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# Electric Vehicle Infrastructure: A Walk In The ~~Park~~ Peaks


Chris Rimmer

Cenex

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# Chris Rimmer – Head of Department, Cenex

- Previously
  - Programme Manager, E.ON Thinking Energy
  - Technical Lead for E.ON Connected Homes
  - Project Director, Crosslands Academy

- Now responsible for a team of Policy, Strategy and Implementation specialists
  - Fleet
  - Mobility
  - Infrastructure
- Oversee all Cenex's activities as part of the LEVI Support Body
- Created and lead on National EV Insight and Support (NEVIS)
- Most boringly, Data Protection Officer 

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cenex EXPO
NET ZERO • CONNECTED AUTOMATED MOBILITY

NEVIS
DELIVERED BY CENEX


cenex nederland

EV8
Energy Vehicles Innovation

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# EVI: It's a walk in the ~~park~~ Peaks

# Three essential components to a successful walk

- The right place
- The right route
- The right kit

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# The Right Place

*Appreciating where you are*

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# 1) Where are we? The Peak District

- First opened:
- Named after:

- Bakewell dessert:
- Symbol:
- Highest point:
- Social distancing:

- Where:

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# 1) Where are we? Key features of the EVI landscape today

| | |
|---|---|
| **Political** | • New(ish) UK administration: generally less anti-green, but business confidence down?<br>• 2030 ban on sale of new car and vans<br>• Road pricing |

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# 1) Where are we?  Political


The Telegraph

News Sport Business Money Opinion Ukraine US election Travel Health

Economy Companies Markets Tech

...cars are forcing Britain to

...£22bn black hole

## Electric car tax will change in 2025 - how much will you pay?

- All new electric vehicles will be liable for road tax from April 2025
- Older EVs will also see a rise, paying upwards of £190 per year
- £40k+ EVs will also pay an additional supplement – up to £600 per year

Campaign for Better Transport ...

EVs

September 10, 2024 admin 291 Views

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# 1) Where are we? Economic

News

## Connected Kerb secure Wealth Fund and Aviva charging network expar

Transport | Private sector

29 January 2025

The National Wealth Fund (NWF) has committed a £55m street electric vehicle charging network.

# NEWS

National Audit Office

## Regions

| Region | Indicative allocation |
|---|---|
| East Midlands | £33,744,000 |
| East of England | £37,297,000 |
| London | £35,696,000 |
| North East | £22,426,000 |
| North West | £51,048,000 |
| South East | £53,538,000 |
| South West | £40,102,000 |
| West Midlands | £32,755,000 |
| Yorkshire and The Humber | £36,387,000 |

| Region | Financial year 2022 to 2023 | Financial year 2023 to 2024 | Financial year 2024 to 2025 | Total allocation |
|---|---|---|---|---|
| East Midlands | £863,460 | £1,966,770 | £1,966,770 | £4,797,000 |
| East of England | £877,320 | £1,998,340 | £1,998,340 | £4,874,000 |
| London | £540,000 | £1,230,000 | £1,230,000 | £3,000,000 |
| North East | £352,620 | £803,190 | £803,190 | £1,959,000 |
| North West | £994,860 | £2,266,070 | £2,266,070 | £5,527,000 |
| South East | £1,528,560 | £3,481,720 | £3,481,720 | £8,492,000 |
| South West | £979,200 | £2,230,400 | £2,230,400 | £5,440,000 |
| West Midlands | £771,120 | £1,756,440 | £1,756,440 | £4,284,000 |
| Yorkshire and The Humber | £795,960 | £1,813,020 | £1,813,020 | £4,422,000 |

…N 2024-25
13 DECEMBER 2024
HC 379

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# 1) Where are we? Social

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# 1) Where are we? Technological

**2023-2025:**

*Cars and Light Commercial Vehicles (LCVs)*

Sales are expected to continue rising quickly. There is a strong business case for companies to switch LCV to BEVs as battery capacity increases. Large LCVs will be available more widely.

*Heavy Goods Vehicles (HGVs)*

Trials are ongoing with a few models available even though BEVS will not be mainstream.

*Buses*

A limited number of models are available and whole-life cost remains higher than diesels - deployments will be subsidised by public funding.

**2025-2030:**

*Cars and LCVs*

BEVs reach price parity with ICE vehicles.

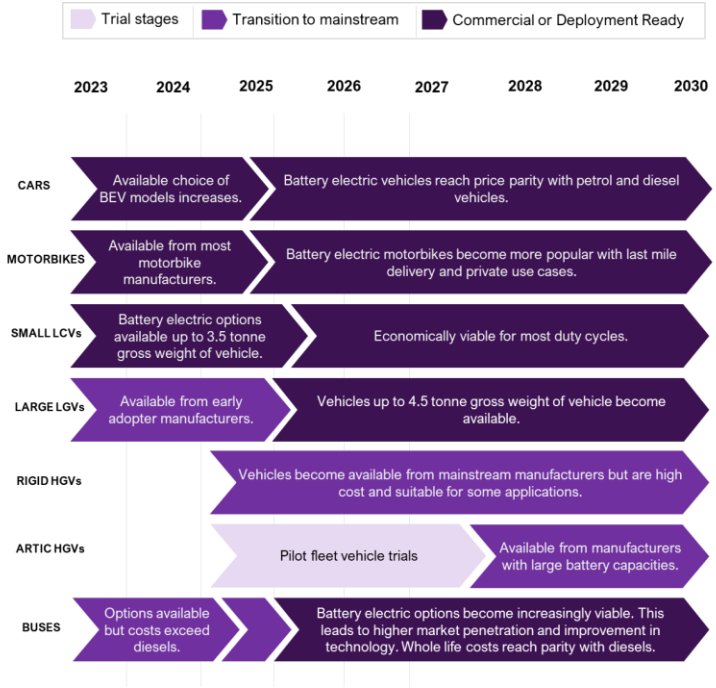
Small LCVs become economically viable for cover most duty cycles. Large electric LCVs will become available.

*HGVs*

Sales increase as manufacturers and operators trial them in this period, although costs remain high. Some duty cycles transition to electric options.

*Buses*

Market share grows along with battery capacities. Whole life costs will reach parity with diesels, but some deployments will still need subsidises.



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# 1) Where are we? Technological

**Electric Vehicle Infrastructure**

**2023-2025:**

*Residential*

Continued to be led by those with off-street parking. All new homes will be equipped with EV charging as per UK Government policy.

A significant rollout of standard public charging will be delivered, supported by the government's LEVI funding scheme.

*Commercial*

The business case for EVs improves. Fleets with return-to-depot duty cycles in lead the rollout of fast (8- 50kW) chargepoints, with standard charging at office locations for commuters.

*Destination*

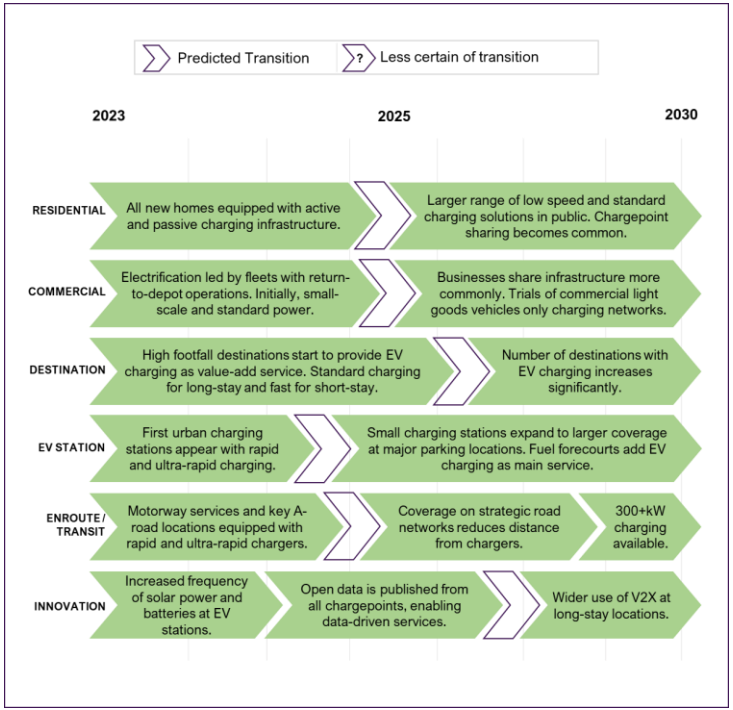
EV charging added as value-add services at destinations using standard EVI for long-stay and fast for short-stay.

*EV Stations*

Urban charging stations deploy with rapid and ultra rapid charging (50+ kW).

*En-route/Transit*

Increased coverage of rapid and ultra-rapid charging at motorway services and A-road locations supported by the Rapid Charging Fund. National coverage on the strategic road network will begin to improve, reducing distance to travel to chargers.



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# 1) Where are we now? Legal

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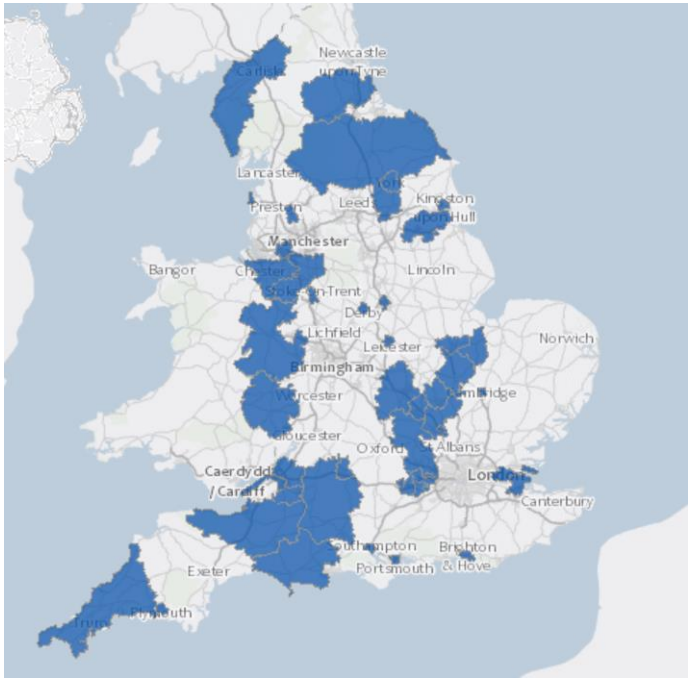
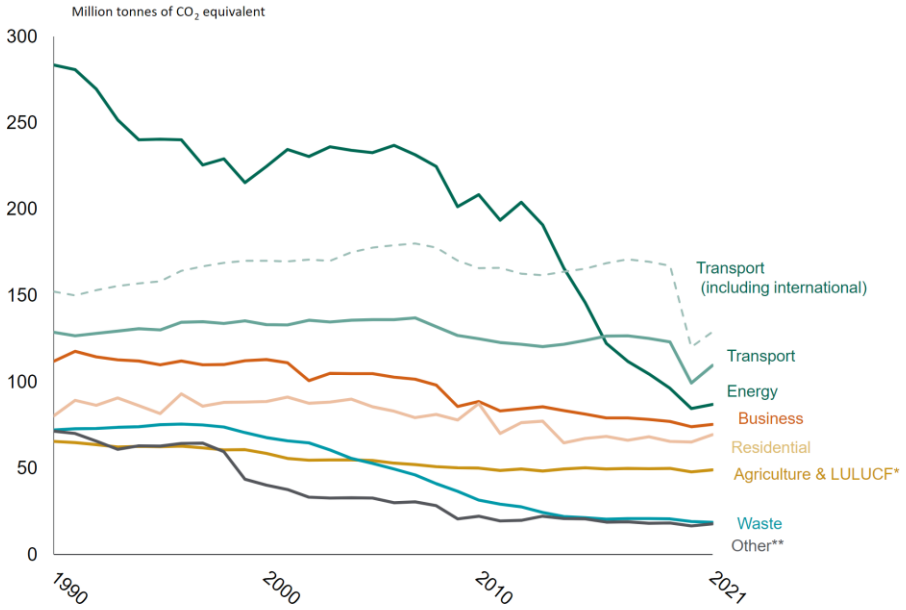
# 1) Where are we now? Environmental



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# The Right Route

*Avoiding the toughest terrain*

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# 2) Where are we going?  Higgor Tor

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# 2) Where are we going?  Burbage Bridge

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# 2) Where are we going?  Burbage Rocks

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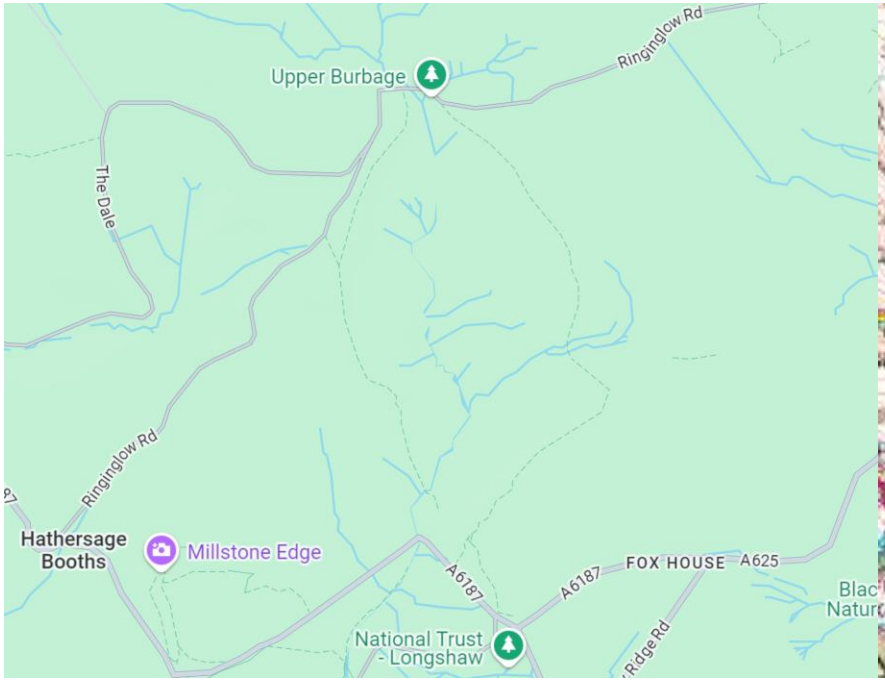
# 2) Where are we going? Planning the route

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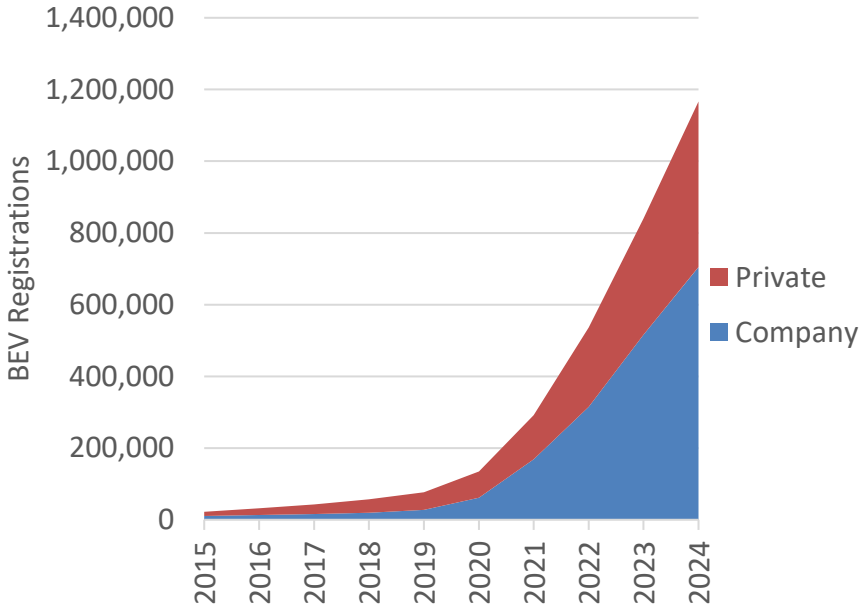
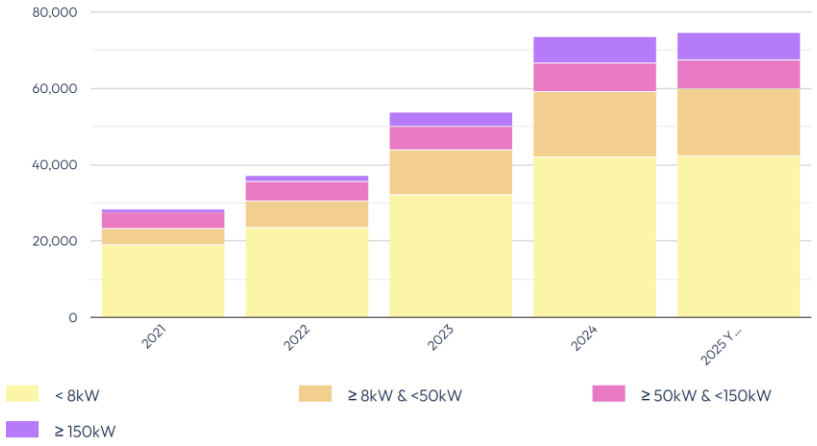
# 2) Where are we going? Our starting point




Source: Zapmap database, UK devices, 31st January 2025

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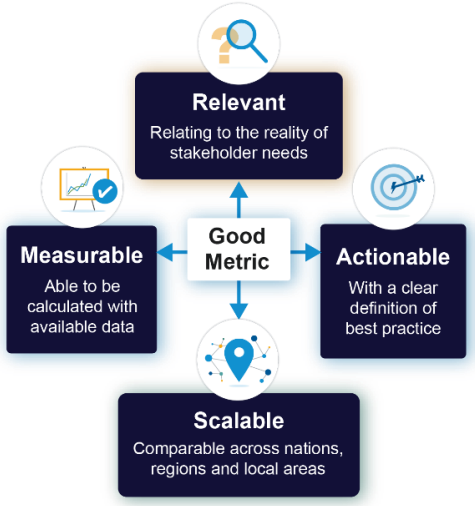
# 2) Where are we going? Our general direction is known

- 91% of respondents agreed or strongly agreed that a good metric should be:




- No-one disagreed or strongly disagreed.

- ✓ Many current metrics were recognised by respondents.
- ✓ Their simplicity and ease of measurement was noted.
- ✓ These can be tracked over time.
- ✓ Some level of comparison can be made between areas.
- ✓ The most favoured were those that show overall progress towards electrification of cars and vans.

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# 2) Where are we going? Still trying to use Google Maps?

- We can track EV and EVI numbers nationally.
- How do we know if this provision is enough?
- The expectation of a minimum of 300,000 chargepoints is a blunt measure.

- Charging Anxiety is still a real worry for drivers.
- Public measures are easy to understand but too simple:
  - Are we actually measuring what matters to drivers?
  - Is it clear what ‘good’ is for each measure?
  - Can we compare these figures across the country?

To be able to measure ‘are we nearly there yet?’, we need to measure more precisely, measure what actually matters and publish this data.

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# 2) Where are we going? Current metrics

| Metric | Relevant | Actionable | Scalable | Measurable |
|---|---|---|---|---|
| Number of chargepoints | No | No | No | Yes |
| Number of chargepoints per 100,000 people | No | No | Partially | Yes |
| Number of EVs per public chargepoint | No | No | Yes | Yes |

None of these meet the definition of a good metric.
Each has key weaknesses which undermine their effectiveness.

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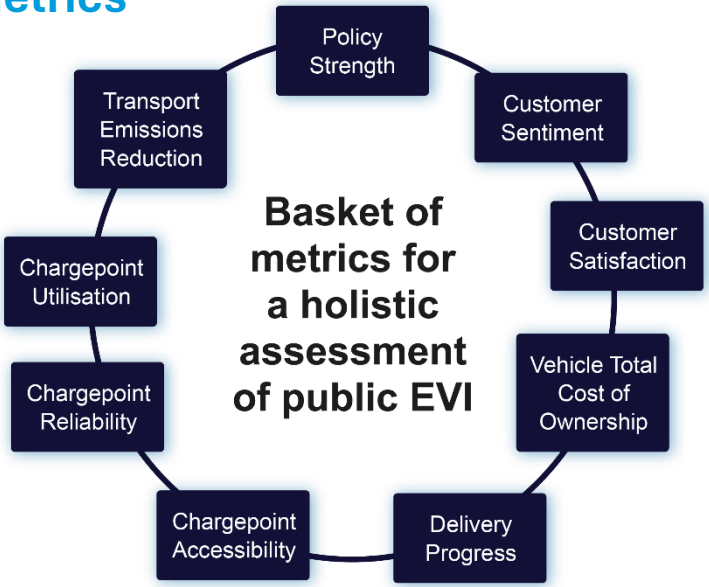
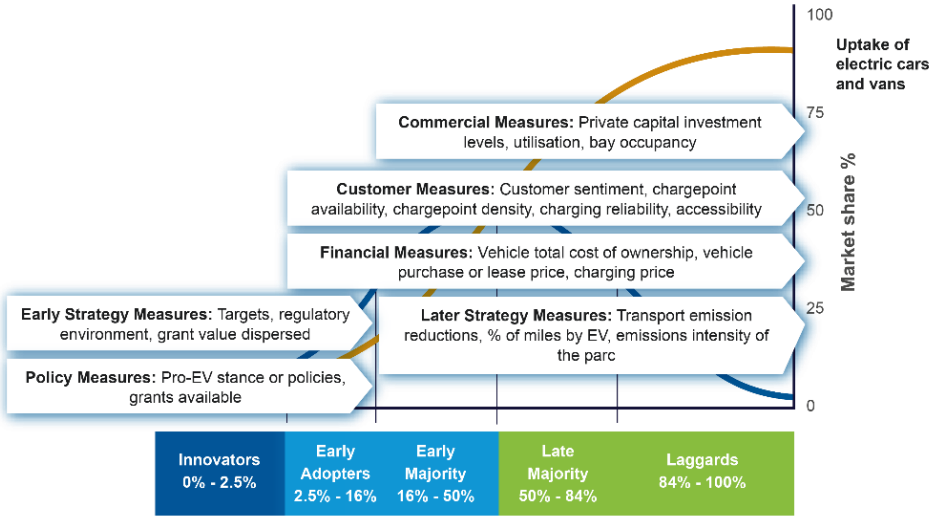
# 2) Where are we going? Two key themes emerged

## Different audiences want different metrics




## What is "best" varies over time



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# 2) Where are we going? Better metrics by use case

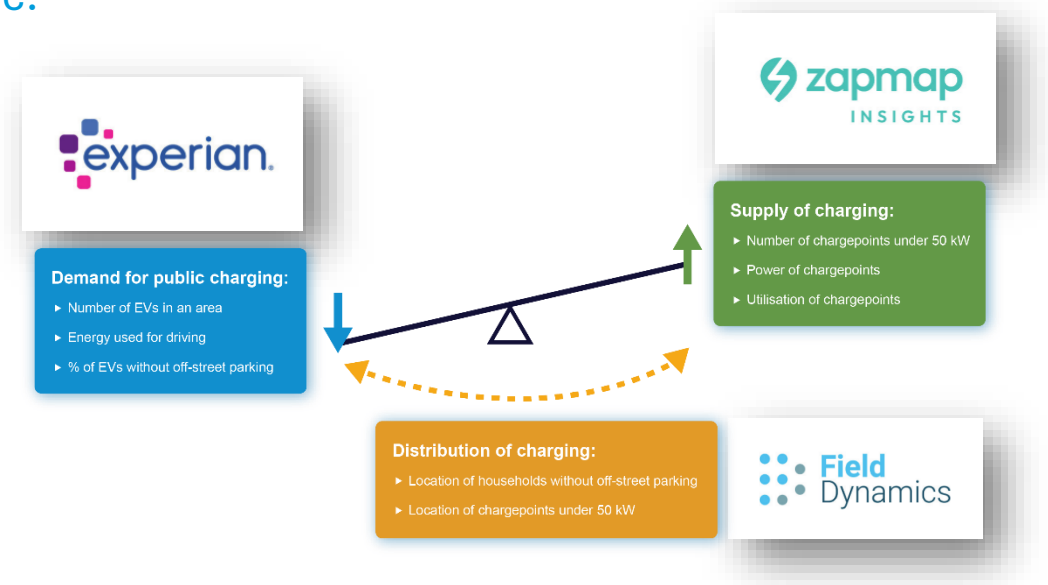
- Almost all respondents agreed that a single metric is not sufficient and cannot encompass the needs of different audiences over time.
- The research also highlighted that decision-makers need a suite of metrics which are relevant to users' experiences.

| | | | |
|---|---|---|---|
| Near home |  | Public | Residential dwellings with on street or off-street parking (car parks). |
| | | Private | Residential dwellings with off-street parking (driveways). |
| | | Communal | Residential dwellings with parking accessed by a limited group of users. |
| Commercial |  | Back to Base | Depots where fleets return to park at the end of each shift. |
| | | Multiple Depot | Depots where the vehicle may park at multiple locations during its operations. |
| Destination |  | Long Stay | Locations where vehicles park for > 4 hours and might be charged at the same time (including tourist destinations, airports, workplace, park & ride, and train stations). |
| | | Short Stay | Locations where vehicles park for < 4 hours and might be charged at the same time (including workplace, shopping / leisure centres). |
| Journey |  | Short Stay | Bespoke charging locations where multiple vehicles park for < 4 hours. |

Our key finding on how to improve the metrics we use to track the progress of EVI delivery is that they must be more relevant: This means measuring by **use case.**

# Near Home Charging: Concepts

- For the near home use case, the concepts of supply, demand and distribution can be used to create a better metric:
- **Supply:** the maximum available charging capacity from all chargepoints across a given area at the current time.
- **Demand:** the energy needed for public charging for the EVs in that area at a particular point in time.
- **Distribution:** the number of households that cannot access private charging which are within a 4-minute walk of chargepoints.



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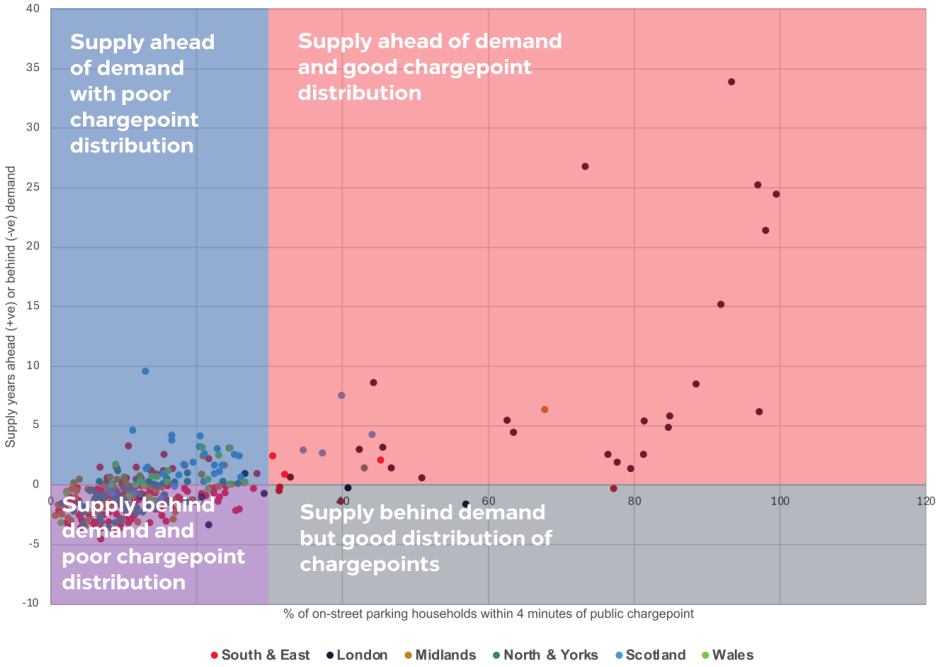
# The Result: Near Home Charging Index

- GB supply of near home chargepoints is ahead of demand by approximately 2 months.
- On average, 19% of all GB households who need it are close to a public chargepoint.
- Scotland and Wales are ahead of England in supply vs demand.
- England is ahead of Scotland and Wales in EVI distribution.
- Supply in 25% of LAs is over one year ahead of demand.
- Supply approximately meets demand in 41% of local authority areas.




Explore the dataset at nevis.cenex.co.uk/metrics

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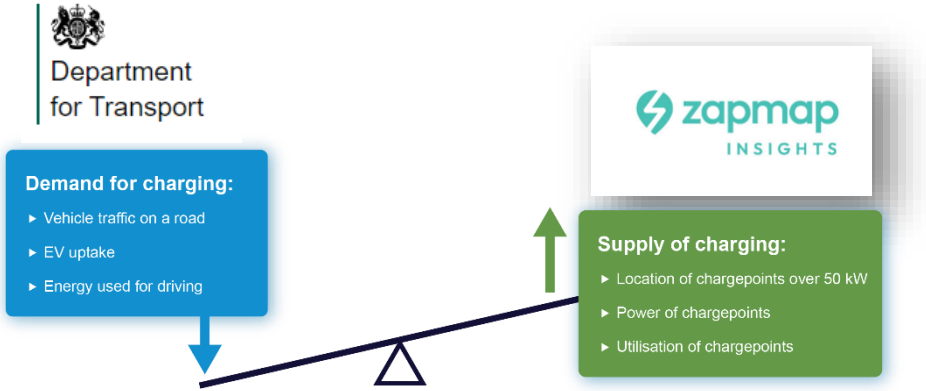
# Journey Charging: Concepts

- The concepts of supply and demand can again be used to form a better metric:

- **Supply:** the maximum available charging capacity from all chargepoints on or near a particular road at the current time.
- **Demand:** the energy needed for public charging for the EVs on that road at a particular point in time.



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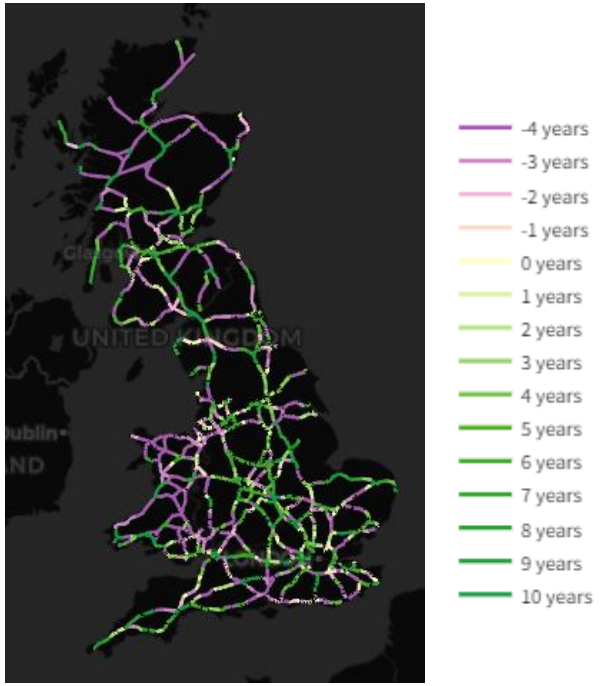
# The Result: Journey Charging Index

- Overall, the supply of journey charging for GB's major roads is ahead of demand.
- Around 2/3 of the miles driven on major roads have access to sufficient charging.
- The major road with best provision is M2 (Gillingham-Canterbury).
- The motorway with the worst provision is M27 (Southampton bypass).
- Supply is nearly four years ahead of demand in England, three years ahead in Wales and just under three years ahead in Scotland.




Explore results for individual roads at nevis.cenex.co.uk/metrics

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# Destination Charging: Concepts

- Destination charging is more defined by the destination than the charging – chargepoints are often just an incidental add-on or an opportunity to bring additional business to the site.
- Variables specific to the site and its visitors can be used to create a better metric:

- **Uptake**: Proportion of all visiting vehicles which are EVs at a particular point in time.
- **Users:** The proportion of short-stay (< 4 hours) and long-stay (> 4 hours) visitors.
- **Usage**: How highly utilised the parking bays are over a given period.
- **Need:** The likelihood that visitors will want to charge.

$$Uptake\ x\ Users\ x\ Usage\ x\ Need$$

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# The Result: Destination Charging Ratio

| Setting | Uptake | Users | Usage | Need | Ratio |
|---|---|---|---|---|---|
| **Workplace** | 5% EV uptake | 10% short-stay<br>90% long-stay | 0.75 visitors per bay | Low – 20% | 0.075 rapids per 100 bays<br>0.675 standards per 100 bays |
| **Airport** | 4% EV uptake | 100% long-stay | 1 visitor per bay | High – 80% | 3.2 standards per 100 bays |
| **Tourist Destination** | 4% EV uptake | 75% short-stay<br>25% long-stay | 2 visitors per bay | High – 80% | 4.8 rapids per 100 bays<br>1.6 standards per 100 bays |
| **Rural town car park** | 2% EV uptake | 50% short-stay<br>50% long-stay | 0.5 visitors per bay | Medium – 50% | 0.25 rapids per 100 bays<br>0.25 standards per 100 bays |

Other factors may need to be considered at individual sites, including:

- Increasing EV uptake over time;
- Proportion of local households reliant on public charging;
- Opening hours;
- Seasonality;
- Charging provision in disabled bays; and/or
- Commercial viability.

Check out the destination calculator at nevis.cenex.co.uk/metrics

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# The Right Kit

*Making sure we can go the distance*

# 3) Do we have what we need?  Kit list


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# 3) Do we have what we need? Capital Investment

- Central Government money is limited to particular pots
  - EVIF: £60m in Scotland
  - LEVI: £343m LEVI
  - Wales: £6.3m ULEV funding
  - NI: TBC

- Other sources of investment will be necessary to reach the destination
  - Other public investment in LEVI: £47m (4%)
  - Private investment in LEVI: £759m (66%)

The investment by private companies and those who own sites (like University of Bath!) is important and will become essential to ensure ongoing progress

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# 3) Do we have what we need? Capacity and Capability

## Local Authorities

- 240 Capability Funded individuals in England alone – exploring options for Wales and Scotland.
- By Christmas, 200+ will have been through our EVI Training Course

**Electric Vehicle Infrastructure Training Course**


Key to success will be the capacity and capability of stakeholders to deliver

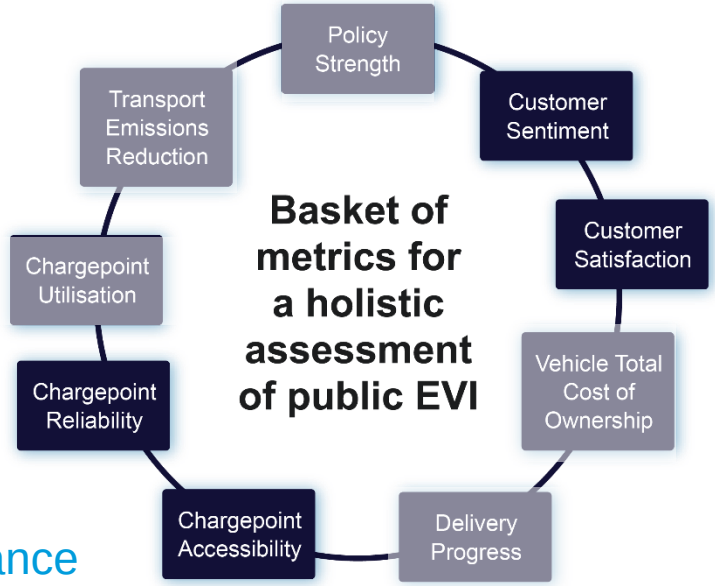
# 3) Do we have what we need? Quality of service

## Reliability

- Hardware
- Software
- Service
- Availability

## Accessibility

- ChargeSafe
- Park Access
- PAS 1899 BSI Assurance
- PAS 1899 AccessAble




## Satisfaction

- Customer experience
- Signage
- Site layout
- Pricing
- Roaming
- Smart charging
- Renewable power

# 3) Do we have what we need? We need more than just public EVI

| | | | |
|---|---|---|---|
| Near home |  | Public | Residential dwellings with on street or off-street parking (car parks). |
| | | Private | Residential dwellings with off-street parking (driveways). |
| | | Communal | Residential dwellings with parking accessed by a limited group of users. |
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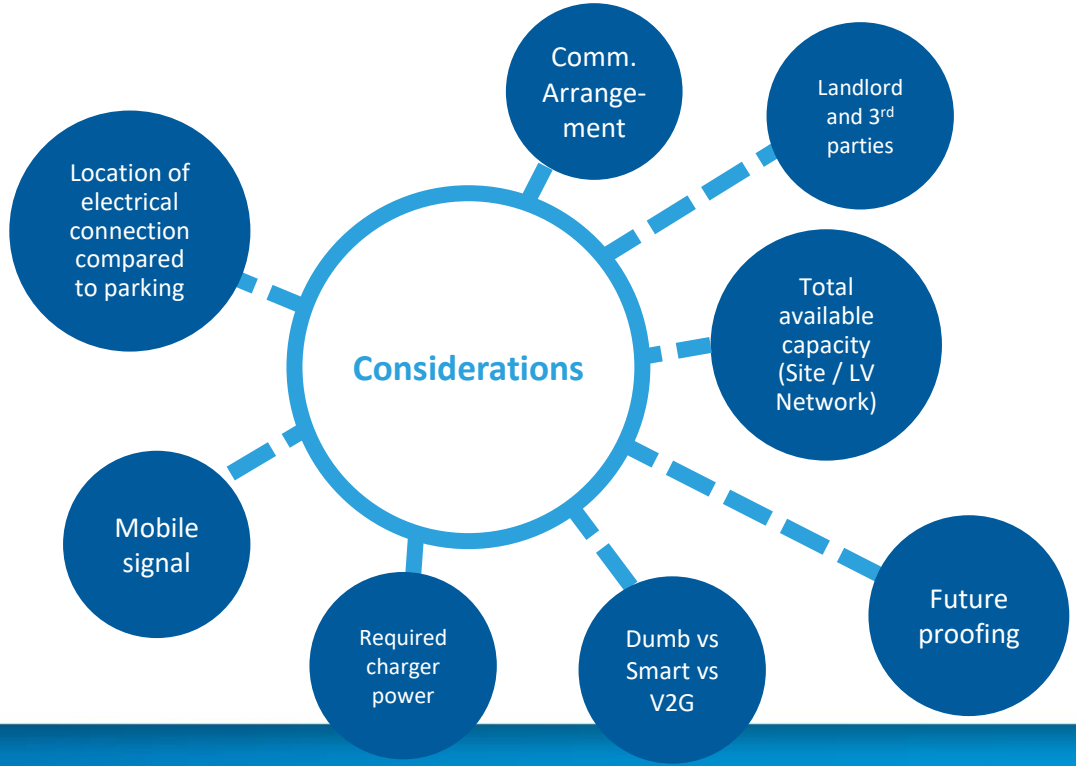
| Journey |  | Short Stay | Bespoke charging locations where multiple vehicles park for < 4 hours. |

- Commercial vehicles are a tough nut to crack
- Vans are ok but heavier vehicles are starting to move to electric
- Provision of charging at depots and sites will be essential
- Commercial vehicle-only EVI network?

# 3) Do we have what we need? B2B is complicated!



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# 3) Do we have what we need? Planning for all eventualities


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# Happy walking!

- The right place
- The right route
- The right kit

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# Thank you for listening


## Chris Rimmer

Head of Department | Policy, Strategy & Implementation