chargepoint delivery.

Theft and vandalism of charging points is an example of this and presents a growing issue. In some areas the transition to EVs is seen as being forced upon residents and deemed elitist (see recommendation 2: education campaign), with this causing growing resentment and negativity amongst certain communities. This resentment appears to be resulting in increased vandalism of charging points and theft of cables. Whilst the reality is cables are worth very little in terms of financial gain, it appears the combination of a belief that they are valuable, a backlash against a transition to EVs seen as enforced, and lack of concern of prosecution, means theft and vandalism are on the rise. MCAs/LTAs and/or CPOs face significant costs and logistics to resolve such situations, and EV drivers themselves face uncertainty and issues with charging points not being usable.

A package of measures, including improved chargepoint design, signage, CCTV, appropriate positioning, lighting, forensic marking, and enforcement and prosecution will help. It is important that funding pots, such as LEVI, enable the inclusion of theft, vandalism and safety equipment within their funding criteria. However, winning 'hearts and minds' against what is often believed to be an anti-establishment protest crime is just as important when looking to resolve this situation and must not be overlooked. In addition, provision of CCTV also has a positive impact on the safety concerns of some users who may have concerns around using certain charging points, particularly if using local charging hubs overnight that require walking to and from.



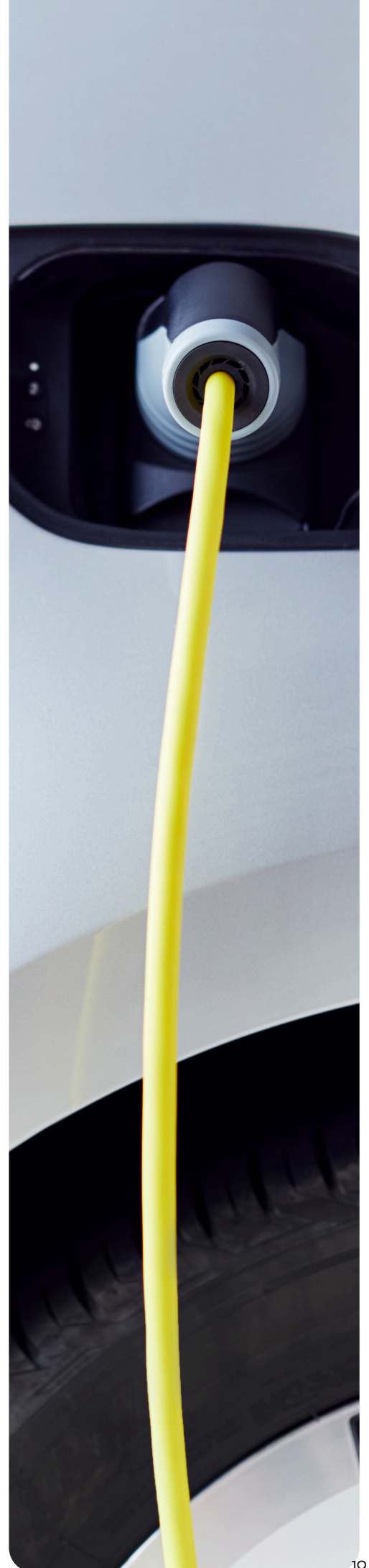
Recommendation 6

Clear national guidance is provided on chargepoint usage liability and maintenance to support local and national delivery, such as the government's cross-pavement charging grant.

Another ongoing issue with charging points is liability. This is particularly true in terms of trailing cables from home or on-street chargers. Whilst many councils have introduced their own approach to specifying liability, a number are still hesitant to do so and are therefore unable to fulfil resident requests to access the [government's grant for cross-pavement charging solutions](#) or install on-street chargers. A clear consistent government stance on this topic would be welcomed in order to increase the confidence in the delivery of chargepoint provision, particularly by local authorities. Providing a consistent approach not only provides clarity and confidence for MCAs/LTAs to support chargepoint delivery, but also increases the public's understanding in this area.

We will continue to apply our regional EV forum to extend lessons learned on this topic and others, to share valuable experience and approaches to new solutions and best equip our region when making delivery decisions.

The Public Chargepoint regulations 2023 provide measures to ensure customers can be confident that public charging points will be in good working order. This is critical to inspiring confidence in use and uptake of EVs. It sets out that 99% of rapid chargers should be reliable as an average across each chargepoint operator's network. Consideration should be given to extending this measure across public non-rapid networks to enhance reliability across the whole network of charging infrastructure.



Recommendation 7

All public charging points either have adequate mobile phone reception coverage or provide a Wi-Fi hotspot in close proximity.

Users of charging points want to be confident they are operational and easy to use. We welcome the [Public Chargepoint Regulations 2023 guidance](#) which looks to ensure consumers can easily locate the right chargepoint, be confident it is working, compare prices and find it easy to pay. However, whilst user experience is improving it is still too varied and affects the confidence of current and potential users. An example of this is [research from the RAC Foundation](#) that suggests that around two-thirds of the public charging points that are 8kW (kilowatt) or below (these are not obliged to provide contactless payment), outside of London, do not provide adequate levels of mobile data coverage across the four main networks. The vast majority of EV drivers use mobile phone apps to access such chargers, and the chargers themselves also need a signal to function. Improving digital connectivity more generally also has additional transport benefits for local communities, such as contactless bus payments and demand responsive transport. It also supports wider benefits in terms of working from home and local businesses.

Recommendation 8

Further charging infrastructure investment is considered to ensure public chargepoint provision in specific areas of need, not fulfilled by the private sector or current national or local infrastructure programmes. This should be informed by monitoring and evaluation of deployment and enabled by our evidence (available across England). It should recognise our whole network vision, the travel hierarchy and the needs of local residents.

Our work on Transport Related Social Exclusion (TRSE) highlights those areas where transport issues have a fundamental and negative impact on everyday life. In the North 3.3 million people live in areas with a high risk of TRSE, 21% of the population. Many people living in these areas have no access to a car or may have one, due to the lack of alternatives, but limit journeys due to financial constraints. In order to reduce car dependency and TRSE, our STP states that investment in transport infrastructure should be targeted, in the first instance and where appropriate, on active travel and public transport. Whilst the reduction of car dependency is a critical aim, action is required to support decarbonised travel on our road networks.

For this to happen, EV charging infrastructure needs to be accessible and affordable to all sections of society. This is particularly relevant across the North where we see a range of urban, semi-urban, rural and remote place types. National government funding mechanisms and local authority delivery plans will need to recognise the need for flexibility to ensure solutions fit for a particular place, which can drive the uptake of EVs.

There are different spatial, social, energy and transport challenges across these very different place types. Our EVCI Framework, along with evidence from our wider analytical capabilities, can be brought to bear to enable effective delivery that accounts for these different challenges and requirements. By engaging with relevant partners and stakeholders to determine priority areas, a range of current and future EVCI Framework enhancements that can be used individually or layered to support effective chargepoint delivery.

Enhancements to our evidence provide an assessment of likely chargepoint commercial viability for the North. This provides our MCA / LTA partners with a heatmap output at middle super output area level (MSOA) with which they can apply to their planning and delivery. Using a scoring matrix (population density, levels of deprivation, proximity to major roads, flood risk and grid capacity) to determine likely commercial viability.

Further to this, as outlined previously, Ordnance Survey and ourselves have jointly worked on mapping driveway presence provision across the North. Satellite imagery and spatial data was used to upgrade our EVCI Framework to map the presence of household driveways, across 6.4m residential households in the region. This has improved our accuracy of understanding driveways within an area, and also means we can supply our partnership with localised intelligence pinpointing driveway locations across our region. Results suggest 53% of residences have driveways and 47% do not. This is above the national average of around 40% without driveways, showcasing the vital need for public charging provision that supports the EV transition.

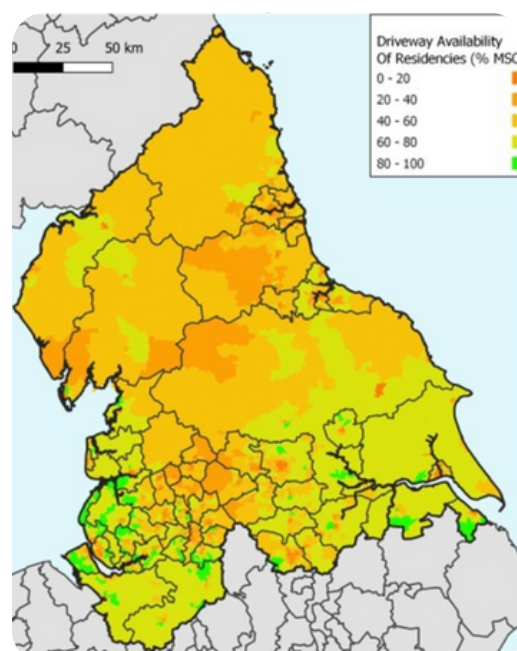


Figure 7: Driveway availability of residences in the North of England (% of Middle Super Output Area, MSOA)

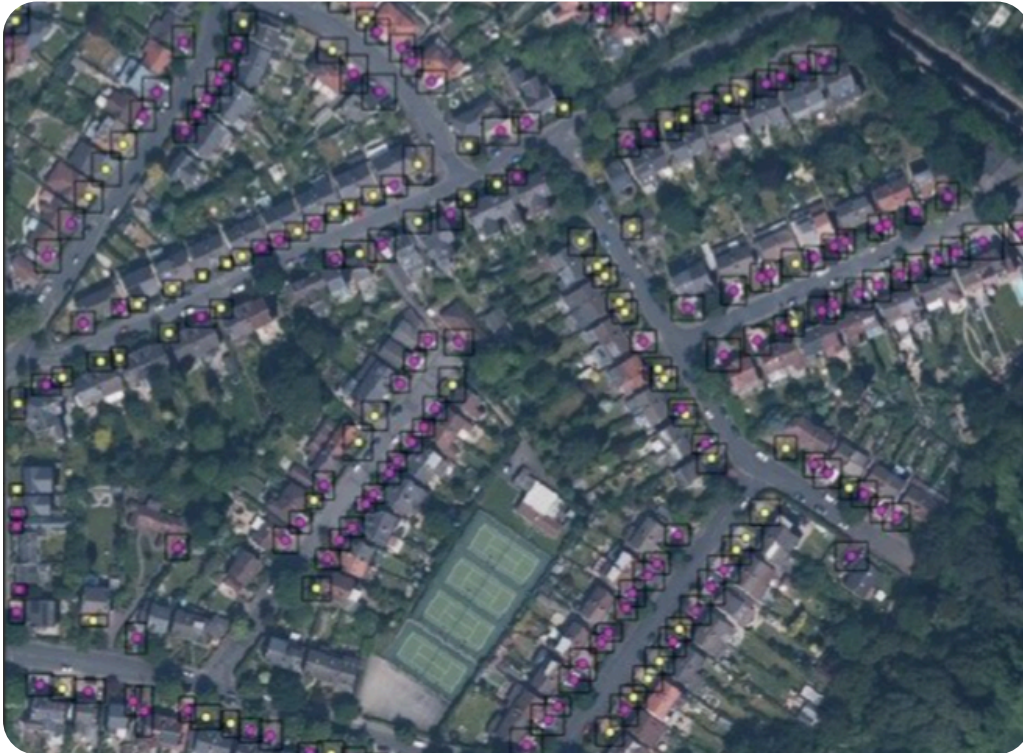


Figure 8: Example output from TfN and Ordnance Survey driveway analysis



The provision of public EV charging points should be targeted in specific areas of need, where there is a lack of off-street parking for households who require a car. Previous and existing national funding has been constructive in aiming infrastructure deployment in these areas. As these schemes reach delivery, monitoring and evaluation (Recommendation 3) should shape any further targeted support across the region to meet our forecasted requirements.

As mentioned previously, it is vital that the transition to EVs is inclusive, equitable and fair. In terms of future overall investment in public charging points, as stated, we currently forecast that between 178,000 and 240,000 plugs are required by 2030. Breaking these down to different charger types, and using latest market financials, the overall private and public investment required in the north is estimated to be between £3.5bn and £4.9bn. Whilst a sizeable number of chargepoint installations are in the pipeline, it is important that we, as well as our MCA/LTA partners, monitor numbers against forecasts and map these to ensure a fair and equitable transition across all parts of the region. As mentioned, our work on commercial viability provides a focus on those areas at risk of not having the required provision if the rollout is left purely to the market. However, it also is recognised that careful consideration of the overall transport needs of communities is taken into account when planning chargepoint rollouts.

Recommendation 9

The VAT rate on public charging points is brought in line with home energy VAT at 5%. This should be supported by consideration towards other options to reduce charging costs for those without access to a home charger, such as tariff legislation and use of technological solutions.

Costs of using private vs. public charging points

Further to previous references to an inclusive and fair transition to EVs, the disparity of charging costs to those able to charge at home versus those without off-street parking is stark. As stated, our own research, supported by Ordnance Survey, shows the North has more households without driveways than the national average.

Data from Zap Map in September 2024 shows those using public chargers are paying an average of 56p/kWh (kilowatt hour) for fast chargers (less than 50kW) and 80p for rapid/ultra-rapid (50kW+). For those with home chargers, the cost is much reduced, with the energy price cap at 22p/kWh (September 24), and many drivers able to take advantage of off-peak tariffs at around 8p/kWh. Whilst it is recognised that the public chargers will charge a vehicle quicker than an overnight charge, the reality is many users are satisfied with overnight charging. One of the reasons for the higher public chargepoint costs is that VAT is charged at 20% on public chargers, compared to 5% on home charging. We believe that those living in properties without off-street parking are at a significant disadvantage and supports the recent Lord's Environment and Climate Change Committee's report and Fair Charge's campaign to seek a reduction of VAT on public charging points to 5%.

However, it must be recognised that, for example, such a reduction would still only reduce a public fast charger to 47.6p/KWh (8.4p cheaper) and so a large differential would still exist. There are other options which should be explored to make charging more accessible. Examples include:

- To legislate that cheaper tariffs for overnight use of public local charging points are applied, aligned to the home energy tariffs many current EV drivers with home chargers benefit from.
- To consider 'energy porting' whereby the charger recognises a vehicle's ID and the owner is charged based on their home energy tariff. This could be targeted at those living locally to the public chargepoint and using it overnight. This also has the additional benefit of resolving many of the concerns and barriers to cross pavement solutions installations that MCAs/LTAs are dealing with.

Recommendation 10

That the UK Government should lead a detailed and informed discussion with regards to tax revenue from fuel duty and vehicle excise duty, with a view to setting a clear direction. An integral part of this review should be how to improve equitable access to all sustainable modes of transport.



An equitable transport system

How we pay for, and fund mobility is a fundamental factor in ensuring that good transport choices are available and affordable for all members of the community. The cost of transport, whether by private car or public transport, can significantly limit opportunities for people to access jobs, education and other services, particularly as TfN evidence has shown for people living on a low income.

A headline finding of [TfN's August 2024 Travel Choices research](#), was that for the same distance travelled, those travelling by car face significantly lower costs than those travelling by bus or by train. However, the cost that car travel has on society is much higher. Therefore, increasing public transport ridership through tackling the affordability and quality of public transport is a priority, and the identification of alternative options to fuel duty for car use will be key to achieving that.

As the transition from use of petrol and diesel gathers pace, the circa £28bn per year tax revenue from fuel duty will start to fall sharply, significantly impacting on government finances. In 2022 the Transport Select Committee launched an inquiry into Zero Emission Vehicles and road pricing, which TfN submitted evidence towards. [The Committee published its conclusions and recommendations](#), including stating 'The Government must start an honest conversation with the public on the funding implications for road development and maintenance and for other essential public services of decreased revenue from vehicle excise duty and fuel duty'.

Should government allow fuel duties to decline, without any policy response, that would inevitably result in the need for other taxes to 'plug the gap' or reduced public expenditure, including on maintaining and upgrading transport networks.

Recommendation 11

A phased mandating of the updated minimum accessibility standard (PAS1899) for charging points is introduced, with a focus on moving at pace to ensure infrastructure is accessible to all during the EV transition.

Accessibility

It is vitally important that all EV users are able to use all charging infrastructure. Currently, 1 in 5 people in the UK are disabled and by 2035 it is projected that 2.7m disabled drivers will rely on public charging points. This is why we fully endorse the PAS1899 document that sets out a core minimum standard to ensure disabled and older people, and those with mobility impairments, can access and use charging points. We are aware that the standard is currently being updated based on two years' experience of implementation, and that compliance on the ground is limited. We support the idea of phased mandating of suitable new installations so that compliance grows overtime.



Recommendation 12

A more formalised process is introduced to further allow for the energy and transport sectors to integrate evidence and place-based planning to shape delivery (i.e. Local Area Energy Plans and our EV Charging Infrastructure Framework).

Transport and Energy Sectors

The delivery of transport outcomes is dependent upon aligned strategic planning and investment in energy generation and distribution systems. This is particularly true in terms of the transition to EVs, with transport and energy sectors required to work in harmony to achieve success. The scale of the challenge is significant and complex. In our region, there are currently 256,000 EVs (2.9% of the region's vehicles). Our EVCI framework projects that this number will grow to between 1.9m and 2.6m by 2030. In terms of public chargepoint plugs (not including home chargers), there are currently around 15,600 with this projected to rise to between 137,000 and 185,000 during the same time period, up to a twelvefold increase. Clearly, the impact on our energy network is significant with an estimated 6,816 Gigawatt-hours (GWh) of additional electricity required annually under our Urban Zero Carbon scenario (not including home chargers). This is the equivalent of annual household consumption of around 1.7 million households (applying average use according to Ofgem).

We welcome Ofgem's development of the Regional Energy Strategic Plans (RESP) with the aim of supporting 'co-ordinated development and enabling long term investment to be made with confidence and ahead of need'. Removing barriers and siloed delivery strategies is critical to ensuring investment in strategic infrastructure is aligned to an agreed outcome. We support Ofgem's proposed core principles and functions for new Regional Energy System Plans. We are a working example of a regional planning structure which adds value through 'strategic planning, technical co-ordination, place-based engagement and supporting local actors'.

We strongly advocate the benefits of a whole system approach being at the heart of infrastructure planning, and we embed this in our way of working across our programmes. We share Ofgem's view that planning for single sectors (or vectors, i.e. electricity) in isolation is inefficient. Whole system thinking is necessary to ensure the linkages between transport, digital and energy systems (and other areas) are maximised in policy and decision making. Experience shows that the datasets and analysis held by pan-regional bodies such as us can also form the foundations for the preparation of the Regional System Plans. Use of common datasets in this way enables a whole system approach to be embedded quickly, efficiently and at a reduced cost to the public purse.

Collaborative working and use of data to shape infrastructure investment

Cross-sector working, collaboration and ‘systems thinking’ is critical to achieving effective and efficient results, grasping opportunities that come with the alignment of infrastructure planning. Via its EV Regional Partner Group, containing local authorities, National Highways and OZEV, we have engaged with the energy regulator Ofgem National Grid and our three DNOs. Continued dialogue and relationship building has increased knowledge and expertise across both sectors. Clearly combining each other’s knowledge of their sector, e.g. our transport modelling capability and the DNOs future energy projections, can achieve more robust planning and infrastructure delivery decisions. Whilst we have our own future transport scenarios, with the energy sector having Distribution Energy Scenarios and Future Energy Scenarios, the increased dialogue and information sharing means future alignment of assumptions and use of best datasets is achievable.

We have recently progressed an enhancement to our EVCI Framework, with support from the three DNOs in the North. This joint work has merged DNO data such as the current and future headroom capacity in primary substations, with our future projections for EV and charging demand. Whilst the ‘snapshot’ outputs do not include grid enhancements in the pipeline, the work will go some way to highlighting expected pinch points or focus areas for grid reinforcement and increased capacity across our region. This can help to future-proof decision making with regards to electricity supply, and target priority areas for action which often need to be made years ahead of delivery. The images below showcase that whilst currently over 90% of primary substations have good levels of capacity currently, this situation will radically change due to increased energy demand for EVs by 2035 (note the shading change from dark to light in the images as capacity reduces). We will continue to work with the DNOs in the region to increase the accuracy of this work to inform future grid capacity planning.

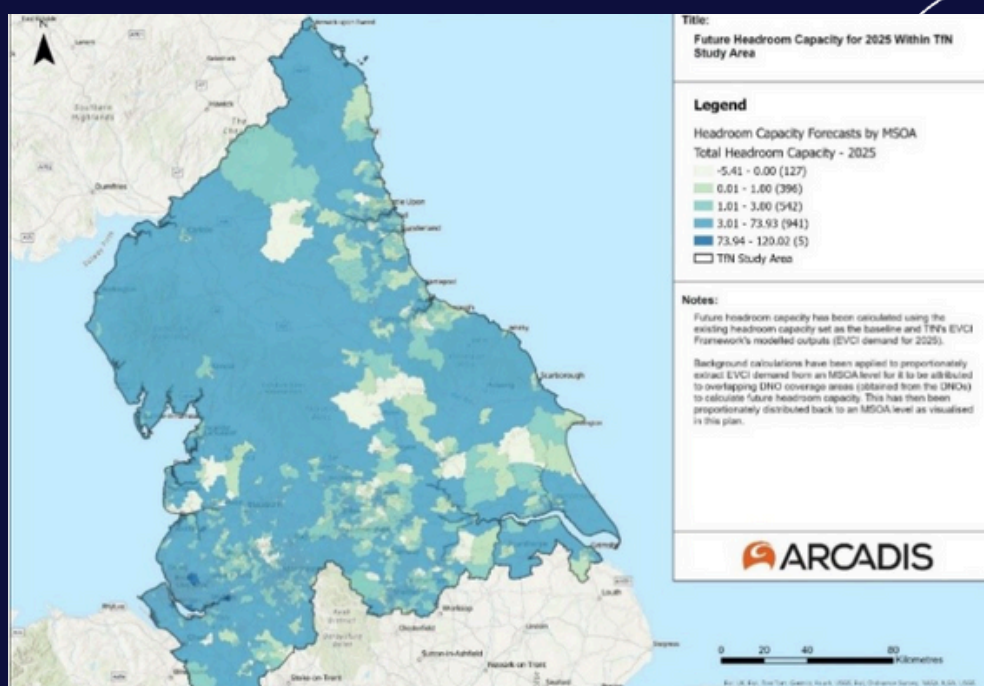


Figure 9: Assessment of primary substation headroom capacity in 2025

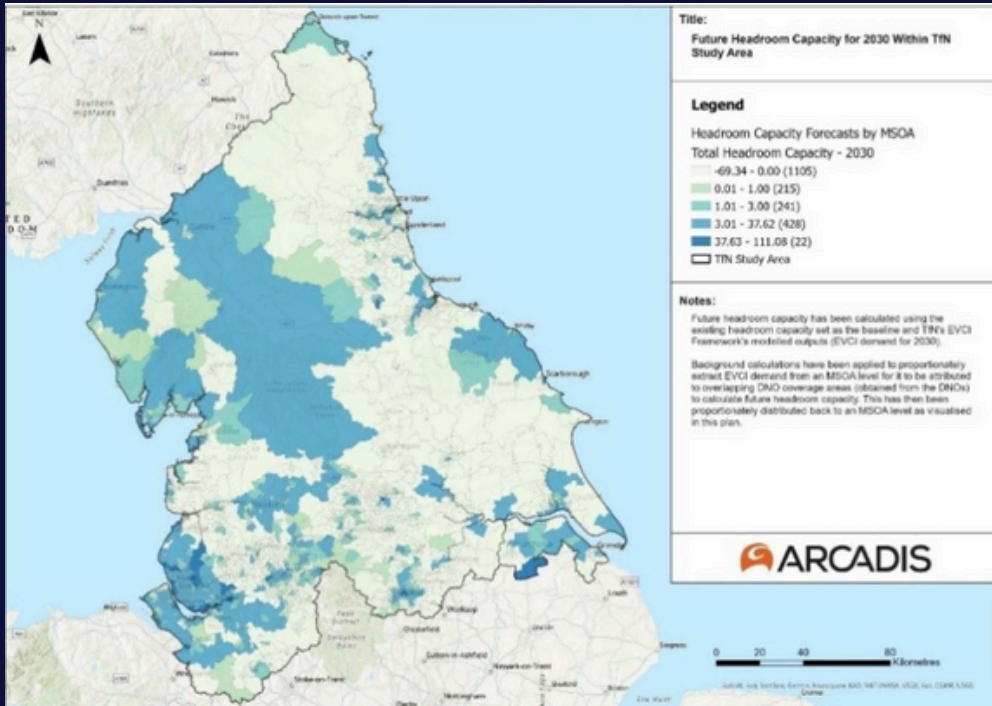


Figure 10: Assessment of primary substation headroom capacity in 2030

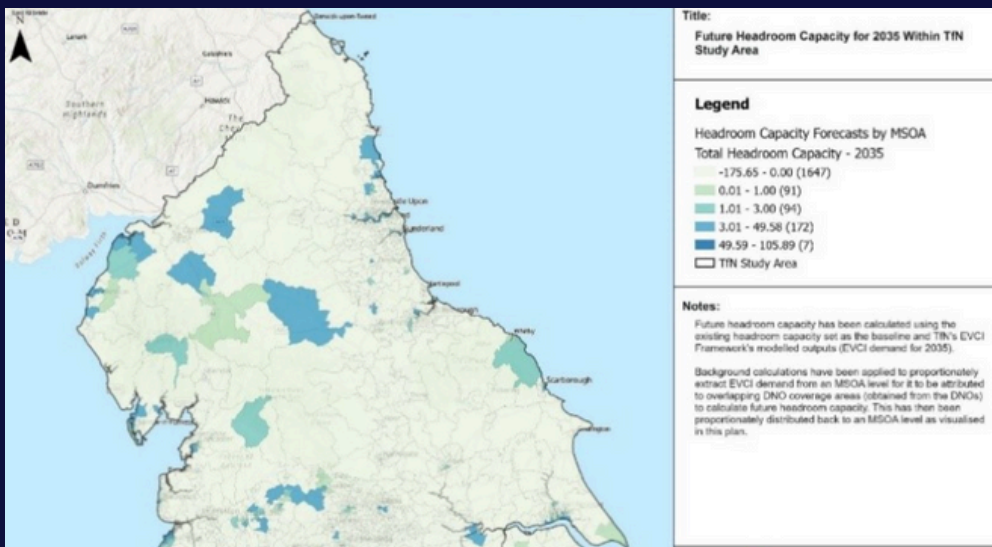


Figure 11: Assessment of primary substation headroom capacity in 2035

The forecasted headroom data used for this assessment is changeable as grid demand, supply and connections change over time. This will be intermittently updated with new data made available by our DNOs. The EVCI Framework provides evidence to shape strategic planning, decisions and collaboration around the enabling infrastructure for EV charging.

This does not replace DNO advice on specific connection requests or latest headroom capacity. Users should contact the relevant DNO for more detailed information and timeframes for any connection request.

Formalising planning and systems thinking

The evidence base we have assembled demonstrates how investment in the North's infrastructure contributes to achieving agreed outcomes on reducing carbon emissions, improving health, and achieving sustainable economic growth. This will require, at a minimum, alignment of analysis, evidence and decision making in transport investment with that in energy systems and digital connectivity.

We act as a focal point for trusted data and evidence that can be used to develop policy and implement solutions. There are critical information links between transport and energy functions, and planning considerations with which to share and collaborate on, to develop outputs for our industry participants.

We welcome the positive working relationships we have with northern DNOs, the development and communication of our EVCI framework, and the enhancements referred to in this report. Whilst progress has been made, it is clear we could collectively do more to take this further. Our evidence available could be more actively incorporated and accounted for in energy planning and delivery. We see continued work with our DNOs as key in making best use of critical whole systems tools (and exogenous sources) such as evidence provided by us (and other STBs in England as the EVCI Framework is rolled out nationally), and our MCAs/LTAs (Local Area Energy Plans, (LAEPs)), to collaboratively apply and enhance decision making and delivery towards our mutual ambitions.

We recognise an opportunity for the future RESP and our work to support improvements to how we plan, develop and deliver infrastructure and services. This includes better informing multiple infrastructure processes and ensuring they are aligned to local and regional requirements. This includes processes such as:

- Local Area Energy Plans (LAEPs), Local Growth Plans and local spatial planning
- Local and regional transport plans
- National Grid's Electricity Distribution (NGED) investment planning process.
- Delivery of the local electricity networks RIIO Electricity Distribution Price Control (RIIO-ED2) period 2023 to 2028, and (RIIO-ED3) beyond 2028.
- Investment channelled through National Highway's Road Investment Strategy.
- Investment channelled through Network Rail's Control Periods for planning and investment.
- Other public investments channelled through government, i.e. Major Infrastructure Projects and funding streams such as the Local Electric Vehicle Infrastructure (LEVI) and Rapid Charging Fund (RCF).

We will continue working closely with Ofgem to support the RESP development. It is encouraging to see the development of clear roles and responsibilities for each body, as well as the intention for clear governance procedures and a democratic mandate. We recommend that TfN – as a statutory body - is confirmed as a 'key actor' which should inform, support and be consulted on the RESP when enacted.

Recommendation 13

That all electricity used to power EV chargers is from renewable sources, to support our net zero ambitions.

Sustainability: Grid decarbonisation

Whilst EVs are zero emission at point of use there is still a requirement to continue to reduce the carbon emissions associated with the production of the electricity to power them. Emissions from electricity generation have been falling. As highlighted in the [Climate Change Committee Electricity Generation report](#), since 1990 they have fallen 68%, with emissions falling by 62% between 2008 and 2018. The Balanced Net Zero Pathway decarbonises electricity generation by 2035. However, the challenge is to ensure the rising demand is met with low-carbon generation. With a sizeable contribution related to EVs, electricity demand is projected to double between 2020 and 2050. From an EV charging perspective it is important that those responsible for charge point delivery, including EV owning residents, look to incorporate low carbon solutions in their delivery. For example, this may be through powering charge points via connected or local renewable generation, such as solar panels or wind turbines. Where this is not possible, 100% renewable electricity tariffs should be utilised.

Recommendation 14

The UK Government encourages investment in battery production factories and ensures appropriate regulations are in place in regard of production, reuse, recycling and disposal of EV car batteries.

Battery production and the environment

Whilst the source of some debate, there is a growing consensus that EVs produce significantly less carbon dioxide during their lifetimes than internal combustion engine (ICE) cars, including production and battery disposal, with this gap set to widen as electricity generation decarbonises further and manufacturing processes improve and produce less embedded carbon. There are opportunities to further reduce emissions by producing large quantities of batteries used in new EVs here in the UK (for example, the £4bn gigafactory planned for Somerset). We support such potential economic activity in our region, as a sustainable model that supports net zero targets, creates employment and ensures control over, not only the production of batteries, but the reuse, recycling and disposal of them at the end of their life. As highlighted in Recommendation 15, there is a real opportunity for the North to further support the 'green economy' transition by expanding investment in EV-related production, training, and skills to boost economic activity and close the economic imbalance that exists in the country.

Recommendation 15

Further investment is made into EV related training to increase the speed of the EV transition and support economic growth in the region.

Skills: EV skills and training

As the EV transition continues and, more generally, the 'green economy' grows, there is an opportunity to make the UK, specifically the North, a leader in terms of EV skills and training. This is in terms of EV knowledge and skills across all parts of the industry, including car and battery production, as well as chargepoint production and installation. An opportunity also exists to upskill workers moving from carbon intensive roles to those that support the transition to EV.

The [Electric Evolution report](#) highlights that despite an increase in EV technician training, availability is inconsistent across the country. The report examines the proportion of maintenance and repair technicians that are EV qualified, with only seven authorities across the UK having 10% or more technicians qualified to work on EVs. More than 150 authorities have less than 2%. The Institute of the Motor Industry (IMI) predicts that 77,000 IMI TechSafe qualified technicians will be needed by 2030, increasing to 89,000 by 2032. With over 230 IMI training centres across the country there is an opportunity for the North to take a lead on filling the gap.

EV skills and qualifications should not purely be focused on technicians working on the EVs themselves. Clearly, there are a range of related roles, ranging from the selling of vehicles, to chargepoint strategy, procurement and delivery. As highlighted earlier, the results of surveys and interviews conducted with our Northern Transport Voices research community, highlighted that those visiting dealerships often did not get adequate information in order to give them the confidence to invest in an EV. It appears there is an opportunity to upskill car sales staff in this area so that common questions can be answered with confidence, therefore reducing confusion or concern.

In terms of chargepoint roll out, a range of staff, particularly within Local Authorities, have some form of involvement in the procurement and installation of facilities. Whilst specific EV Officers are in place in many authorities, those working in legal, procurement, highways and strategy also need to have a good level of EV knowledge. Local councillors can also play a critical role in being the voice of residents and therefore increased knowledge can be beneficial to any related approvals sought. We welcome the work of the Energy Saving Trust in this area, who have held pilot training sessions with local authority staff and councillors. We are of the view such sessions should be rolled out further, and are designed in such a way that recognises the time constraints of participants.

For those EV officers within authorities, we also welcome the Electric Vehicle Infrastructure (EVI) training course delivered by CENEX (Centre of Excellence for Low Carbon & Fuel Cell Technologies). Whilst good work is taking place in this space, we wish to see a step change in the scale of all such training across the region, to ensure adequate human resource and knowledge required for the EV transition.

For further information on our research,
evidence and recommendations please
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