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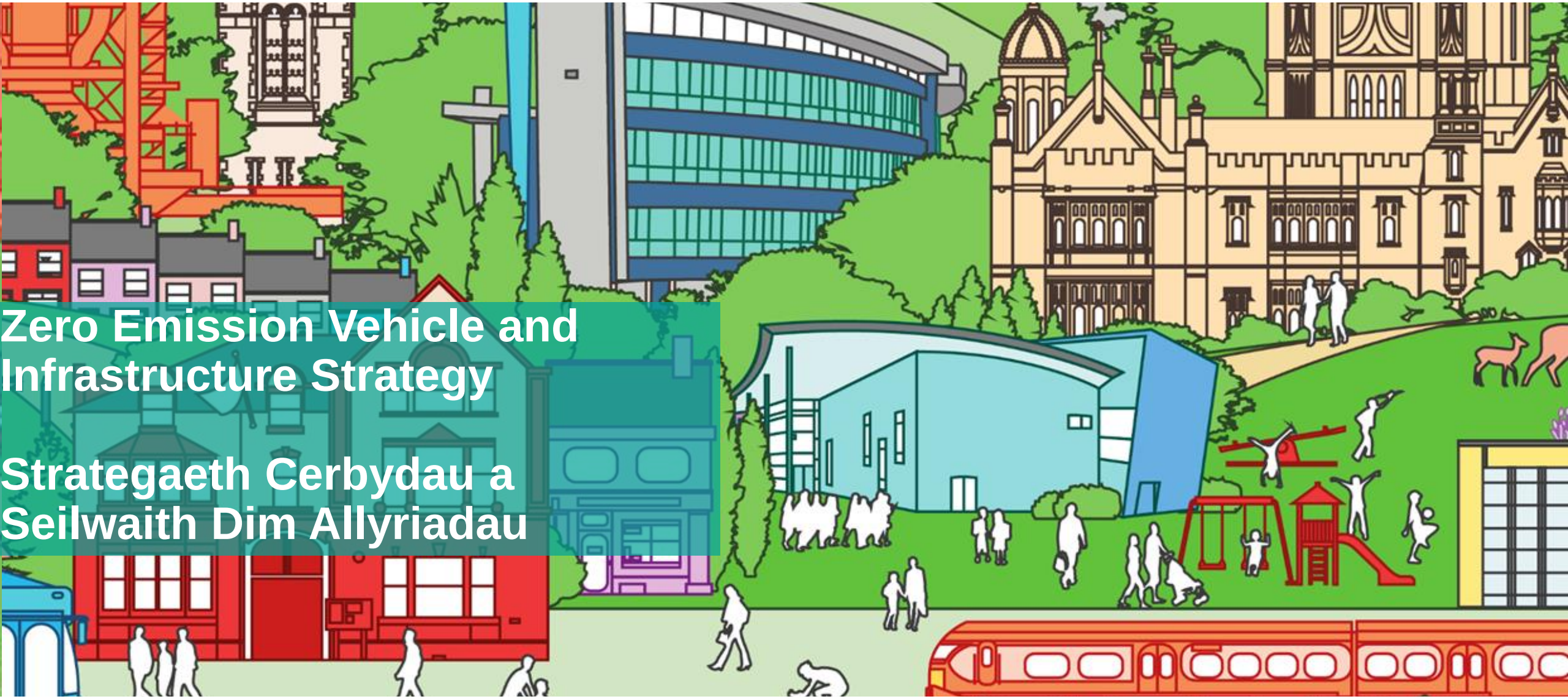
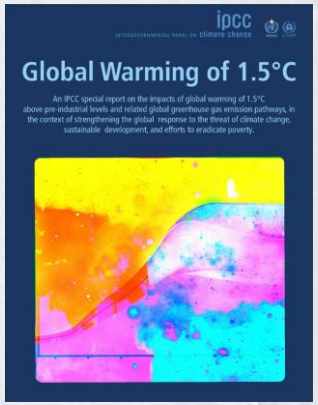


Zero Emission Vehicle and Infrastructure Strategy

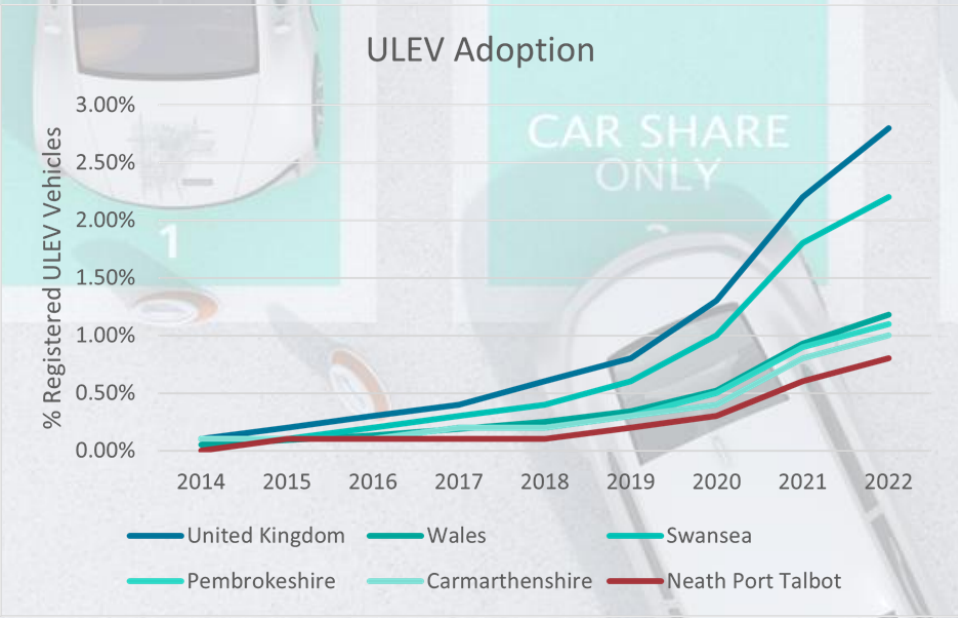
Strategaeth Cerbydau a Seilwaith Dim Allyriadau

CASE FOR CHANGE



In October 2018, the Intergovernmental Panel on Climate Change (IPCC) published a Special Report on the impacts of global warming, and the devastating effects that inaction could have on our ecosystems. The report concluded, that to avoid catastrophic environmental and societal damage we must avoid temperatures rising by 1.5˚ C and that this requires achieving net-zero global carbon emissions by 2050. One of the largest contributors to carbon emission is the transport sector. In 2019, surface transport accounted for 27% of the total UK emissions, with cars contributing 60% of this. Furthermore, ULEV technology has already been proven to be a commercially viable replacement for traditional fossil-fuel powered vehicles.

As of 2022, 0.79% of registered vehicles in Neath Port Talbot were ULEVs. ULEV uptake within the study area can be seen to be growing, however, the growth lies significantly below the surrounding councils' growth and the gap appears to be increasing year-on-year.



Annual Mileage
NPTC Operated Fleet: 2,804,561
Grey Fleet: 2,070,722
Total: 4,875,283

Fuel Costs
NPTC Operated Fleet: £1,028,000
Grey Fleet: £930,000*
Total: £1,958,000

Fleet Size
NPTC Operated Fleet: 462
Grey Fleet: 1,775
Total: 2,237

GHG (Tonnes)²
NPTC Operated Fleet: 2,728
Grey Fleet: 516
Total: 3,244

Particulate Matter (kg)
NPTC Operated Fleet: 65.8
Grey Fleet: 14.6
Total: 80.4

NO_2 (kg)
NPTC Operated Fleet: 6,052
Grey Fleet: 986
Total: 7,038

Estimates published by the WG stated that the NPT public sector fleet, not including any grey fleet, which are vehicles owned and driven by an employee for work purposes, drove at least 2.8million miles and emitted 2,727 tonnes of greenhouse gases in the 2019/20 financial year.

Welsh Government Energy Service, Neath Port Talbot Council ULEV Transition Fleet Review (2021)

BACKGROUND

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Well-Being of Future Generations (Wales) Act (2015)
- Work better with communities
- Prevent climate change

Prosperity for All: A Low Carbon Wales (2019)
- Reduce transport sector emissions by 43% from 2016-2030
- £2 million investment to facilitate EVCP network
- Change travel behaviours

Electric Vehicle Charging Strategy for Wales (2021)
- Recognised need for substantial increase in EVCP network
- Recognised need for better quality charging

Future Wales: The National Plan 2040 (2021)
- Embrace EV adoption, supporting necessary investment in EVCP network
- Consider level, location, and type in planning EVCPS

Llwynr Newydd: The Wales Transport Strategy (2021)
- Deliver Welsh EV Charging Strategy Action Plan
- Sustainable Transport Hierarchy implemented to prioritise ULEVs
- Support ultra-low emission buses and zero emission taxis

Net Zero Wales Carbon Budget 2: 2021-2025 (2021)
- The whole Traws Cymru bus fleet to be zero tailpipe emission by 2026
- By 2025, an EVCP within every 20 miles across Wales
- Zero-tailpipe emission taxi and private hire fleet by 2028
- Zero/Ultra Low emission new public sector cars and light goods vehicles by 2025, and heavy goods by 2030

Planning Policy Wales Edition 11 (2021)
- Mainstreaming EVs
- Promotes design considerations in EVCP planning

National policies aim to remove charging infrastructure as both a perceived, and a real, barrier to the adoption of electric vehicles. The national policies provide support for regional and local areas to plan and deliver ChargePoints with funding and guidance.

Policy

NPT ZEV Commitment

National
Regional
Local

Joint Transport Plan for South West Wales (2015-2020)
- EV Charging Network Scheme

Swansea Bay City Deal – Supporting Innovation and Low Carbon Growth (2019)
- Develop an evidence-based electric vehicle charging strategy
- Mobilisation of electric link between Swansea Bay Technology Centre and Hydrogen Centre

South West Wales Regional Energy Strategy (2022)
- Energy vision to reach by 2035, with outcomes including 320,000 EVs, 9,500 on street and public EV chargers

Adopted LDP (2011-2026)
- Develop safe, efficient, and sustainable transport system and infrastructure

Decarbonisation and Renewable Energy (DARE) Strategy (2022)
- Annual renewal programme of the council's fleet of vehicles will focus on migration to cleaner and more energy efficient vehicles
- Develop future-proof EV charging strategy
- Consider adopting low emissions specification requirements for taxi licencing

Digital Strategy (2018-2022)
- Maximise the benefits of the Swansea Bay City Deal

Regional strategies set out further SMART targets in order to reach national objectives. These specific targets consider regional challenges and disparities and offer a comprehensive but also digestible approach to EV infrastructure rollout.

Local Authorities (LAs) play a vital role in EV infrastructure rollout. LAs determine ownership and resourcing of the planning and delivery of EV charging infrastructure rollout on public land and on-street. National government suggests that LAs should publish a local EV strategy with a commercial and cross-sector approach that integrates into broader local transport plans

SURROUNDING PROJECT ACTIVITY

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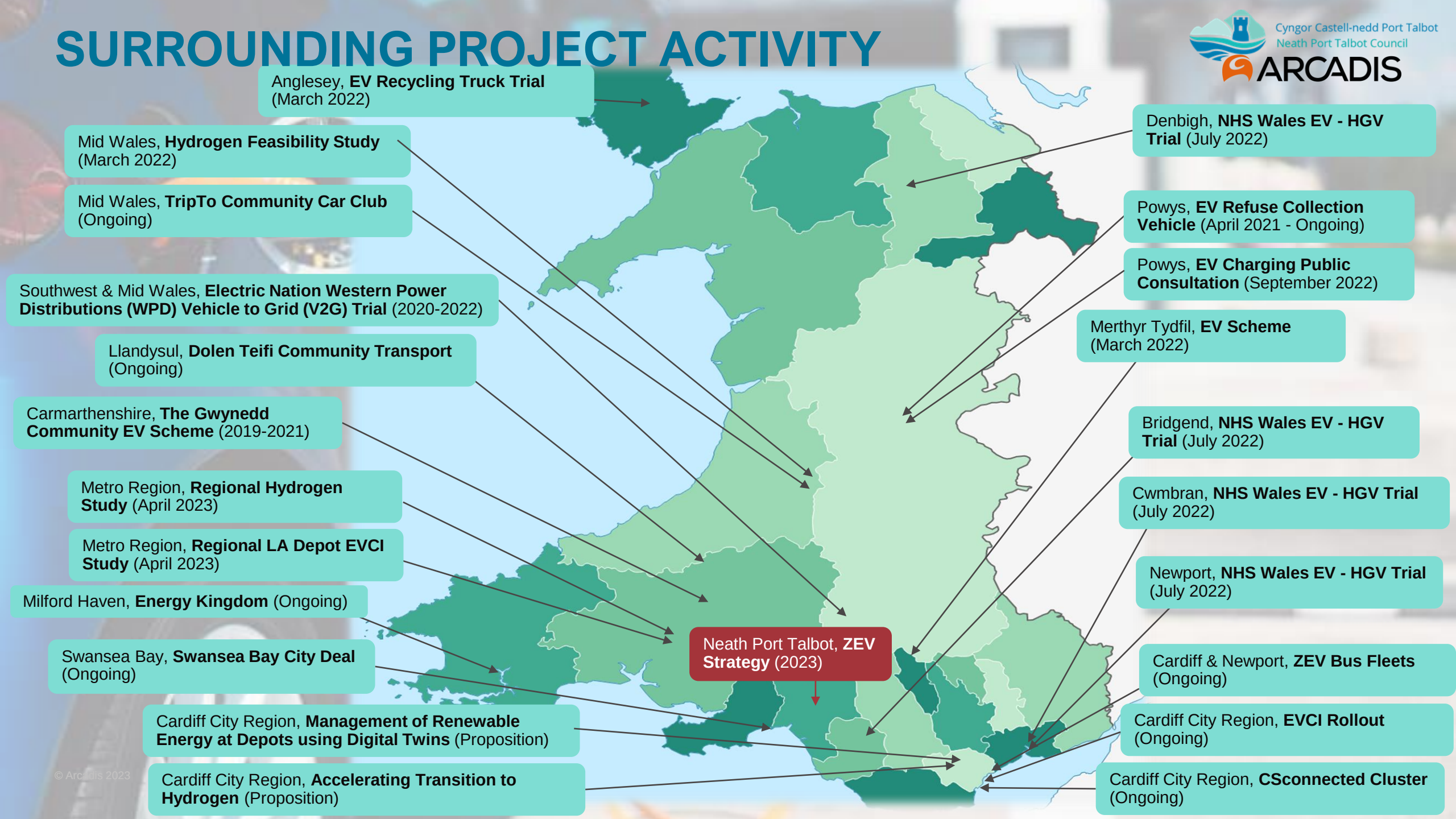

Anglesey, **EV Recycling Truck Trial** (March 2022)

Mid Wales, **Hydrogen Feasibility Study** (March 2022)

Mid Wales, **TripTo Community Car Club** (Ongoing)

Southwest & Mid Wales, **Electric Nation Western Power Distributions (WPD) Vehicle to Grid (V2G) Trial** (2020-2022)

Llandysul, **Dolen Teifi Community Transport** (Ongoing)

Carmarthenshire, **The Gwynedd Community EV Scheme** (2019-2021)

Metro Region, **Regional Hydrogen Study** (April 2023)

Metro Region, **Regional LA Depot EVCI Study** (April 2023)

Milford Haven, **Energy Kingdom** (Ongoing)

Swansea Bay, **Swansea Bay City Deal** (Ongoing)

Cardiff City Region, **Management of Renewable Energy at Depots using Digital Twins** (Proposition)

Cardiff City Region, **Accelerating Transition to Hydrogen** (Proposition)

Neath Port Talbot, **ZEV Strategy** (2023)

Denbigh, **NHS Wales EV - HGV Trial** (July 2022)

Powys, **EV Refuse Collection Vehicle** (April 2021 - Ongoing)

Powys, **EV Charging Public Consultation** (September 2022)

Merthyr Tydfil, **EV Scheme** (March 2022)

Bridgend, **NHS Wales EV - HGV Trial** (July 2022)

Cwmbran, **NHS Wales EV - HGV Trial** (July 2022)

Newport, **NHS Wales EV - HGV Trial** (July 2022)

Cardiff & Newport, **ZEV Bus Fleets** (Ongoing)

Cardiff City Region, **EVCI Rollout** (Ongoing)

Cardiff City Region, **CSconnected Cluster** (Ongoing)

FUNDING

**DISCLAIMER* There are a range of current potential funding options for scheme delivery, however, it must be noted that the relevance of the funding may change overtime as closing dates for applications will pass and new funding will be introduced.*

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Local Authorities

- The **On-Street Residential ChargePoint Scheme** (ORCS) provides local authorities access to up to 60% of funding to install EV infrastructure on-street and in public car parks.
- The **EV ChargePoint grant** is open to public authorities and is intended for entities that rent, lease or manage residential properties who want to install EV ChargePoints
- **Plug-in grants** for electric taxis, vans, trucks, motorcycles, mopeds and wheelchair accessible vehicles, reducing ZEV purchase prices for consumers.

Landlords

- The government offers the **EV ChargePoint grant** to landlords for single use, multi-use and commercially let properties that have parking dedicated for staff use or fleet use of the tenant or prospective tenant.
- **Plug-in grants** for electric taxis, vans, trucks, motorcycles, mopeds and wheelchair accessible vehicles, reducing ZEV purchase prices for consumers.

Homeowners

- The **EV ChargePoint grant** is open to homeowners.
- **Plug-in grants** for electric taxis, vans, trucks, motorcycles, mopeds and wheelchair accessible vehicles, reducing ZEV purchase prices for consumers.

Renters

- The **EV ChargePoint grant** is open to people who live in rental accommodation or own a flat
- **Plug-in grants** for electric taxis, vans, trucks, motorcycles, mopeds and wheelchair accessible vehicles, reducing ZEV purchase prices for consumers.

Workplaces

- In September 2022, the **EV infrastructure grant** has also been made available for small and medium size businesses (less than 249 employees) who want to install charging infrastructure in their commercial car parks.
- The **Workplace Charging Scheme** (WCS) provides funding towards the cost of the purchase and installation of EVCPs at workplaces.
- **Plug-in grants** for electric taxis, vans, trucks, motorcycles, mopeds and wheelchair accessible vehicles, reducing ZEV purchase prices for consumers.

Manufacturers

- **Driving the Electric Revolution Challenge**, delivered by UK Research & Innovation (UKRI), provides £80 million to scale-up and unite UK supply chains to deliver fundamental components of EVs and net zero – power electronics, electric motors, generators, and drives (PEMD). Funding is committed to support this initiative until at least 2025

CURRENT EV & EVCP MARKET

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Current EV Market

The EV market is constantly evolving with new, more efficient and technological improvements each year. Growing EV adoption is linked to a progressive EV battery size and range increase over time and a steady fall in battery price and associated EV prices.

Technological advancements in battery size and range continues reducing the frequency of recharging and increasing confidence to travel further distances.

Recycling EV Batteries

As EV uptake increases, the importance of recycling and repurposing EV batteries emerges. Second life uses include energy storage systems and backup power sources for the grid.

Recycling Batteries
EV batteries can retain up to two-thirds of their initial energy storage capacities in their second life.

On-street Residential Charging
It is estimated that 48% of all EV charging events in the UK will take place at homes that rely on on-street parking.

Slow
3.6kW AC – 6-12 hours for full charge. £14 full charge*
Use Case: Residential

Fast
7-22kW AC – 3-6 Hours for full charge. £22 full charge*
Use Case: Destination

Rapid
40+kWAC, 50+kW DC – 20 minutes – 1 Hour up to 80% battery. £27.50 full charge*
Use Case: Destination & SRN

Ultra Rapid
150+kW DC – 10-20 minutes. £32.50 full charge*
Use Case: SRN

*All prices calculated for a 50kWh battery to full charge.

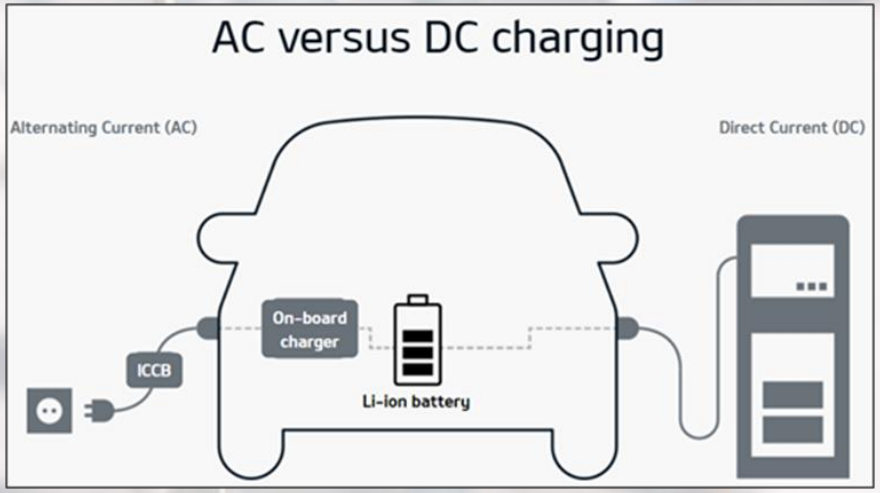
Existing EV Charging Technology

ChargePoint Specification available in the market place are differentiated by their communication protocol, type, and number of charging outlets

There are two types of charging, AC and DC:

- AC Charging – requires power drawn from the grid to be converted within the vehicle itself via an onboard charger.
- DC charging – Has a converter built into the charger which can feed power directly to the EV battery.

Dense on-street parking in Neath



On-Street Residential (Slow) EVCPs

On-street parking is unavoidable as approximately 60% of homes across UK and Wales are terraced houses or apartment buildings with no access to private driveways. In these locations, it is highly unlikely that residents will be able to use home chargers for their EVs. Therefore, public on-street residential (slow) EVCPs will be required across NPT to ensure a fully accessible EVCP network for all in NPT .

ON-STREET RESIDENTIAL EVCPS

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Types of EVCPs	Pros	Cons
Lampost Mounted EVCP 	• Utilise existing physical and electrical infrastructure – quicker, cheaper, and less embodied carbon. • Avoid challenges surrounding additional street furniture, accessibility, and resident concerns about street clutter. • With several lampposts located across the study area, EVCPs can be planned at short notice and relocated easily if necessary.	• Non-EV users might accidentally park their vehicles within these spaces due to how discrete the signage and charging socket is – however, this can be mitigated through EV parking only bays. • Constrained by the existing power supply to the lamppost while also needing to ensure that capacity remains to power the light itself. • Capacity to power a slow 3.7kW charger which takes 8-10 hours to charge. There's a risk these chargers won't be powerful enough to charge more powerful batteries. • Potential for trailing cable trip hazard if bollard not installed to bring ChargePoint kerbside from lampposts situated at the back of the footway.
Bollard Chargers 	• Newly installed power connections can ensure that EVCPs can supply multiple charging sockets. • Can be future proofed by providing excess capacity to later supply additional or higher power EVCPs for future demand.	• New electrical connections will be required, increasing installation costs and time. • Will require additional civils to install such as trenching, feeder pillars, associated traffic management. • Additional street furniture
Pop Up Columns 	• Can reduce costs, visual impact, and embodied carbon • Flush with the surface of the footway. • Newly installed power connections can ensure that EVCPs can supply multiple charging sockets. • Can be future proofed by providing excess capacity to later supply additional or higher power EVCPs for future demand.	• New electrical connections and civils will be required. • Can be harder to locate. • Reduces width of footway when in use, reducing accessibility.

ON-STREET RESIDENTIAL EVCPS

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Types of EVCPs	Pros	Cons
Standard ChargePoints Installed on A Build Out 	• Does not impact accessibility as the buildout doesn't reduce the size of the footway. • Newly installed power connections can ensure that EVCPs can supply multiple charging sockets and can be future proofed to provide excess capacity to later supply additional or higher power EVCPs.	• New electrical connections will be required. • Will require additional materials and civils to expand footway and install trenching, feeder pillars, associated traffic management, increases environmental impact. • Additional street furniture which also reduces the amount of parking availability.
Community Charging Hub 	• Designed for overnight use so makes charging convenient as less likely the vehicle will be in use overnight. • Newly installed power connections can ensure that EVCPs can supply multiple charging sockets. • Indirect benefits to local economy as the hub encourages an economic boost to nearby businesses through greater footfall.	• New electrical connections will be required.. • May be hard to find suitable space within residential areas. • Increasing the amount of car parking spaces increases the chance of uptake of EV vehicles that will stop people from choosing a method of active travel.
Pavement Gully Charging Solution 	• Enables homeowner to install a home charge point of their choice. • No trailing cables to act a potential trip hazard on the pavement. • As long as there is a parking space, charging can take place outside the house. • Lower costs for home charging compared to public charging costs as homeowners are charged their home energy rate via their own electricity supplier. • Little maintenance required. • No additional street furniture or additional cabinetry on the pavement is required as no DNO power is required additional to that of the home.	• Access to the charge point is not guaranteed if parking is not available. • If not used in the correct manner, trailing cables and hazards for pavement users could still occur. • Liability, maintenance and ownership responsibility could be confusing and difficult to enforce. • Planning permission is technically required to install a charge point under current legislation (although the LA can allow this through PD). • A section 50 is required for the installation, requiring appropriate accreditation of those undertaking the work.
ChargeBridge (prototype) 	• An innovative on-street solution that avoids EV charging cables obstructing footways entirely. • The system can be installed on dense terraced streets using existing lampposts or being connected to properties. • Home, on-street, residential, and workplace charging applications	• The system is in early stages of development and not yet available for commercial roll-out. • The solution is currently untested on a large scale. • The impact of attaching infrastructure to existing street furniture or buildings is untested.

ALTERNATIVE FUELS - HYDROGEN

**DISCLAIMER* As a rapidly developing industry, technological advancements in alternative fuels and hydrogen are constant. Therefore, it must be noted that sources used may become dated as new information emerges.*

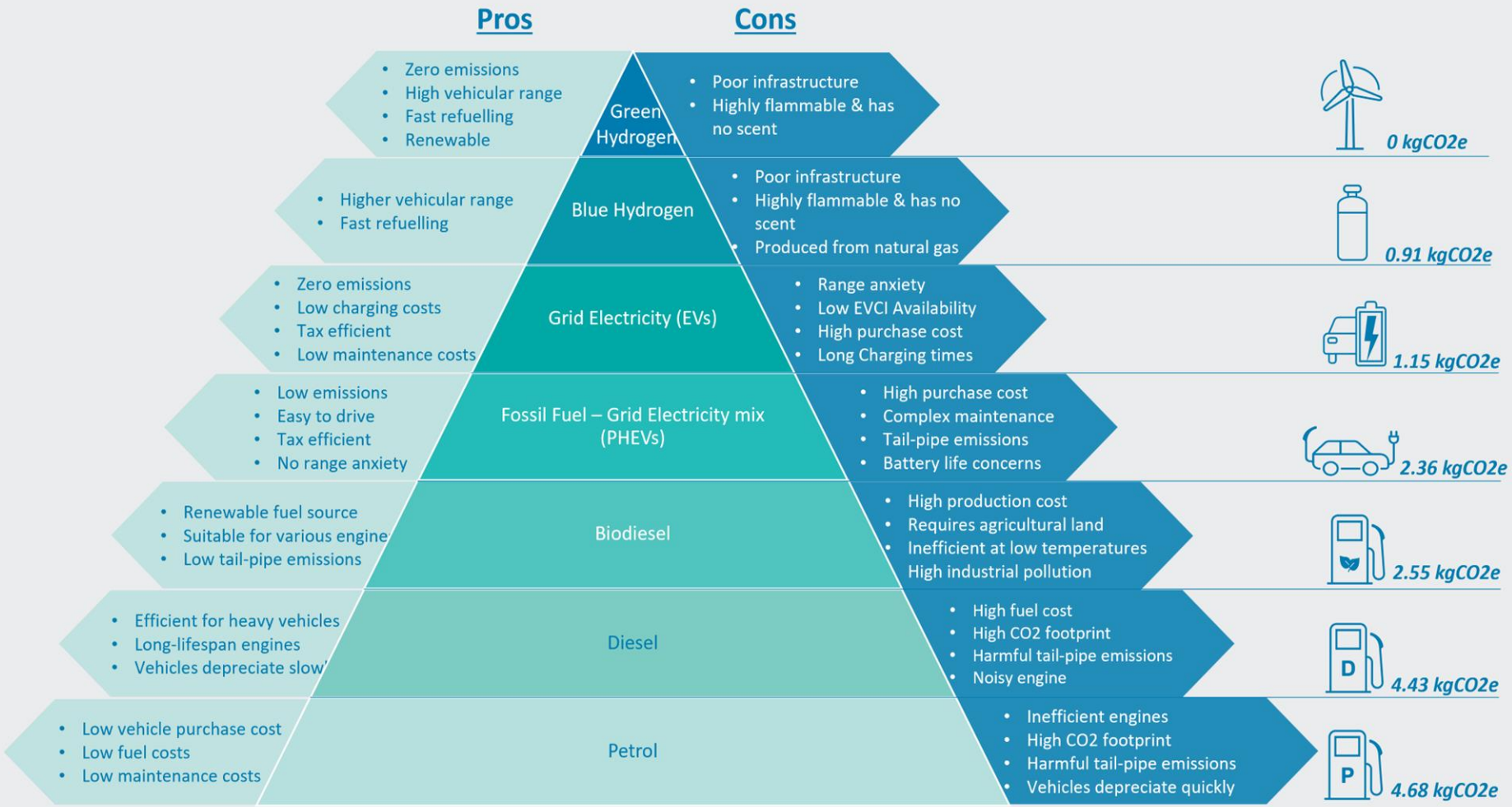
The transition towards hydrogen is critical to create sustainable transportation. Within a hierarchy pyramid based on their carbon footprint, blue and green hydrogen cover the top.

Progress has been made towards hydrogen, specifically around buses and large vehicles, though several challenges must first be addressed.

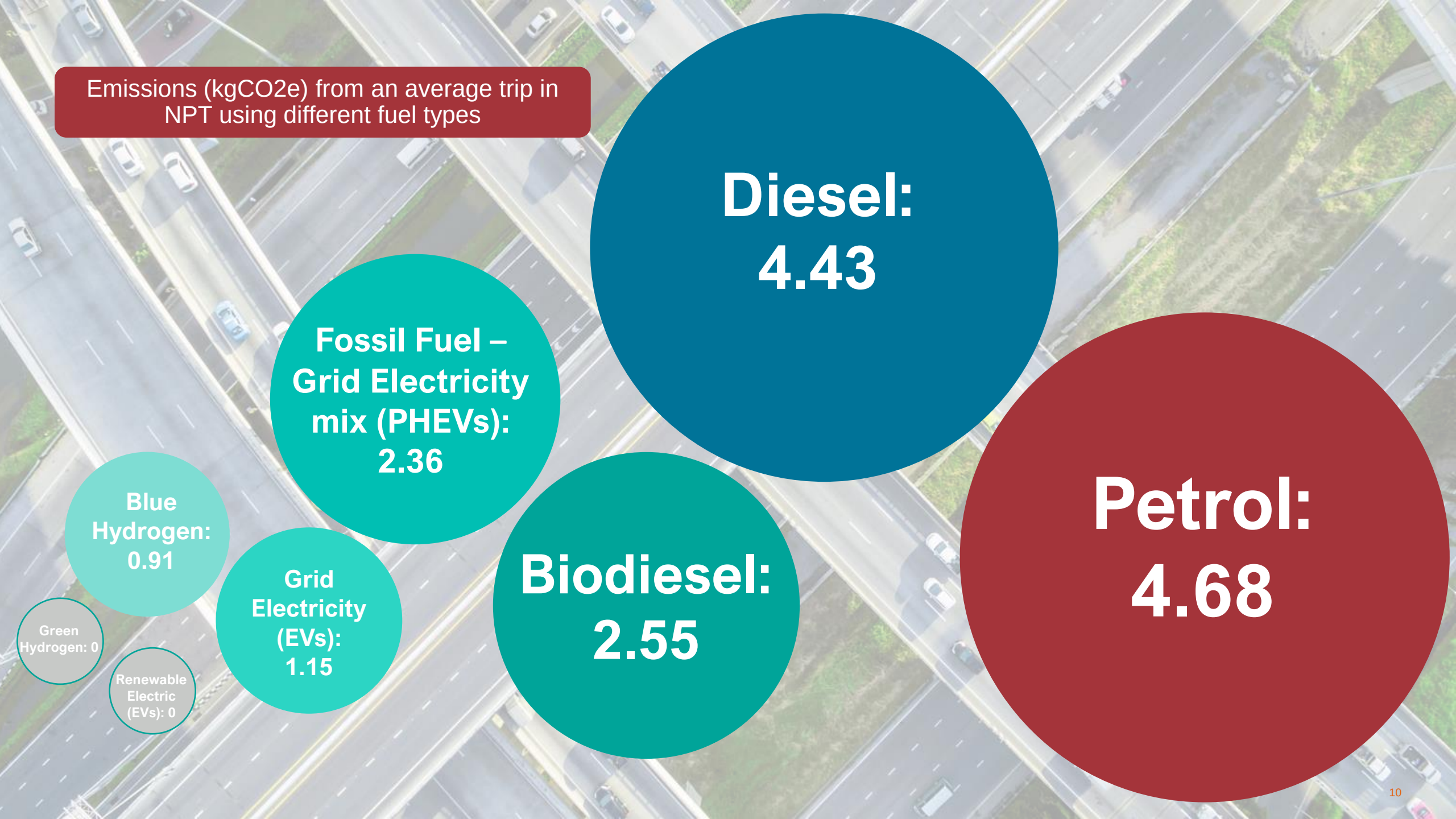
Green hydrogen: This technology is still in its early days of application and currently cost prohibitive to support large-scale industry

Blue Hydrogen: Although not a net-zero fuel source, blue hydrogen is considered a necessary stepping stone for facilitating wider green hydrogen use.

In the UK, a blue-green hydrogen mix is being considered as a method of balancing sustainability with economic feasibility.



Emissions (kgCO2e) from an average trip in NPT using different fuel types



FUTURE TECHNOLOGY

It is uncertain what further technological developments in EV range, battery size and charging speeds will entail in the future, though innovations and technologies currently under development have the potential to be adopted as vehicle and charging technology continues to evolve.

Smart Regenerative Braking

An energy recovery mechanism that slows down a moving vehicle by converting its otherwise wasted kinetic energy into a form to be stored . Leads to a more fuel efficient braking and thereby also increasing EV range.

Solid State Batteries

In EV vehicles they offer more range, shorter recharging times and lower fire risk by removing the gel and liquid electrolyte found in batteries.

Graphene Batteries

These enable faster charging speeds due to its high electrical conductivity, high charge carrier mobility and is highly stable.

Hyper Charging

Voltempo designed Hyper Charging to charge the next generation of EVs in under six minutes, delivering 2.8 times of power than any comparable EV charging system. For the current EV generation it provides 30% faster charging.

Quantum Charging

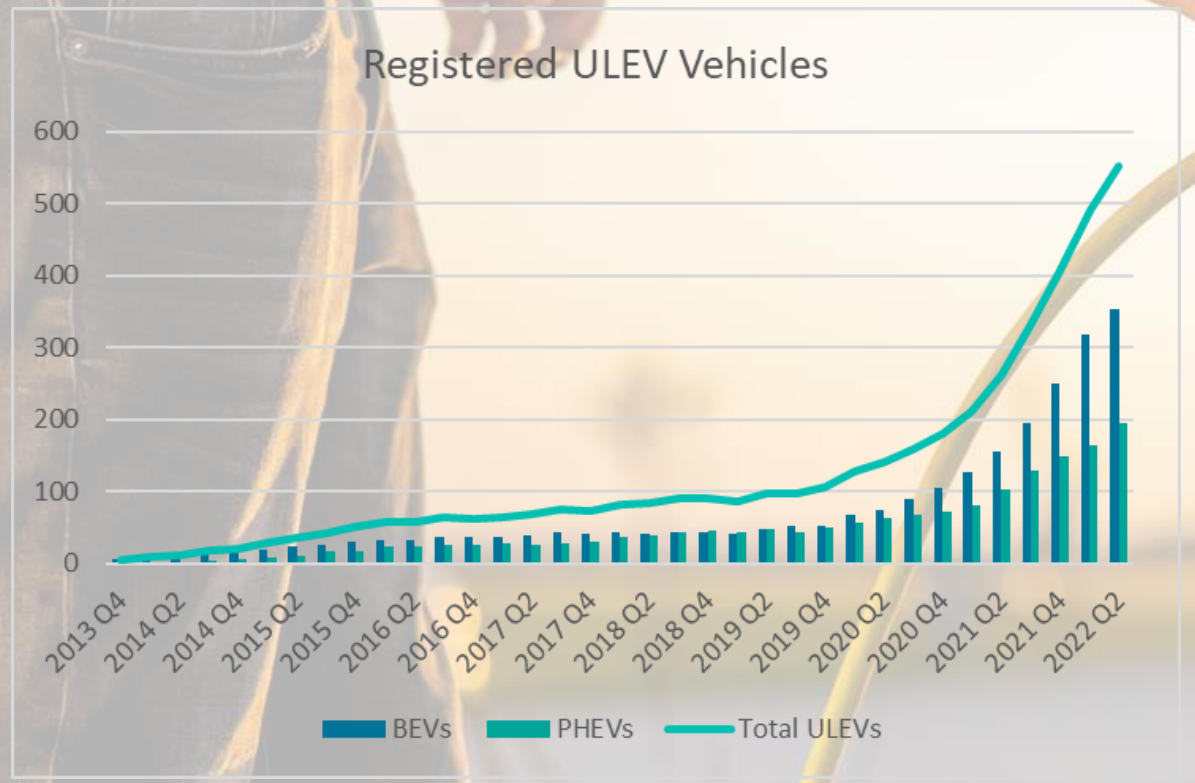
Speed up the charging process by charging all cells within a battery simultaneously not possible in classical batteries. They can achieve quadratic scaling , accelerating charging speeds by 200 times. Employing quantum charging would cut home charging from 10 hours to 3 minutes.

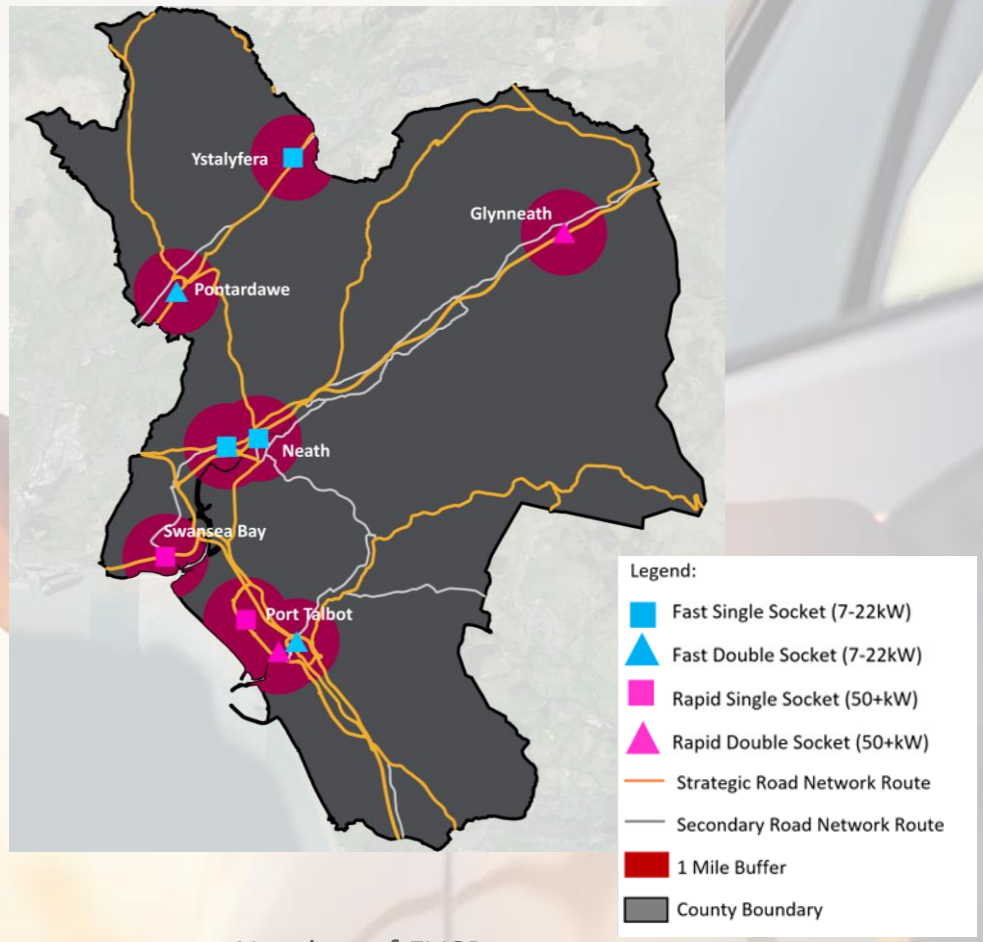
EXISTING EV AND EVCP NETWORK

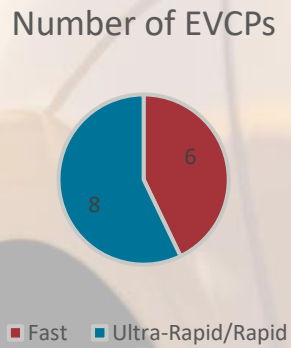
As of 2022, there were **over 550 ULEVs** registered across the region, of which there were 353 BEVS and 196 PHEVs.

As of 2022, there were over **70,253 vehicles registered** within the Neath Port Talbot, of which the percentage of **ULEVs were 0.79%.** ULEV adoption in NPT is lower than its surrounding principal areas, the average value for Wales (~1.25%), and the UK-wide average (~2.7%).

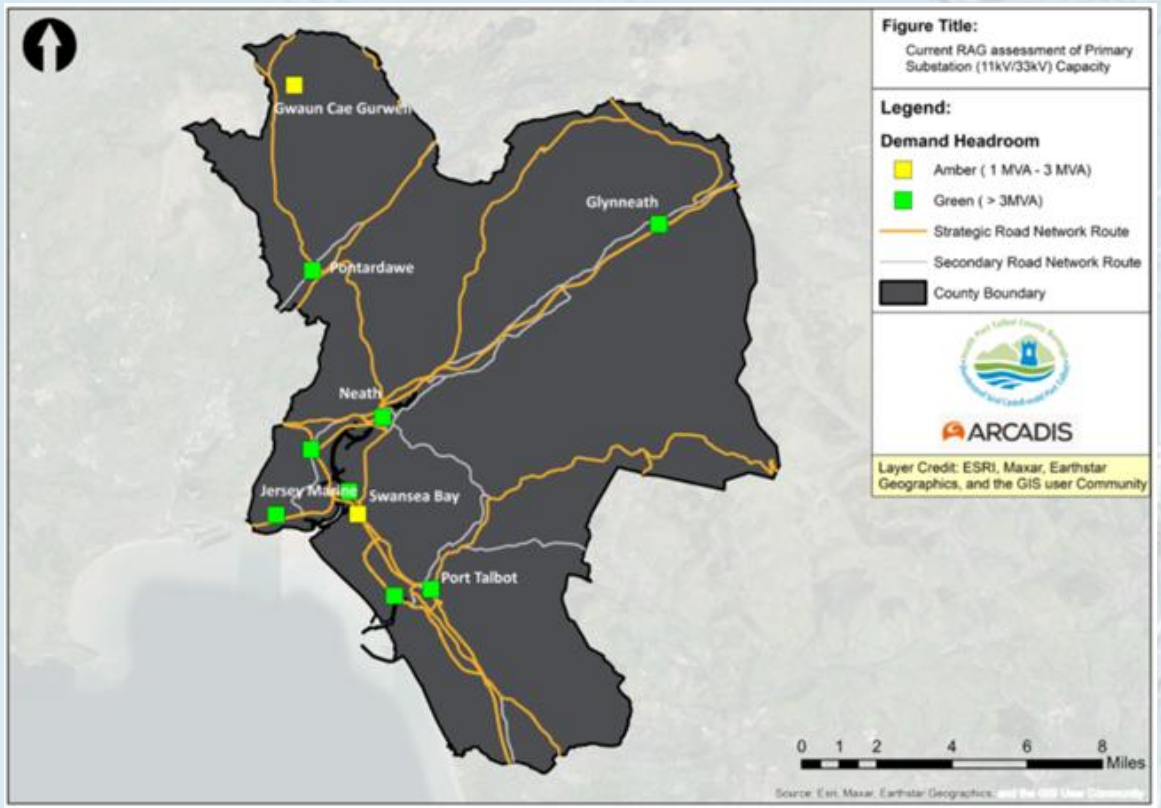
There are currently **14 publicly available EVCPs** in Neath Port Talbot, consisting of 8 fast EVCPs and 6 ultra-rapid/rapid EVCPs.







GRID CAPACTIY



Current Grid Capacity

Power Availability at specific locations can limit the suitability of a site for installing ECVI.

The majority of primary substations could facilitate the deployment of a significant number of EVCPs.

2 substations require reinforcement to facilitate large-scale future EVCP deployment:

- The Gwuan-Cae-Gurwen substation, to the north of the county
- The Briton Ferry substation, south of Neath

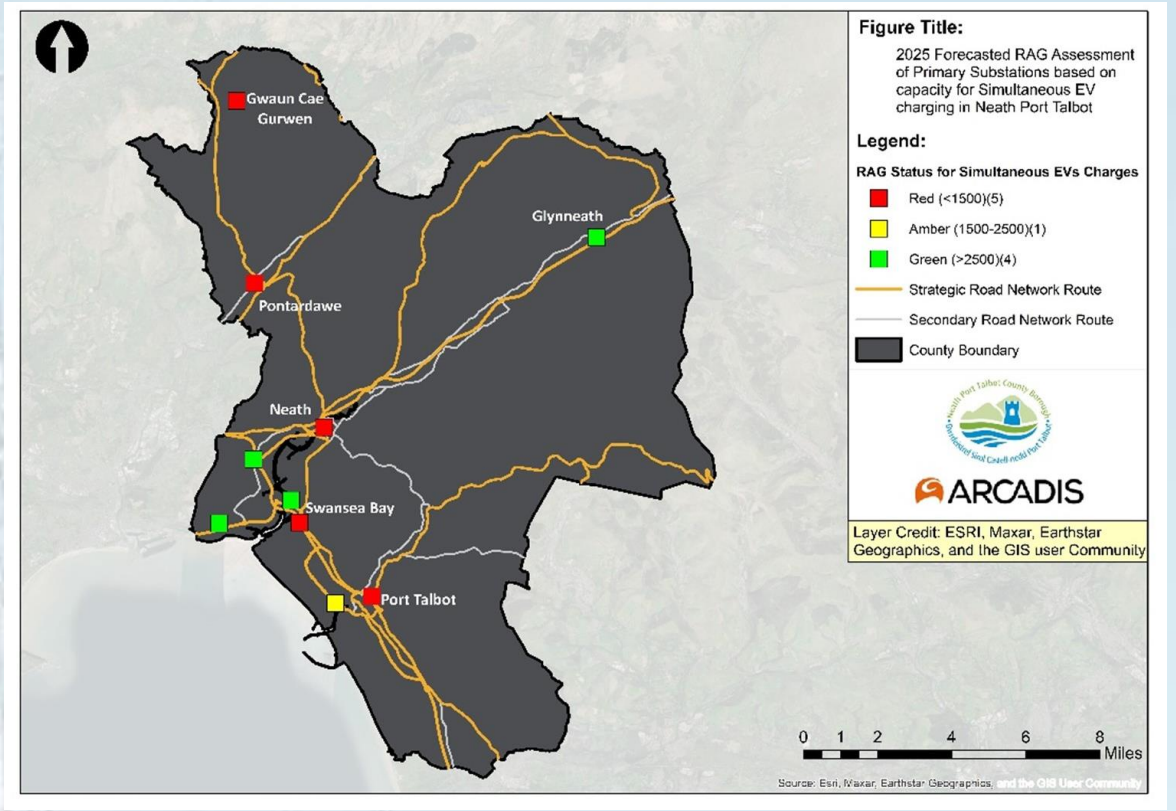
There are considerably large areas with no primary substation, these rural areas will instead draw power from smaller, secondary substations.

Forecasted Grid Capacity

Many substations within NPT will require grid capacity upgrades to cater for the expected EV uptake by 2025. Upgrades must be planned and coordinated in collaboration with WPD. The existing capacity of the primary substations in the study area could provide the required power to **simultaneously charge a maximum of 19,352 EVs.**

Green rated substations appear to be concentrated around the urban centres. Some isolated areas such as north West region, and the Southern region of NPT, that should be the focus of DNO engagement.

It is essential that NPTC work close in collaboration with WPD to assess future demand and map areas in the region where power upgrades should be focussed to accommodate planned EVCP installation.



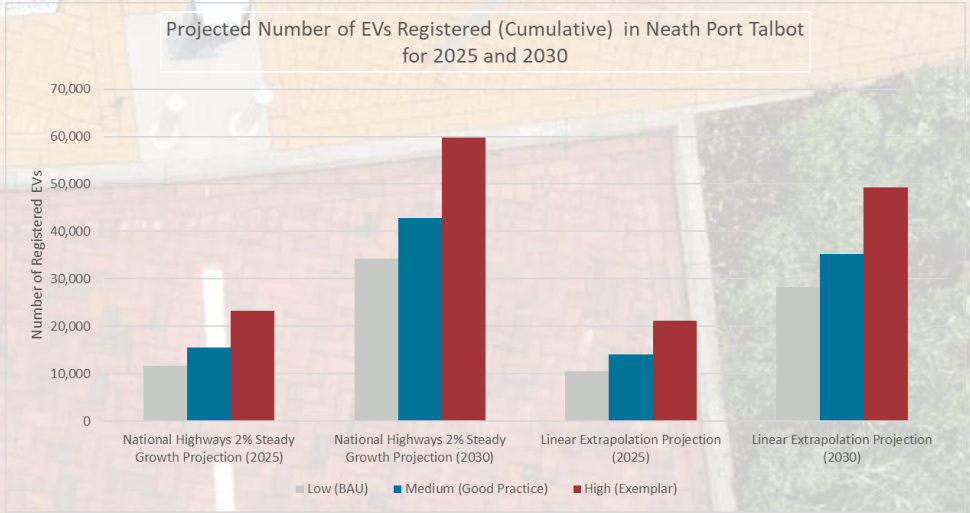
FORECASTING

As the growth in EVs is expected to continue, National Grid (2021)* have predicted the UK could have:

- Between 4 and 13 million EVs registered by 2030
- Approximately 31 million by 2040

To better predict the UK's expected growth of ULEVs, (excluding hybrids), the following scenarios were considered:

- **Low** - *Business-as-usual*: Assumes no change to policy; forecasts for 2025 and 2030 have been developed through extrapolating current registration trends with he use of DfT's benchmark of 15% (2025) and 40% (2030) of new car sales to be ULEVs respectively
- **Medium** - *Good practice:* In line with DfT's Road to Zero medium scenario which aims for 20% and 50% of new registrations to be ULEVs by 2025 and 2030 respectively
- **High** - *Exemplar*: In line with the Government's aim for 30% and 70% of new sales to be plug-in vehicles by 2025 and 2030 respectively.



To facilitate the increased uptake of EVs, significant investment is required to expand the existing EVCP network across Neath port Talbot. It has been forecasted that Neath Port Talbot will require:

	2025			2030		
	Low	Medium	High	Low	Medium	High
Number of Fast (7 kW) Chargepoints Required	270 - 297	359 - 396	539 - 593	541 - 655	676 - 819	946 - 1,147
Number of Fast (22 kW) Chargepoints Required	19 - 21	25 - 28	38 - 42	38 - 46	48 - 58	67 - 81
Number of Rapid (43+kW) Chargepoints Required	21	27	41	41	51	72

*Available at: https://www.nationalgrideso.com/document/263951/download

OBJECTIVES

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Promote Inclusive ZEV uptake across Neath port Talbot

There are 2 major barriers to ZEV adoption which NPTC can help address. These are provision of charging/refuelling infrastructure and a affordability of ZEVs. EVs are the current focus of this objective but as other alternative fuels develop these barriers must be addressed accordingly. Network Analysis found there are no public, on-street residential EVCPs for people living in terraced and apartment housing and there is no provision in rural areas. Operators are also able to impose higher tariffs on electricity due to lack of competition.

Promote Private Sector investment in ZEV technologies.

Private Sector investment is essential to support NPTC in delivering and maintaining ZEV schemes. Maximising funding from external sources, schemes capture efficiencies through increased purchasing power and economies of sale. This can also come in the form of installation of workplace EVCPs, this can help EVCP provision without public funding. Encouraging investment can also be in the form of subsidies towards incentives or training courses to promote ZEV technologies or upskilling workforces in the automotive sector.

Continue to deliver NPTC's net-zero transport emissions agenda

To achieve NPTC's net-zero commitments by 2030, the council must replace an average of 58 public sector vehicles with ZEVs each year. An estimated 200 fast/rapid EVCPs at depots and other council owned sites will be required to support a ZEV fleet. NPTC will need to work with WPD to assess depot suitability, incorporate demand mitigation technologies and plan future power grid reinforcements.

Pursue alignment with ongoing innovation projects in and around Neath port Talbot

Aligning closely with schemes gives NPTC the opportunity to: Gain access to additional pots of public and private funding; Explore new and emerging ZEV technologies; Utilise findings and lessons learned from other local authorities. NPTC should pursue schemes as part of a joint approach with other public and private organisations.

A PHASED APPROACH

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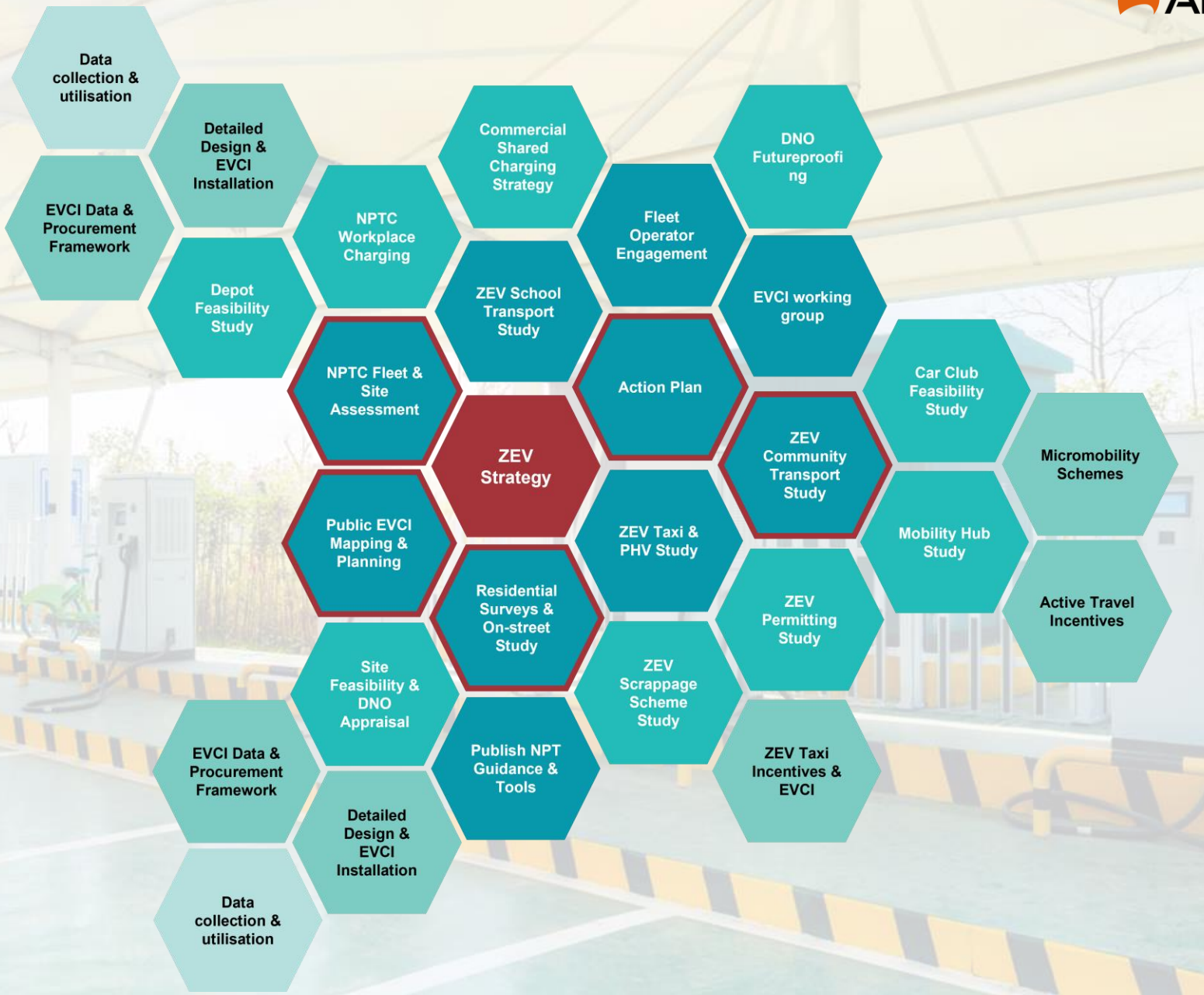
Legend

- Phase 0 - Strategy
- Phase 1 - Plan
- Phase 2 - Design
- Phase 3 - Implement
- Phase 4 - Intelligence
- Underway



PRIORITY FOCUS AREAS

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	Priority Focus Area	Description	Why it is important	Objective Met
Public Charging Refuelling Infrastructure	Public EVCI Mapping and Site Selection	NPTC will continue to explore how geospatial data can be utilised to assess potential sites for EVCI based on a series of parameters. identification of specific communities and areas that are without access to private EVCI and therefore reliant on public provision is required.	To enable NPTC to develop a spatial plan and roadmap for long-term EVCP rollout across the region.	
	Residential Surveys and On-Site mapping	This PFA is closely aligned with *Public EVCI Mapping & Site Selection*, however with a specific focus on On-street Residential EVCPs. Across the UK it is estimated that 40% of all homes do not have private driveways and therefore rely on on-street parking for 75% of their charging events. Provision of adequate on-street EVCPs is therefore essential in enabling inclusive adopting of EVs across NPT.	To identify what barriers exist for NPT residents wanting to switch to EVs and to map where demand for public EVCPs already exists and where it could be generated.	
	Public Site Feasibility Studies & Power Assessments	Assessments can include: • Formal applications for installing EVCPs, which will include analysis into exact power requirements, availability and costs of associated works • Alternative substations/connection methods to access additional power sources needed to supply EVCPs • On-site renewable energy generation to provide a source of power to reduce power grid demand • Battery Energy Storage Systems (BESS). The effects are similar to onsite renewable generation, however, rather than producing additional power the batteries are charged during periods when demand is low, and discharged when demand is high	A fundamental step required to install public EVCPs in NPT. Well developed feasibility studies ensure that risks and opportunities are captured early, installations are well designed, and additional costs and delays are minimal.	
	EVCI Data and Procurement Framework	NPTC will look to develop a robust and comprehensive framework surrounding the procurement of EVCI-related goods and services. NPTC will also look into the value of collecting EVCP usage data to observe user behaviour and inform future decision making working with EVCP operators to ensure data is regularly collected and shared in consistent format with NPTC.	To ensure the delivery of a high-quality network of private and public EVCPs and to support the efficient use of data to inform policy decisions by NPTC.	
	EVCI Detailed Design and Installation	NPTC will continue to explore opportunities to utilise existing Welsh Government funding to support installation costs. NPTC will also look into innovative business models to enable investment from private EVCP installation companies minimising the financial investment for capital required by NPTC.	This will enable NPTC to maximise their contribution in delivering and operating a high-quality EVCP network within the constraints of the public budget.	
	EVCP Data Usage Data Collection and Analysts	EVCP utilisation is a useful indicator to assess: • User Charging behaviour • Trends in frequency and no. of EV users • Whether EVCPs are well placed • Whether more EVCPs are required at certain locations	Use of this data can ensure high-confidence in decision making. NPTC will also explore developing a consistent, automated approach to collecting and visualising this data to minimise the labour required by the council	

NPTC Staff/ Fleet ZEVs	NPTC Fleet and Site Assessment	To accurately quantify the exact requirement for the number and location of EVCPs across NPTC sites, the council will continue to study the behaviour of public sector fleets	This is a pivotal first step in the electrification of the public sector fleet in NPT by understanding demand and constraints of the EVCP at depots and NPTC offices.
	ZEV School Transport Study	NPTC will explore the benefits of commissioning a study to assess feasibility of current and emerging ZEV technologies in the context of decarbonising school transportation across NPT. Such a study would analyse the current school transportation fleet, and facilities where charging/refuelling would take place to reveal operational requirements of a ZEV fleet and power availability at school sites.	School transportation presents particular challenges within the public sector fleet and should be focus of a bespoke study. This will identify particular risks and opportunities and will inform applications for public and private investments and funding.
	NPTC Depot Feasibility Studies and Site Survey	NPTC will look into conducting, more in-depth studies, in collaboration with WPD, to investigate options for alleviating these constraints and increasing the number of EVCPs that can be installed at NPTC sites. The process will follow that of the *Public Site Feasibility Studies & Power Assessments,* however may also include monitoring the site to obtain high-quality power consumption and supply data that will inform EVCP decision making.	This is essential to facilitate the installation of EVCP at NPTC sites. Effective planning will ensure maximum utilisation of available power while minimising costs associated with installation and operation.
Commercial Charging	Fleet Operator Engagement	Fleet operators can benefit significantly from ZEV adoption through reduced fuel costs, lower maintenance requirements and improved working conditions for employees. However, many are currently either unable or unwilling to adopt ZEVs within their fleet due to: • High initial capital costs of vehicles and infrastructure • Lack of publicly available infrastructure • Concerns and doubt over the commercial viability of ZEV technology	Engaging directly with private fleet operators will reveal key barriers inform the development of incentives and support programmes by NPTC. Schemes planned in collaboration with these parties have a higher chance of being successful.
	Shared Commercial Charging Study	Shared commercial charging is an agreement between multiple parties to share use of the same charging/refuelling infrastructure. To facilitate this, it is essential that both fleets have similar charging requirements and compatible operational cycles	There are many benefits to this kind of arrangement, including: • Organisations can share the costs of installing and maintaining infrastructure • Maximum utilisation of EVCPs resulting in higher returns on investment • Having shared access to multiple networks increases resilience in the event of malfunctions or power supply issues
	NPTC Workplace Charging Scheme	NPT will continue to promote workplace charging schemes, whereby business owners install private charging/refuelling infrastructure for use by employees, visitors, or fleet vehicles on a regular basis. This scheme is closely aligned with the findings of the *Shared Commercial Charging Study,* as there may be scope for NPTC sites to facilitate charging and refuelling of private fleet vehicles	Provision of a high-quality workplace charging network will reduce the demand on the public network and generate investment from the private sector and additional government funding.

Taxi and Private Hire Vehicle Charging		
Taxi and Private Hire Vehicles (PHV) Study	NPTC will explore their role in incentivising and promoting ZEVs for these drivers including: • Provision of designated refuelling/recharging infrastructure in town centres and destinations • Funding scrappage schemes to replace older more polluting vehicles with ZEVs • Permit schemes to enable free parking / charging for ZEV taxis and PHVs • The role of the private sector, taking inspiration from national and international examples.	Taxis and PHVs form a large proportion of urban traffic and have specific operational requirements, meaning they often require bespoke EVCP installations. As such, there is additional government and private funding opportunities available to explore and develop potential solutions.
ZEV Alternative Transport		
Zero Emission Community Transport Study	Community transport vehicles have unique and varied operational patterns and are often available to be used by any registered member of a community. As such, these vehicles do not fit into the typical ZEV fleet studies and require a specific study. NPT will assess the benefits of a specific study looking into ongoing community services in NPT and what the impact would be of incorporating ZEVs into these fleets.	Such a study may include engaging directly with community transport organisations as a key stakeholder and using best practice examples from similar ongoing and completed projects across the UK and internationally to identify key challenges and lessons learned.
ZEV Car Club Study	Car clubs allow users to access a vehicle when they need without owning one and thereby offer a flexible and convenient alternative to private car ownership or leasing. Car clubs are a socially inclusive and sustainable alternative transport, especially if ZEVs are incorporated into the club. NPT will assess the feasibility of an NPT car club.	Car clubs are growing in popularity in the UK as a means of: • Plugging gaps in rural transport network • Reducing road traffic congestion • Improving connectivity for those without a car
Mobility Hubs Study	Mobility hubs are accessible spaces where public, shared, and active travel modes are co-located. Mobility hubs can be designed to fit the constraints of and area and the populations needs. NPTC will explore mobility hubs within the context of NPT, where they may be located, and what considerations must be taken to deploy them would be the first step in their adoption across the region.	Mobility hubs can enhance areas for pedetrians, and make travelling with alternative mobility modes more efficient and convenient.
Micro-Mobility Study	Micro-mobility modes, including e-bikes and e-scooters, have already been deployed across much of Europe, Asia, and Northern America. However, they are only slowly being adopted onto towns and cities within the UK. NPTC will explore how and where these technologies would be most effectively adopted with NPT.	A study as such will allow for understanding into where these technologies will be beneficial and help support future government funding applications.
Active Travel Incentives	Promoting active travel (e.g., walking and cycling) modes to replace private car trips creates equivalent benefits to that of many ZEVs schemes.	By incentivising Active Travel, NPTC hopes to: • Reduce NPT's Transport Sector GHG emissions • Improve air quality within NPT's urban areas • Create an inclusive transport network, benefitting all who live and work in NPT

Community Engagements and ZEV Promotions

Develop EV Library & Guidance on NPTC Website	NPTC will explore the benefits of publishing a single source of truth on the councils existing platforms to show useful information surrounding ZEVs, debunk myths and offer guidance for residents/businesses wishing to transition to ZEVs. This could be expanded into the future to include cost-calculator tools and maps of EVCPs	A cost-effective method for NPTC to provide guidance for businesses and residents surroundings ZEVs as a means of promoting adoption.
Subsidised Training Courses	NPTC will look into subsidising accredited training courses to improve understanding of ZEV technologies, support the upskilling of the NPT workforce in innovative ZEV technologies through improved access to higher qualifications, and ensure a high skilled workforce in preparation for widespread uptake of these technologies, To achieve this, NPTC will investigate the availability of public funds to either part-subsidise existing courses, or explore the development of a ZEV Centre of Excellence in NPT, in close collaboration with surrounding engineering schools and colleges	This will benefit the industry in NPT itself but also the surrounding communities by upskilling the population.
ZEV Scrappage Schemes Study	Scrappage schemes have been shown to incentivise businesses and residents to trade in their old fossil-fuelled powered vehicle in exchange for a ZEV. Important factors to consider in such a scheme include: • Identifying suitable replacement ZEVs • Identifying sources of funding • Undertaking cost-benefit analysis of different proposal • Ensuring the scheme supports inclusive ZEV uptake NPTC will explore what an NPT ZEV scrappage scheme could look like using successful examples of similar schemes across the UK and internationally	This study will be used to as the basis for developing adequate business cases that can be used to acquire government funding to deliver such a scheme.