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Welsh ZE Waste and Recycling Vehicle Programme

– Challenges and Resolution of Welsh ZE Transition –

Session Chair, Vicente Jofré

20th February 2025

ZE Waste and Recycling Vehicle Project

Llywodraeth Cymru
Welsh Government

Catrin Roberts, WG Programme Lead

Anna Duce, LA Circular Economy Infrastructure Lead

LOCAL PARTNERSHIPS

Mark Brown, Programme Manager

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Chris Rimmer, Support Lead
Carl Christie, Project Manager
Vicente Jofré, LA Liaison Officer and Technical Support
Sophie Naylor, Data Analyst
Tim Gale, Technical Support

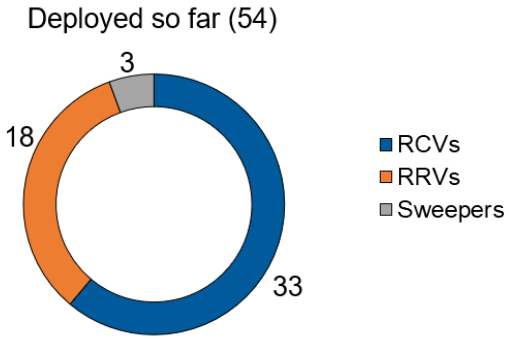
- Aims to Accelerate and De-Risk
- Access to Support
- WG Net-Zero 2030 Target
- Try Before you Buy
- Vehicle Purchase Grant Support
- Shared Learning and Dissemination

Agenda

- 10:00 Welcome and Programme Update
- 10:10 Welsh ULEV Deployments – Challenges and Resolutions
  - Case studies on IOACC, CBCC, and CCC's fleet ULEV transition.
- 11:00 Showcase of New ULEV Deployment Guides
  - Cenex to share new best practice documentation on ULEV deployment.
- 11:20 Looking Forward to 25/26
- 11:30 Close

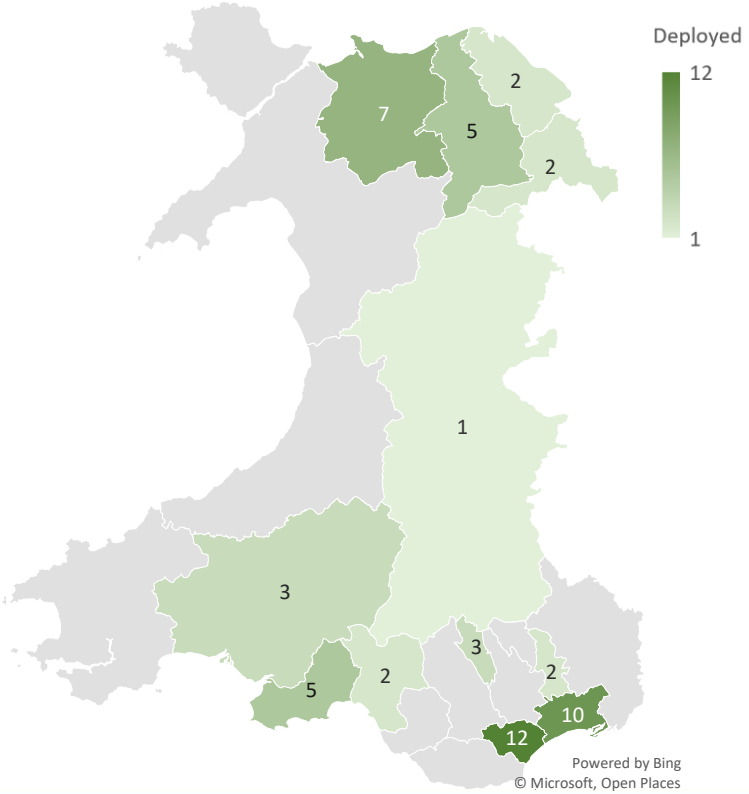
Programme Update

Deployment Status

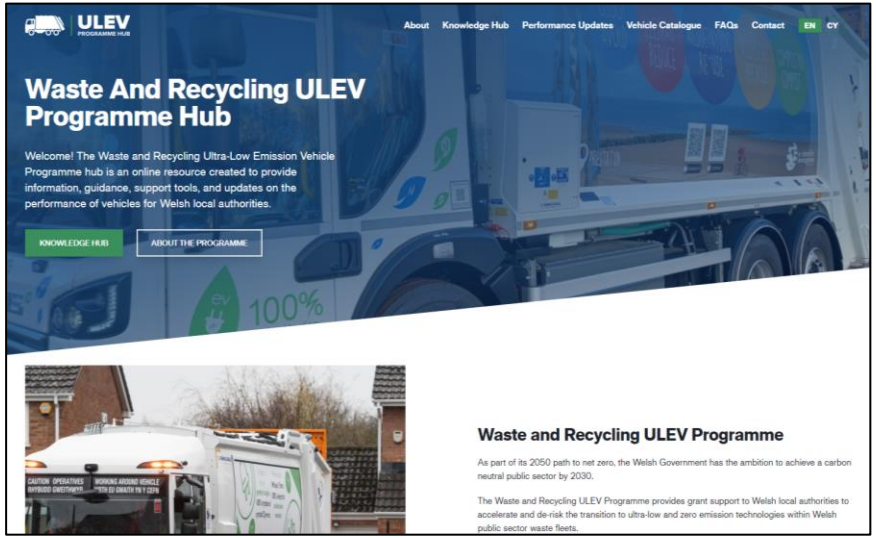


54 Vehicles Deployed So Far

Lots more expected this year (watch this space!)



Programme Website



Energy Consumption Models
- RCVs
- RRVs
- Sweepers

- Guidance Documentation
  - Vehicle Procurement
  - EV Infrastructure
- Vehicle Catalogue
- And More…

Welsh ULEV Deployments
– Challenges and Resolutions –

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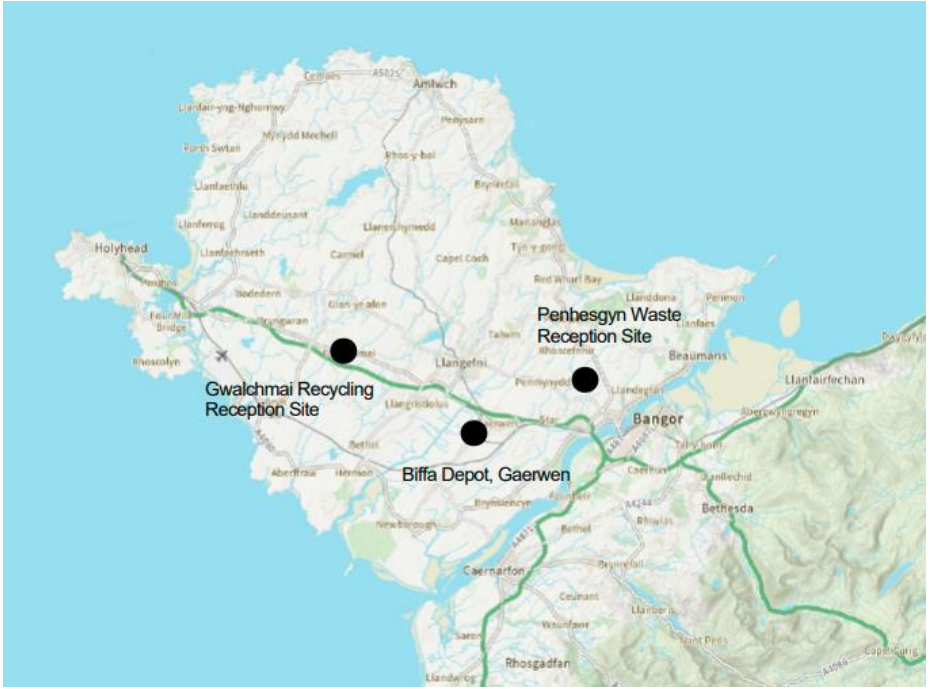
Electric Vehicle Infrastructure and Depot Assessment

Isle of Anglesey County Council

The Background

- Anglesey is an island in North Wales.
- 35,000 properties receiving kerbside recycling and waste collections.
- The collections are outsourced to Biffa.
- Current contract period is 2021-2029.
- All recycling/ waste collection and street cleansing fleet will need to be renewed in 2029.
- Transitioning the collection fleet from diesel to electric is in line with the circular economy model and the Council's commitment to net zero.



Electric Vehicle and Infrastructure Review

- IoACC approached Cenex for support.
- A Project Board was established, which included representatives from Cenex, Biffa and the Council (Waste Management Section, Property Section and the Fleet Section).
- Regular update meetings were arranged.
- The initial stage was the data gathering, which included the fleet composition, daily mileages, fuel consumption etc.

Electric Vehicle and Infrastructure Review- Site Visit

- Limited space for transition.

  ↳ Opportunities found to extend site.

- Maximum roof space available for Solar PV is 244 m^2.

Electric Vehicle and Infrastructure Review- Site Visit

Dumb charging would require **~950 kVA** capacity*.

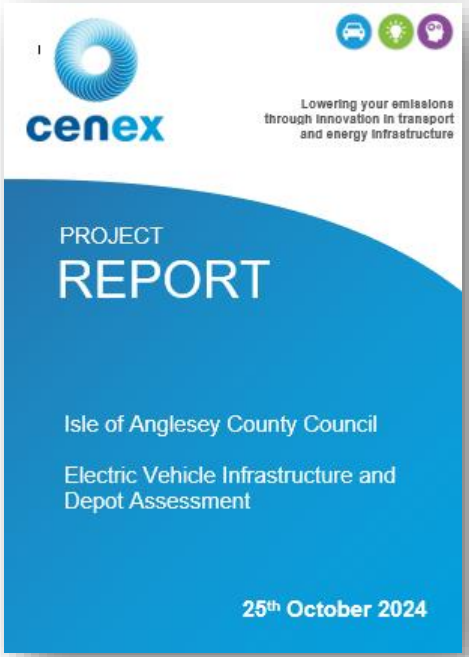
Smart charging would only require **360 kVA** capacity*.

Current Import Capacity:
138 kVA

Grid Upgrade required

*Import capacity specified is the minimum required given transition plans.

Electric Vehicle and Infrastructure Review- Options



- 45% of EV power demand can be achieved with current capacity.
- Consider utilising Housing and/or Travis Perkins spaces.
- Discuss upgrades with DNO.
  - 360 kVA for only EVs*.
  - 500 kVA for EVs and Buildings*.
- Move to a new site/depot

Electric Vehicle and Infrastructure Review- Next Steps

- IoACC has now approached Local Partnerships for support to review the recommended options in more detail.
- Input from the Project Board will be required.
- IoACC will continue to trial Electric Vehicles.

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End

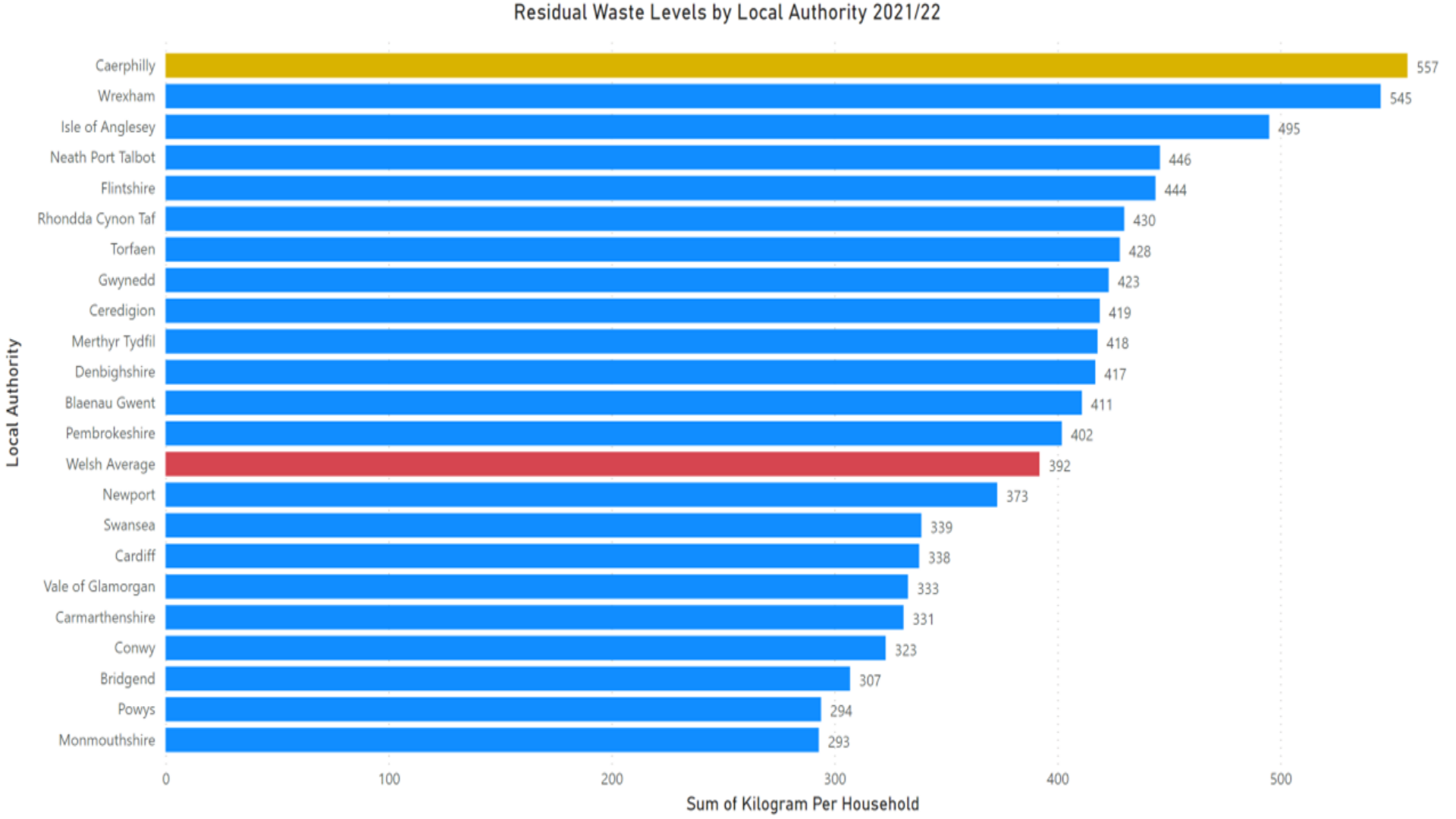
Welsh ULEV Programme Workshop

Caerphilly County Borough Council

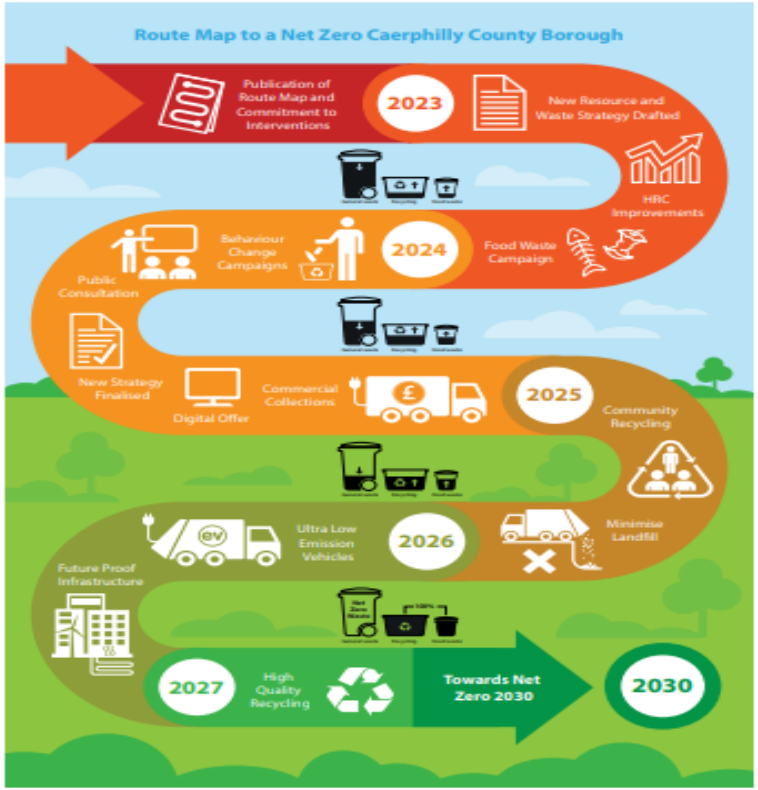
Nathan Jones – Waste Operations Manager

Background

- Historically, Caerphilly has performed well and always achieved Welsh Governments Statutory Recycling Targets
- However, since 2020 our performance has declined, falling below the 2019/20 target of 64% and the 2024/25 target of 70%
- This decline can be attributed to several factors, chief among which is our generous residual waste offer which was 165KG above the Welsh Average in 2021/22
- We face circa £2million in fines for failing to meet these targets
- A commitment was given to Welsh Government that we would formulate a Routemap and Strategy to demonstrate our commitment and pathway to achieving current and future targets
- Included in our Routemap and Strategy is a commitment to transition our fleet to ULEV / Electric


Residual Waste Levels by Local Authority 2021/22
Local Authority
Caerphilly 557
Wrexham 545
Isle of Anglesey 495
Neath Port Talbot 446
Flintshire 444
Rhondda Cynon Taf 430
Torfaen 428
Gwynedd 423
Ceredigion 419
Merthyr Tydfil 418
Denbighshire 417
Blaenau Gwent 411
Pembrokeshire 402
Welsh Average 392
Newport 373
Swansea 339
Cardiff 338
Vale of Glamorgan 333
Carmarthenshire 331
Conwy 323
Bridgend 307
Powys 294
Monmouthshire 293
0
100
200
300
400
500
Sum of Kilogram Per Household

Routemap & Strategy



Cenex Engagement / Support

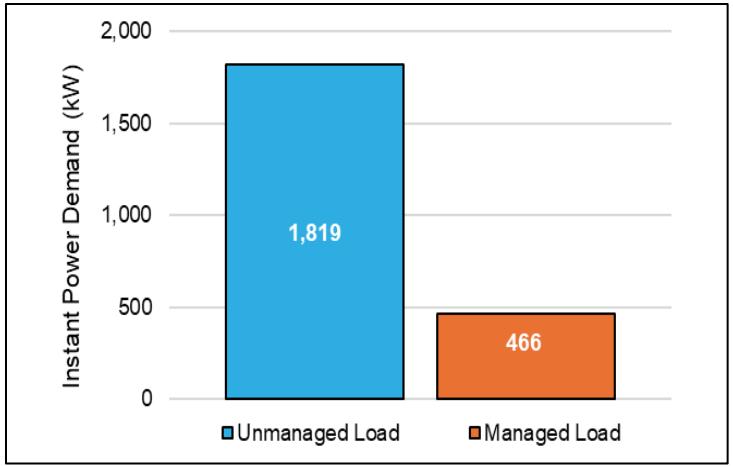
- Our existing site isn't fit for purpose; therefore, we had to find somewhere new to host the Waste Service
- With a site identified, we needed to understand whether the site was:
  - Suitable for electric vehicles
  - Could accommodate the charging infrastructure
  - Sufficient power supply and grid capacity to charge the proposed fleet

Infrastructure Assessment of New Site

- Design parking areas considering EV charging.
- Original Capacity of ~2.5 MVA
- No existing electrical infrastructure.

Model Worst Case Vehicle Energy Demand

- **Dumb charging** would require **~1,820 kVA** capacity.
- **Smart charging** would require **~470 kVA** capacity.



86 Vehicles
30 RRVs, 14 RCVs & 34 Vans

Power Supply Assessment

- **~520 kVA** import capacity **required** minimum.

- **Solar PV of 2,500 m²** (All roof surface) and **270kWh of battery storage** :
  - ~£700k Capital cost.
  - ~£78k yearly savings.
  - **7-year payback period (w/o Grant).**

Recommendations

- The proposed site would suit a fully electric fleet, **given sufficient capacity.**
- Planning for chargepoints early on is very important for future savings.
- Solar PV with battery storage could generate great savings for the fleet.

~520 kVA

Minimum Required

Solar PV + Battery Storage

7-year payback period

(w/o grant)

Eco Friendly Material Reclamation Facility

Welsh ULEV Deployments
- CCC eRRV Implementation Support -

Infrastructure Assessment of 5 Different Sites




- Consider space constraints.
- Assess existing site and electric infrastructure.
- Evaluate potential for Solar PV deployment.
- Look for major electricity users.
- Confirm supply capacity.

Model Worst Case Vehicle Energy Demand

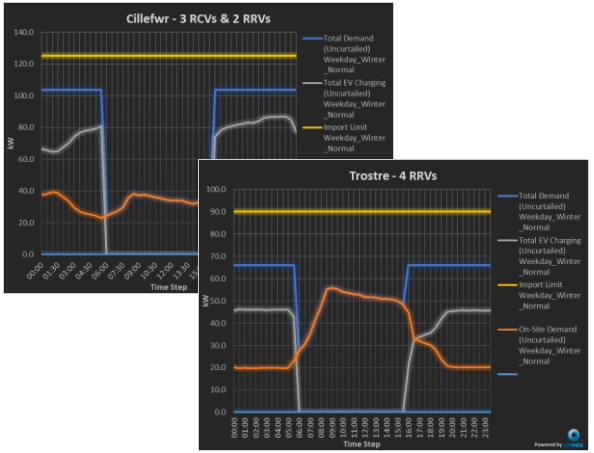
Body Type	Daily Mileage (mi)	Daily Energy Use (kWh)	Min. Chargepoint Requirement
Average RRV	85	142	11 kW AC
Average RCV	76	250	19 kW AC

12 RRVs and 3 RCVs Studied

- 22 kW AC chargers required for all vehicles as minimum.
- Trials Encouraged to verify modelled estimates.
- Batteries have been well specified, 1.8% yearly battery degradation expected.

Power Supply Assessment

- Current electric infrastructure can support vehicles.
- 20 - 25 kVA overhead capacity available for contingency.
- Smart charging is essential for this transition plan.
  - Cheaper Infrastructure.
  - No need for upgrade



Recommendations

- Move eRCVs to Cillefwr. Replace with eRRVs.
- The current supply capacity able to support the deployment of EVs.
- Trostre is physically capable to house all the vehicles, but it would require additional development.

Cross Hands

3 RRVs

Cillefwr

3 RCVs and 2 RRVs

Trostre

4 RRVs

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Questions and Discussion

Welsh ULEV Deployments

Looking Forward to 25/26

by Chris Rimmer, Head of Policy and Strategy

What would you like from us in 2025/26?

- Welsh Government, Local Partnerships, Cenex and partners are currently thinking about the shape of next year's programme
- We are wondering about wider support across the full project lifecycle

2024/25 workstreams:

- Programme Management
- Procurement Support
- Workshops and Newsletters
- Implementation Support
- Tracking, Modelling & Analysis

2025/26 thoughts:

- Programme management
- Fleet transition planning?
- Infrastructure/depot assessments?
- Procurement support?
- Deployment monitoring?
- Decision-making tools?
- Networking and support?
- Training?

Ask Us Anything

Contacts for Grant Applications

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Contacts for Planning and Implementation Advice

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Thank you for listening

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