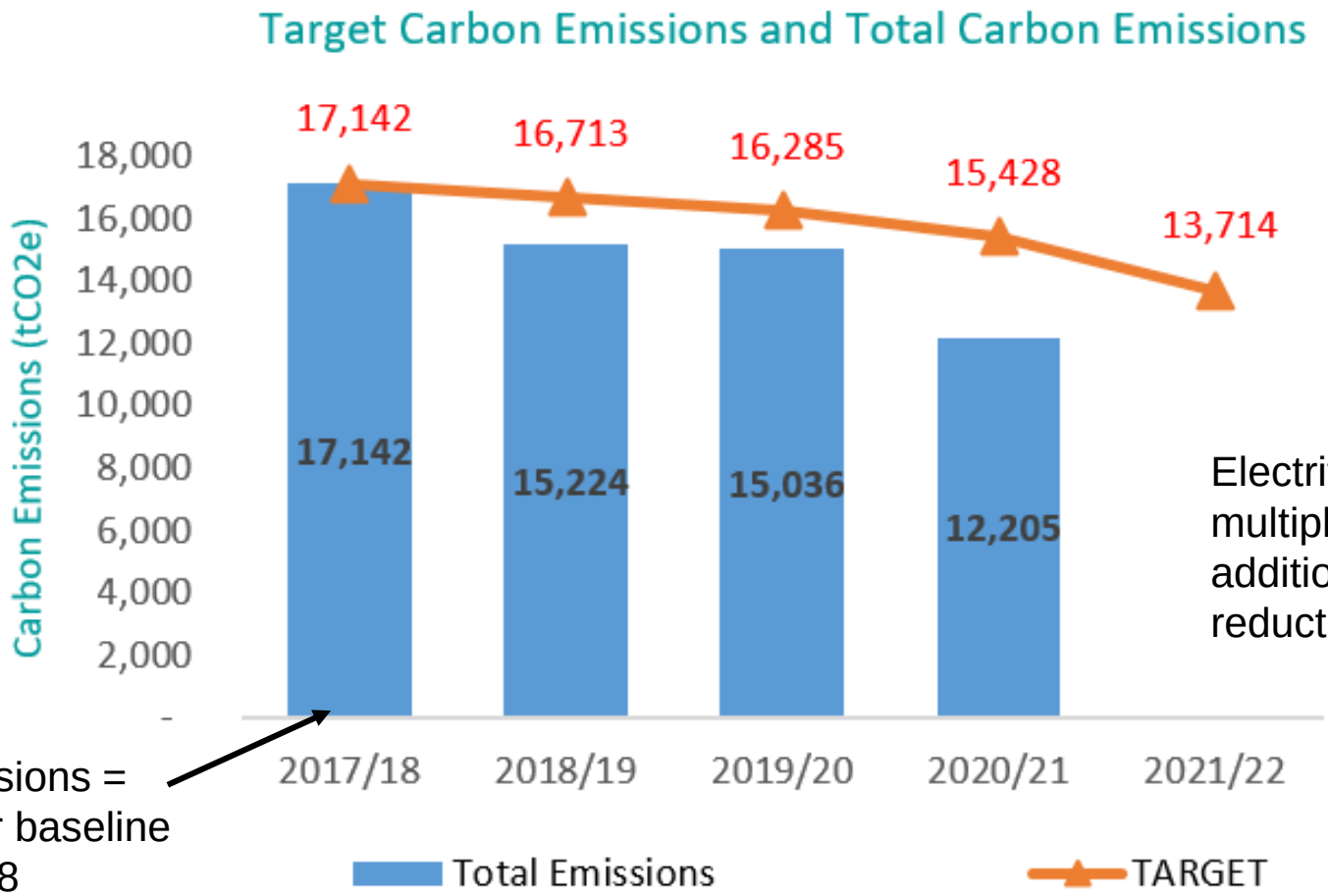
Newport City Council: Fleet Electrification

Carbon Reduction at Newport City Council



Electrifying fleet has multiple benefits in addition to CO_2 reduction

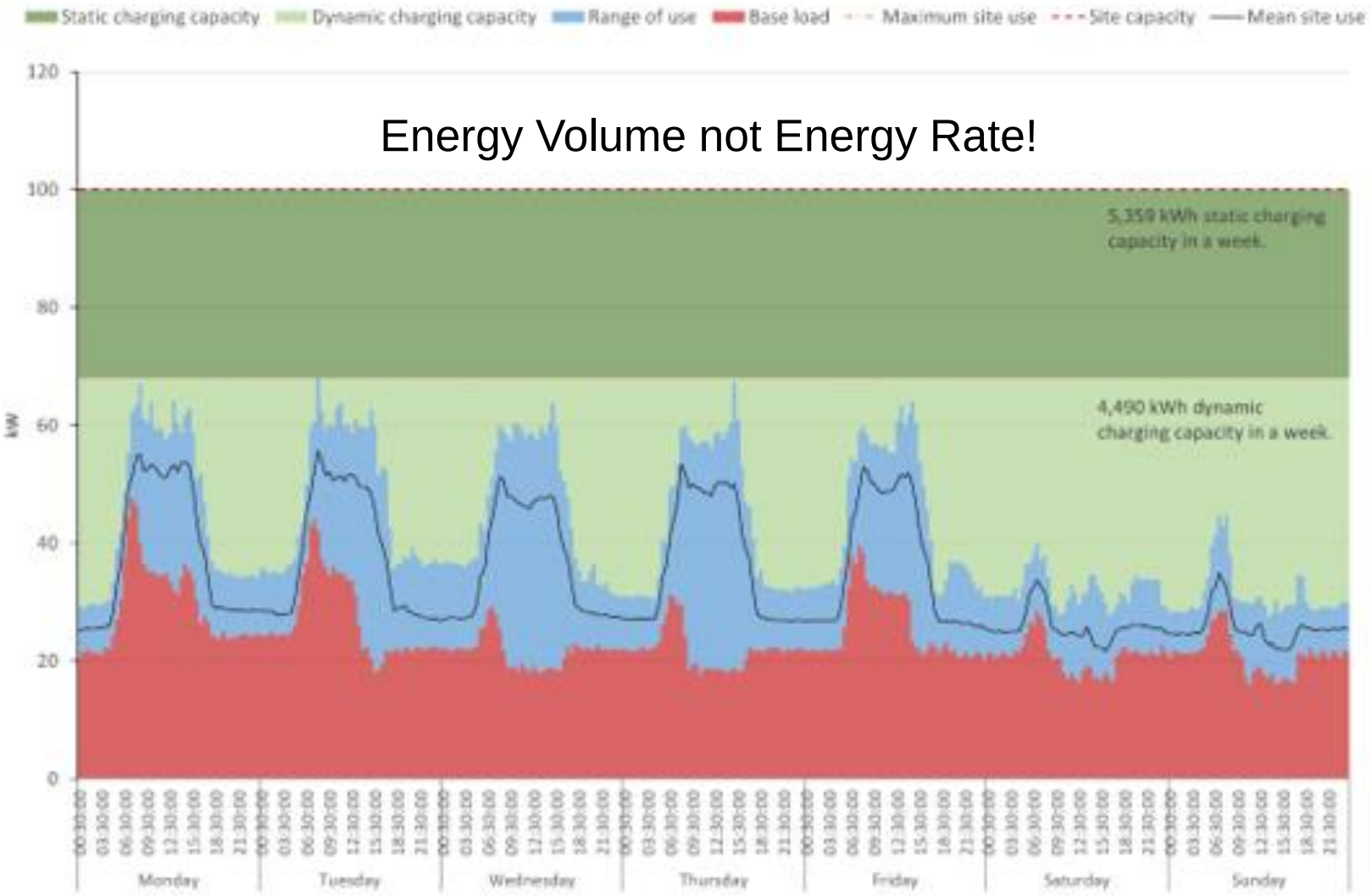
Fleet emissions = 10% of our baseline in 2017 / 18

Our Fleet

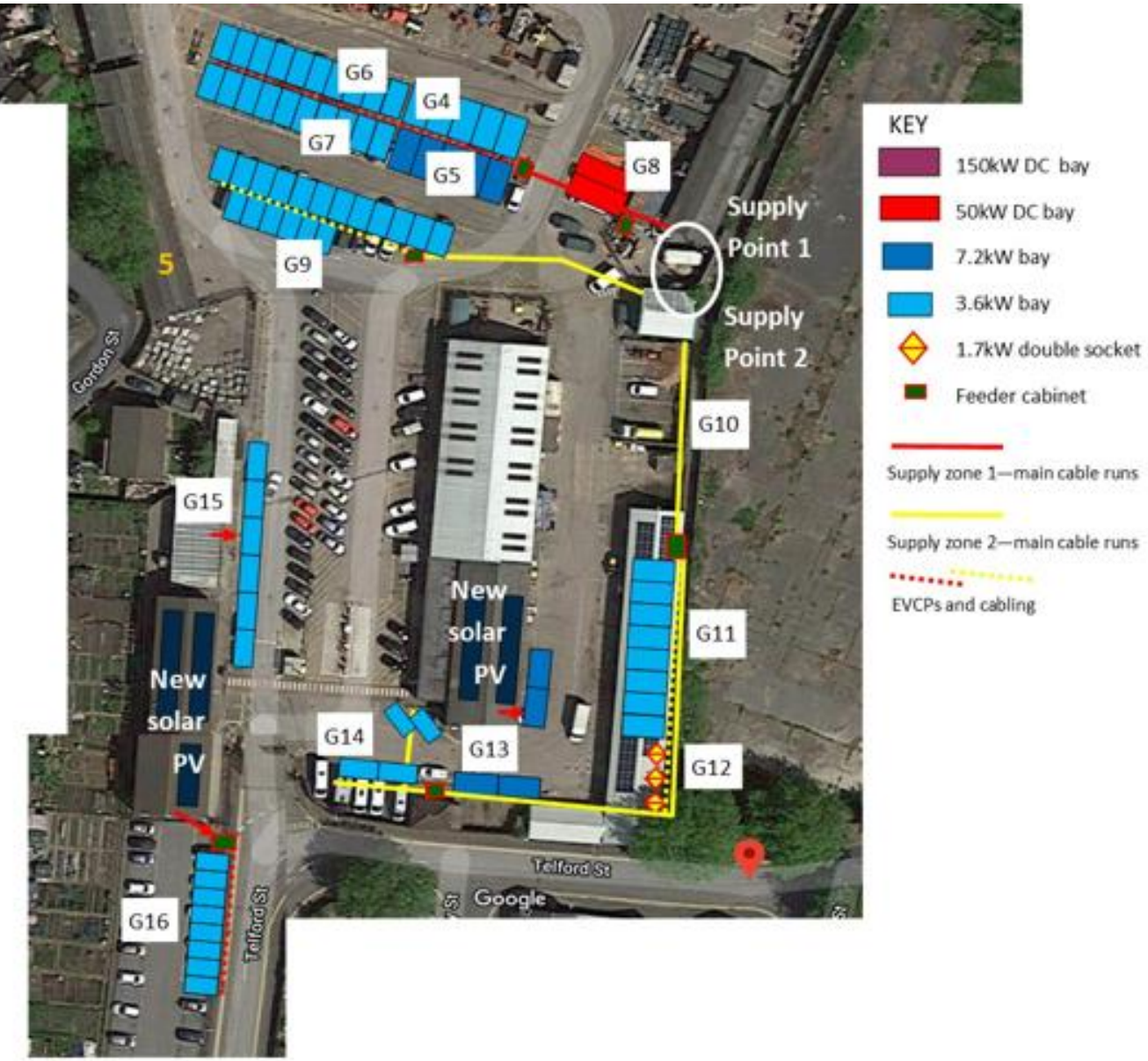
- Total fleet size of ~200 vehicles
- Currently at ~25% fleet electrification (by vehicle numbers)
- **Telford Depot (Main depot)**
  - Over 100 vehicles inc
  - Cars and light vans
  - Medium size (3.5t – 7.5t) specialist vehicles
  - Street cleansing vehicles
  - Grounds maintenance and handheld equipment
- **Docksway (Refuse Fleet)**
  - 14 Refuse Vehicles, 6 will soon be fully electric
  - A small number of light electric vans

Telford Depot – Assessing Headroom

Figure 2-2: Telford Street Depot - Winter Energy Consumption Profile



Telford Depot – Planning Ahead



- Modelling for 2025 and 2030
- Rating of chargers
- Number of chargers
- Grouping
- Cable routes
- Depot layout

Electric Refuse Collection Vehicles

- 1st LA eRCV in Wales
- 4 vehicles now in service
- 2 conversions due any day

eRCV - Data

Cenex delivered data analysis and report to help establish the volume of energy required

Average daily consumption over a 3 month period

Make	Model	Local Authority	Operating time (hours)	Average energy used (kWh)	Energy consumption (kWh/mile)	Daily battery used (%)
Dennis Eagle	eCollect	Newport	6.9	132	5.2	49%

'out of 300kWh'

Annual savings figures per vehicle

Local Authority	Energy used (kWh)	Diesel saved (L)	Fuel cost saving (£)	WTW CO2e saving (kg)	NOx saving (kg)	PM saving (g)
Newport	30,800	9,550	5,390	20,800	9.97	32.80

eRCV - Charging

- Current charging solution – Kempower T series portable charger
- Grid Upgrade – High voltage supply with new dedicated transformer
- New charging solution – Kempower C series with dynamic power management

Docksway HWRC

- New futureproofed connection (EV charging, Solar PV, Battery?)
- 14 RCVs, 6 are now eRCVs. Only 200kVA capacity available (currently)

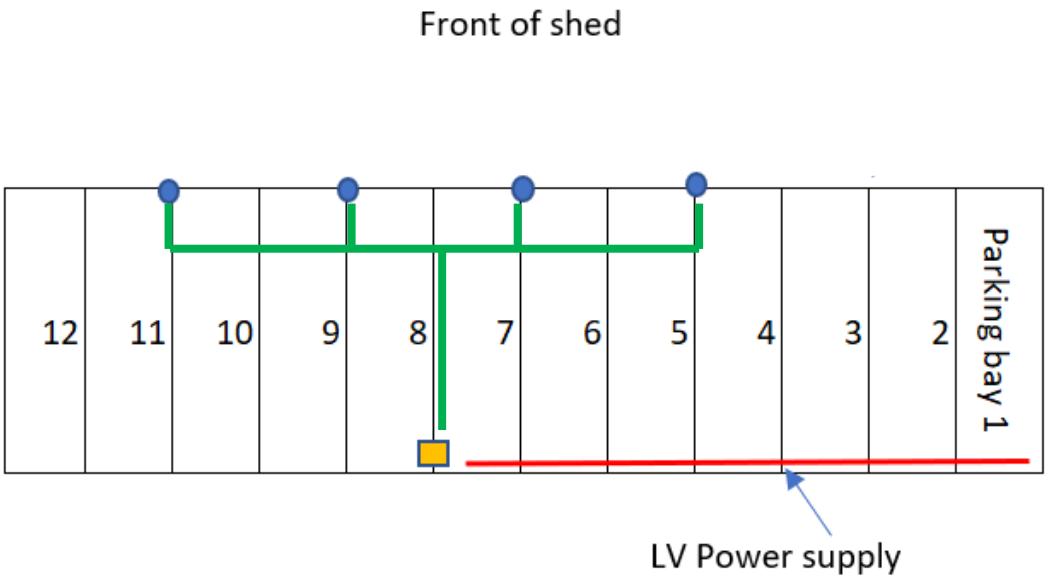
Dynamic charging system

Indicative layout

Key

S series location

C series location



Lessons

- Depot’s weren’t designed for electric vehicles..
- Vehicles that only have DC charging capabilities push additional cost and complexity onto the users
- DC chargers can’t handle poor power quality (inc volt drops)
- Have someone available to reset chargers
- Engage with your DNO before raising purchase orders

Summary

- Everything will be electrified, so plan for the future
- Be informed by the data
- Think in terms of the volume, not just power
- Install infrastructure that is adaptable and software that allows control
- It’s all new, don’t be scared so ask other’s for advice

Thank you for listening

Ross Cudlipp: Carbon Reduction Manager

Cenex Welsh Local Authorities Webinar:

Installation best practice & future proofing

Ryan Robertson
EV Infrastructure Officer
East Lothian Council
evcharging@eastlothian.gov.uk

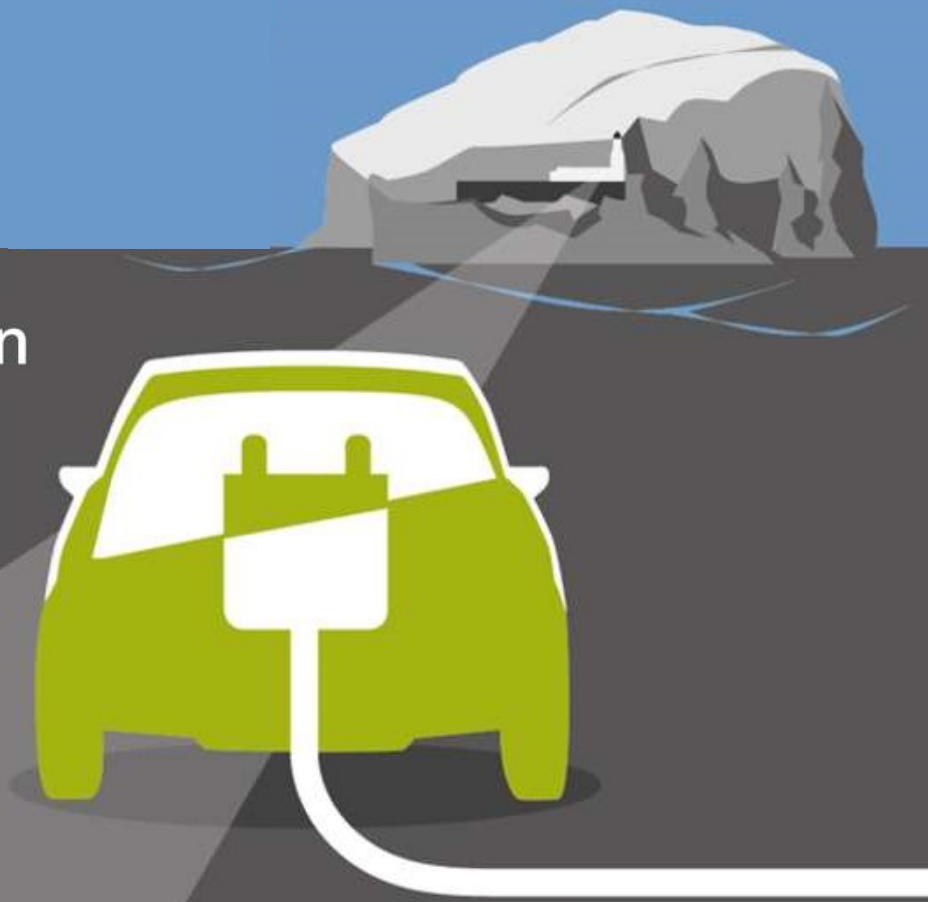
www.eastlothian.gov.uk/**electriceastlothian**

ELECTRIC EAST LOTHIAN

East Lothian on the Move

East Lothian Council

TACKLING CLIMATE CHANGE TOGETHER



East Lothian – a bit like most of Wales?

- Population ~107,000 & 70% have driveways
- 1 Trunk Road, no Cities (except our neighbour)
- Mix of urban and rural, lots of countryside…

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About the same size as your fleet?

Classification	Total Qty	In Scope
CAR	40	88%
LCV	200	39%
PLANT	40	5%
HDV	55	11%
PSV	25	64%
Total	360	38%

Cars & Vans
Some quick wins
especially if based at home?

Decarbonise with?

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With a similar story?

< 2018 **12 Public Chargers down to 4 (4 - 1 Journey, 9 - 3 Destination)**

+5 Railway Station car parks and a few workplaces (Destination)

Ecosystem did not promoted and supported early adoption

Free & poorly regulated charging was unhelpful

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But a few years ahead?

< 2018 12 Public Chargers down to 4 (1 Journey, 3 Destination)

- **2019 41 Public Chargers (12 Journey, 29 Destination)**
- **2020 80+ Public Chargers (16 Journey, >60 Destination)**

  1 Commercial Journey + 4 Tesco PodPoint (Destination)
- **2021 105 Public Chargers (18 Journey, >80 Destination)**

  A few destination chargers at restaurant/resorts

  A diverse, resilient & capacious ecosystem? Right ££
- **2022 ~200 Public Chargers (23 Journey, ~180 Destination)**

  >23 more Commercial >50kW Journey chargers = Market take-off

Public / Workplace / Fleet Chargers

< 2018 2 of 8 "Public" Destination chargers clearly for ELC Fleet (@ ELC HQ)

1 of 4 "Public" Journey chargers in a restricted Workplace car park

No division between:

- **Public**
- **Workplace (Staff and Visitors)**
- **Fleet**

ELC Fleet seen as "Hogging" critical chargers

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Public / Workplace / Fleet MPANs

- **2019 Investment in Public chargers in Public car parks**

1 x 50kW with 3 bays… 2 x 50kW DC Only with 1 bay each

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Public / Workplace / Fleet MPANs

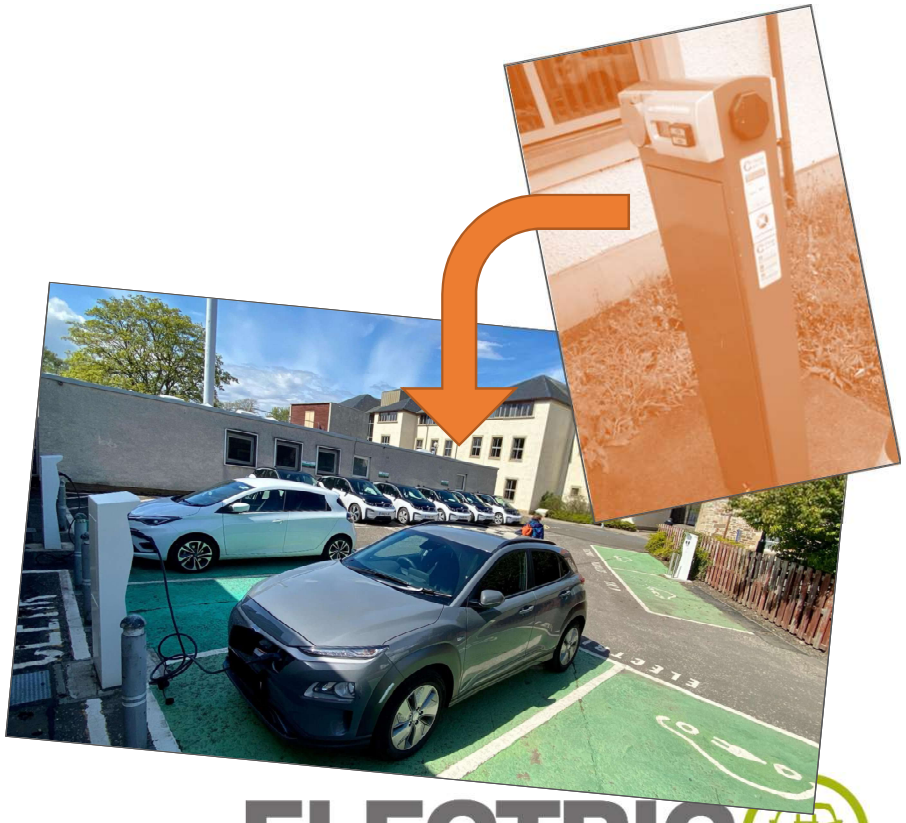
< 2018 No division between:

- **Public**
- **Workplace (Staff and Visitors)**
- **Fleet**

- **2019 Investment in Public chargers in Public car parks**
  Chargers in Workplace car parks no longer critical

- **2020 Revisiting older sites, additional DNO connection**
  One Fleet MPAN, One Public & Workplaces MPAN

- **2023 1 x remaining legacy issue resolved?**



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Public / Workplace / Fleet MPANs

- **2020 Revisiting older sites, 1 DNO = 1 Fleet MPAN, 2nd DNO = 2nd Public & Workplaces MPAN**

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Public / Workplace / Fleet MPANs

- **2019 Investment in Public chargers in Public car parks (including "ELC HQ Electric Car Park")**

Public & BEV CarClub + 2 Public + 3 Public

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Public / Workplace / Fleet MPANs

- **2019 Investment in Public chargers in Public car parks (including "ELC HQ Electric Car Park")**

+ Fleet

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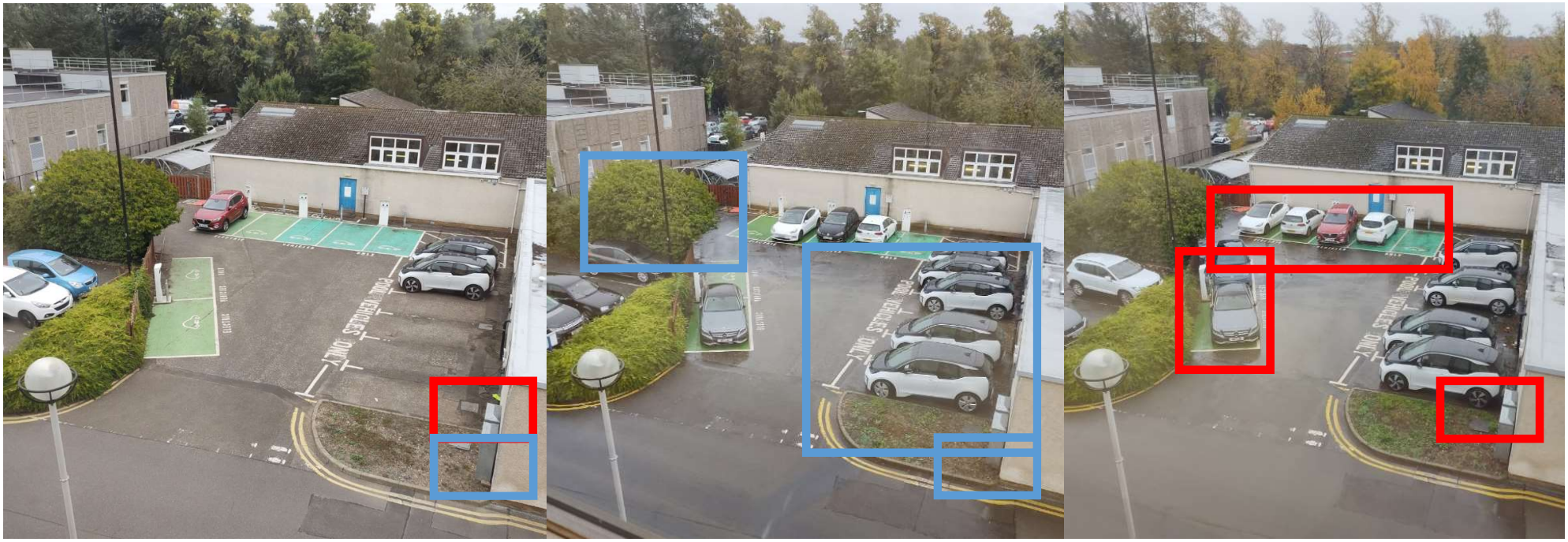
Public / Workplace / Fleet MPANs

- **2019 Investment in Public chargers in Public car parks (including "ELC HQ Electric Car Park")**



2 x DNO connections, each with 1 x MPAN

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Public / Workplace / Fleet MPANs

- **2020 Revisiting older sites, additional DNO connection**
  One Fleet MPAN, One Public & Workplaces MPAN

- **2023 1 x remaining legacy issue resolved?**

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Public / Workplace / Fleet MPANs

"Public" Fleet PiV Car Club MHEV Car Club

- **2020 Revisiting older sites, additional DNO connection**
  One Fleet MPAN, One Public & Workplaces MPAN

- **2023 1 x remaining legacy issue resolved?**

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Public / Workplace / Fleet MPANs

1 x DNO connections with 1 x MPAN

- **2020 Revisiting older sites, additional DNO connection**
  One Fleet MPAN, One Public & Workplaces MPAN

- **2023 1 x remaining legacy issue resolved?**

ELECTRIC EAST LOTHIAN

Fleet chargers where, and how many?

Classification	Total Qty	In Scope
CAR	40	88%
LCV	200	39%
PLANT	40	5%
HDV	55	11%
PSV	25	64%
Total	360	38%

2022 5:1 Ratio of vehicles:connectors

>95% of sites have 1+ connector

Assumes most LCVs continue to be based AND CHARGE at home

202_-203_? 2:1 Ratio of vehicles:connectors

Ratio of ICEs : PiVs leads/lags Vehs : connectors?

Photo credit: Noodoe

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Fleet chargers where, and how many?

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2022 5:1 F

>95% of

Assumes ND CHARGE at home

202_? 2:

Ratio of ectors?

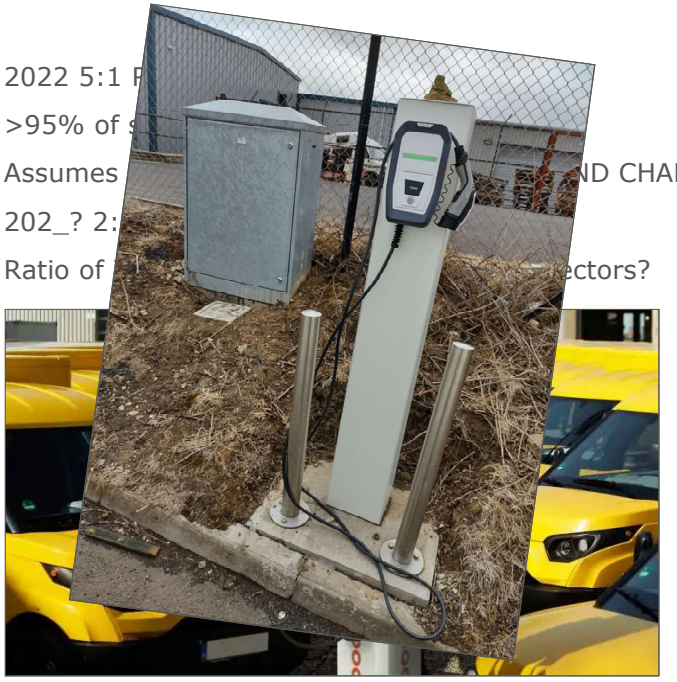

Photo credit: Noodoe

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Fleet charge … how many?

Classi
CAR
LCV
PLANT
HDV
PSV
Total

ND CHARGE at home

ectors?

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Tethered / Socketed? Smart load managed vs. Dumb? (or best of both?)

d how many?

ND CHARGE at home

ectors?

Noodoe

SIM card vs. LTE-M? Owned vs. “Leased” Meter

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Fleet chargers where, and how many?

Classification	Total Qty	In Scope
CAR	40	88%
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PSV	25	64%
Total	360	38%

Some LCVs won't charge at home
Not just a LA LCV Fleet problem
Some PSVs won't charge at current depots either
LA HDVs in particular will need DC HPCs occasionally
HPCs & DNO are an order of magnitude more expensive

https://energysavingtrust.org.uk/case-study/leeds-city-council/

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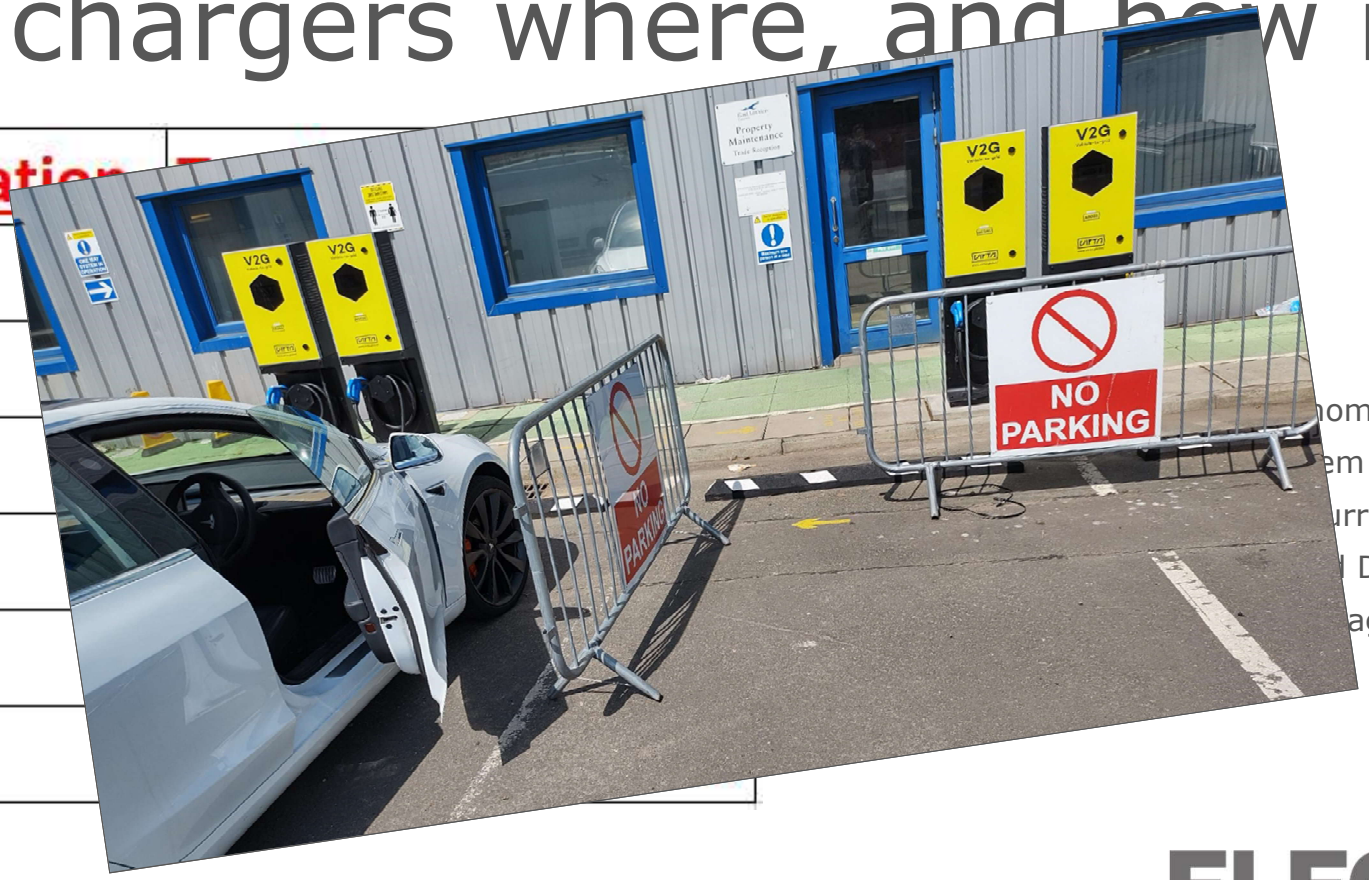
Fleet chargers where, and how many?

Classificati
CAR
LCV
PLANT
HDV
PSV
Total



ome
em
urrent depots either
DC HPCs occasionally
agnitude more expensive

https://www.cenex.co.uk/projects-case-studies/e-flex/

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Back to shared infrastructure?!

Teslabjørn: https://www.youtube.com/watch?v=rWKHFiB4XG8

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Current shareable infrastructure

EVA Scotland Drone Footage: https://www.youtube.com/watch?v=g42Vlz6s1hE

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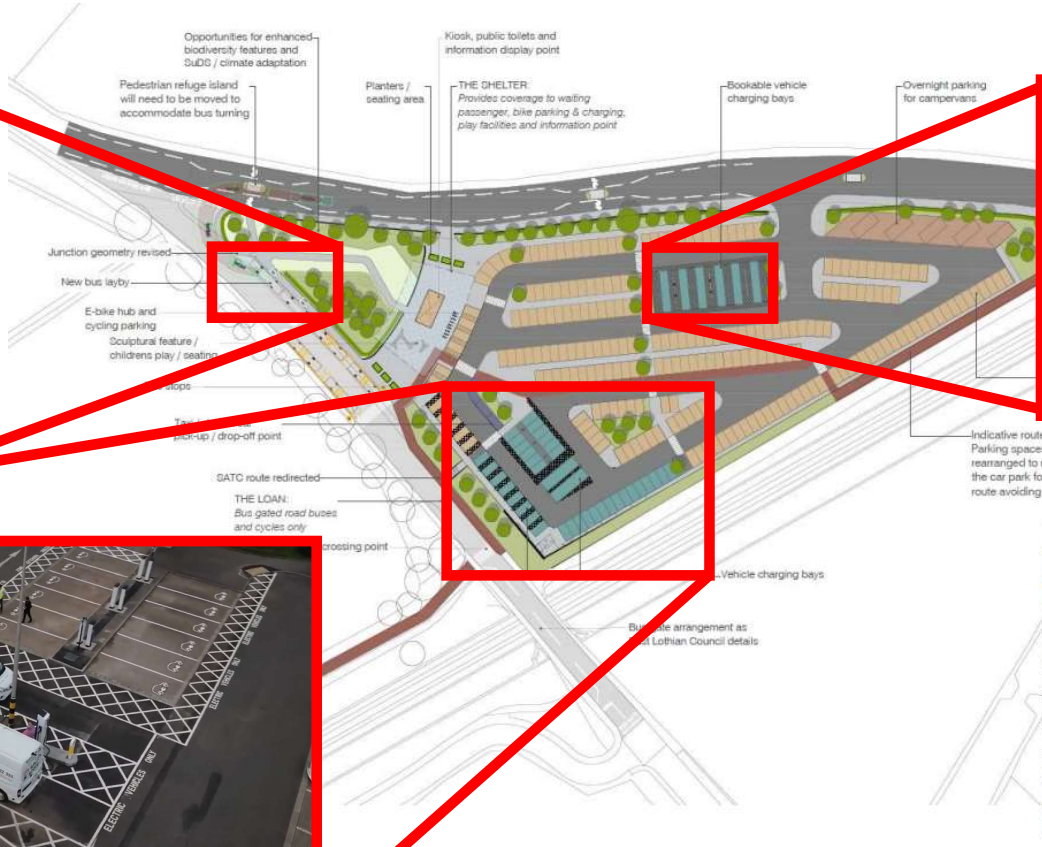
Current & a vision of shared infrastructure



EVA Scotland Drone Footage: https://www.youtube.com/watch?v=g42Vlz6s1hE
CGI credit: Proterra & ABB/Amazon

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Shareable infrastructure

Fastned, West Weir Street, Sunderland (owned by the North East Joint Transport Committee)

Gridserve HQ, Braintree, Essex

LA Planning Authorities & Climate Emergency

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Shareable infrastructure

https://www.gridserve.com/2020/08/05/gridserve-set-to-supply-the-uk-s-first-zero-carbon-electric-forecourt-with-the-purchase-of-clayhill/

LA Planning Authorities & Climate Emergency

ELECTRIC EAST LOTHIAN

Cenex Welsh Local Authorities Webinar:

Installation best practice & future proofing

Ryan Robertson
EV Infrastructure Officer
East Lothian Council
evcharging@eastlothian.gov.uk

www.eastlothian.gov.uk/**electriceastlothian**

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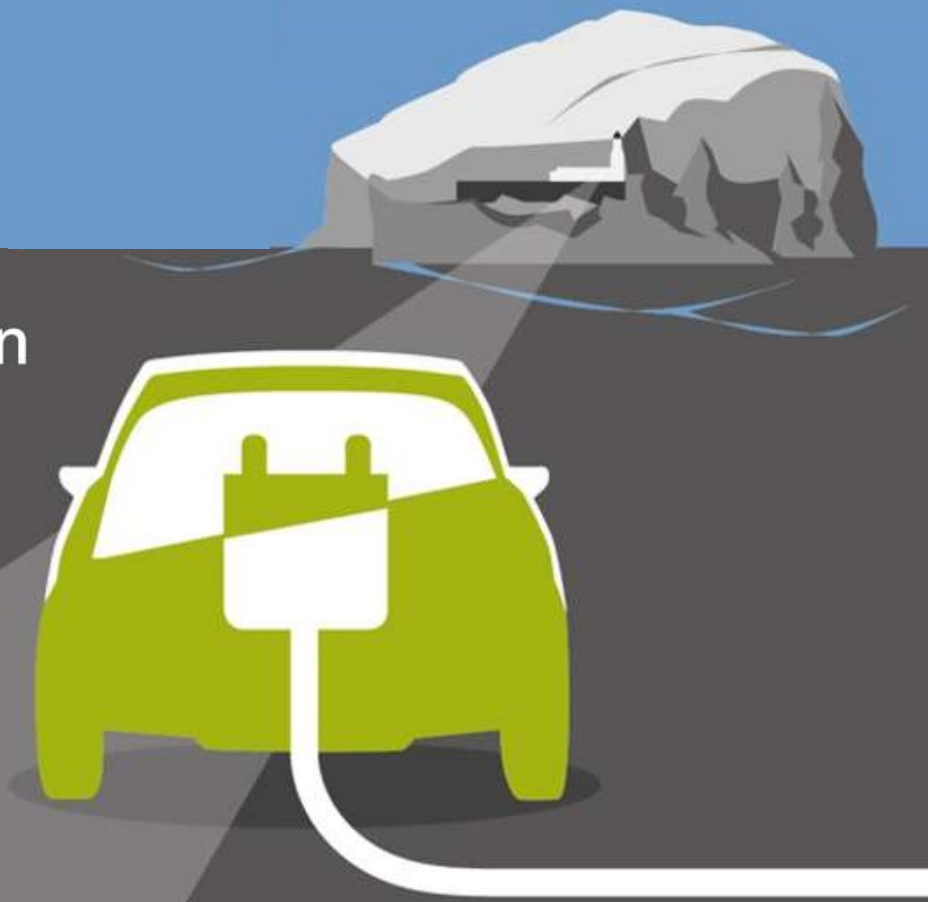
East Lothian on the Move

East Lothian Council

TACKLING CLIMATE CHANGE TOGETHER



Transport | Energy Infrastructure | Knowledge & Enterprise

Where to find out more?

cenex

cenex LOCAL PARTNERSHIPS

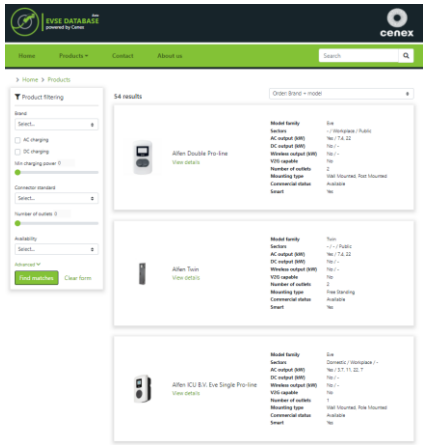
Ongoing integration support to understand eRCV/eRRV suitability to replace diesel equivalents, based on data collected from trial vehicles throughout Wales.

Expanded support mechanisms to be defined for financial year 2022/23.

Contact: Mark Brown
Mark.Brown@localpartnerships.gov.uk

EVSE DATABASE powered by Cenex (Beta)

www.evsedatabase.com



Contact: Sam Abbott
Samuel.abbott@cenex.co.uk

LOCAL PARTNERSHIPS

Fleet Transition – Dealing with vehicles that go home at night

On Wednesday **30th March** Local Partnerships will be hosting a webinar including speakers from Mitie Transport Consulting, Leeds City Council and Lancaster City Council.

The webinar will have interactive sessions designed to allow you to discuss and develop your ideas in relation to both vehicles that could charge at home and those that cannot.

Contacts:
Gina Barsan gina.barsan@localpartnership.gov.uk; Jo Wall jo.wall@localpartnerships.gov.uk

EIGER

- Cenex has licensed its EIGER model to Local Partnerships to use on behalf of Local Authorities.
- The model is designed to understand the impact of EV charging, load management, generation and storage on demand at a site level.
- It can therefore be used to make strategy decisions, for example predicting at what stage a network connection upgrade will be required.