Cyngor Castell-nedd Port Talbot
Neath Port Talbot Council

Zero Emissions Fleet Transition Plan

Contents

Glossary of Terms

Abbreviation	Meaning
• ICE	Internal Combustion Engine
• BEV	Battery Electric Vehicle
• EV	Electric Vehicle
• HEVs	Hybrid Electric Vehicles
• ULEV	Ultra Low Emission Vehicles *(typically a vehicle that emits less than 75g of C02/km from the tailpipe)*
• WGES	Welsh Government Energy Service
• PCV	Passenger Carrying Vehicle
• CPMS	Corporate Performance Management System
• HVO	Hydrotreated Vegetable Oil

Background

Policy Issues & Drivers for Change

- Welsh Governments 2019 Prosperity for all Document: A low Carbon Wales, sets out how Wales is going to address Climate Change. *Proposal 4 - All new cars and light goods vehicles in the Public Sector fleet are ultra low emission by 2025 and where practicably possible, all heavy goods are ultra low emission by 2030*

- U.K Government announced an end to the sale of new diesel, petrol cars and vans from 2030. Hybrid vehicles will continue to be on sale, however, from 2035 the sale of new Hybrid vehicles will also end and all new cars and vans sold in the U.K will be zero emissions.

- NPT's 2020 DARE Strategy point 4.2.2.1 States:
  The Council currently operates a fleet of approximately 376 vehicles including school minibuses and contract hired vehicles (this figure does not include plant equipment). Whilst the fleet only currently has 4 fully electric vehicles, the Council is actively looking to increase the fleet to include additional vans, pool cars and a bus as part of the 'Annual Renewals Programme'. *Figures shown above are subject to change as vehicles are replaced.*

Fleet Profile

- Total number of vehicles 266 as of June 2021 however the fleet profile will fluctuate. *This figure does not include school mini buses, SWTRA and hire vehicles.*

- 11 PCV for Community Service Transport

- 41 Heavy Goods Vehicles used for the collection of Refuse and Recycling

- 40 specialist heavy goods vehicles such as road sweepers, winter maintenance gritters, gully jetters and tippers.

- 86 Medium to Large vans up to 3.5t

- Light van and Cars total 80, of which 11 have already transitioned over to full electric vehicles

- 13 contract hire vehicle 1 of which is full electric and a further 7 and self-charging hybrids HEVs.

- 35 items of mobile plant such as ride on mowers, excavators and tractors.

- 34 school minibuses and people carriers owned and operated by the schools and therefore not included in the plan.

- Vehicles are hired as and when required such as HGV's, light, medium, heavy vans and cars. On average there are 40 vehicles hired daily which has increased during the pandemic.

- 8 petrol hybrid cars and 4 full electric cars 7 electric light vans.

Phased Approach

Future options for the transition of vehicles outlined below will include;

- Full electric vehicles EV
- Hydrogen (if available)

Fleet Transition Timeline							
Year	Cars	Light Vans	Medium Panel Vans/4x4	Heavy Vans Tippers	H.G.V/Specialist	MiniBuses	Totals
21/22	7	10	4	0	8	10	**39**
22/23	2	1	0	1	1	0	**5**
23/24	3	14	5	4	23	5	**54**
24/25	2	19	15	21	10	0	**67**
25/26	1	14	1	7	7	2	**32**
26/27	0	2	6	2	2	1	**13**
27/28	0	3	4	2	11	3	**23**
28/29	0	2	3	11	17	0	**33**
29/30	N/A	N/A	N/A	N/A	N/A	N/A	**266**

The above chart indicates what can be transitioned and in which year it is scheduled to happen. Green vehicles are readily available. Amber only certain types of vehicles available. Red vehicles not readily available or in very early stages of development.

Estimated Cost Analysis and Emissions

Cost examples for transition to E.V Outright Purchase

Refuse Freighters

Refuse freighter	ICE	New cost	£220k
Refuse freighter	EV	New cost	£420k
Refuse Freighter	EV	Refurbished & Converted to EV	£320k

Medium Van

Medium Van	ICE	New cost	£18k
Medium Van	EV	New cost	£27k

Refuse Freighter

Refuse Freighter	EV	NEW Purchase	£420k
Refuse Freighter	EV	Refurbished existing vehicle & Converted to EV	£320k
Refuse Freighter	EV	NEW vehicle Leased over 7 years	£620k
Refuse Freighter	EV	Refurbished & Converted EV Leased 7 years	500k approx.

Renewals cycles for EV

Currently ICE vehicles have a life cycle between 5 and 7 years. However, with less wear that EV's have the life of the vehicles can be extended. This could be in line with the battery warranty which could be as long as 10 years. There may be some instances where battery degradation happens sooner depending on usage. –Individual cells may be replaced which can be costly, however not as costly as replacing complete battery packs. Renewals schedules may differ with types and makes of vehicles depending on battery warranties terms and possible hydrogen fuel cell warranties.

Example of fuel cost savings after transition to EV

Using 2 vehicle types 1 being the vehicles that consume most fuel which are refuse freighters the other a standard medium van. The examples below provide potential fuel savings per vehicle.

Vehicle	Annual fuel used	Cost of Fuel/Electricity	Annual Mileage	Total Cost of Energy
Dennis Eagle 26t Refuse Freighter Diesel	28,248L	1.10	30,000	£31,461 inc adblue
Dennis Eagle 26t Refuse Freighter EV	51,600kwh	0.10	30,000	£5,160

Annual fuel savings based on one refuse freighter £25,912

Medium van whole life savings

Vehicle	Miles per unit of Energy	Cost of Fuel/Electricity	Lifetime Mileage	Total Cost of Energy
Vauxhall Vivaro	39.90	5.0007	100,000	£12,533
Vauxhall Vivaro-e	3.39	0.10	100,000	£2,950

Whole life saving £9,583

Workshop Savings

According to the WGES draft report it is estimated that there will be a 20% saving in maintenance on the chassis/drive train of the vehicles. This can be managed through opportunities with external companies and natural wastage.

Example of potential Emissions Savings

The phased approach outlined in this plan will see a year on year reduction in C02 emissions by the Councils fleet. For the Council to achieve the reduction in emissions set out by Welsh Government will depend on vehicle availability.

Figures for 20/21 shows the Council produced 3,151.58 tonnes of CO2 per annum. As way of an example, one ICE refuse freighter produces 72.2 tonnes of carbon emissions a year. If all 13 refuse freighters were replaced the council would see an approximate reduction of 964 tonnes of carbon emissions per annum.

Next Steps

Transition of Bunkered Fuel

The Councils current stock of fuel equates to 145,000 litres of diesel and 22,000 litres of Petrol. As demand for carbon based fuels decrease and E.V becomes predominant. Fleet services will manage the transition from carbon based fuels to electric and Hydrogen as these resource becomes available. If HVO or other bio fuels become available to achieve short term gains then these maybe considered if cost effective and subject to being ethically sourced. There will be capacity in the current tanks if a decision is made to hold and dispense to certain vehicles that are covered under the manufacturer's warranty to be run on these such fuels.

Change in Culture

Management of sections/departments need to revise working practices and become more vehicle focused, this may include more robust route design and shift working patterns. Needless travel should be addressed by Management and more innovation around planning journeys/work.

Staff buy in to embrace the transition will be essential throughout the Authority and to address such things as range anxiety, driving automatic vehicles and charging protocol etiquette.

Use of hired vehicles as a back up to the existing fleet will also be zero emissions. Sections requiring car and light van hired vehicles will need to be aware that after 2025 the only options available will be zero emission.

Specialist and HGV/PCV hires may not be available as zero emission until post 2030. However, if there are zero emission option available sections will be expected to hire these.

A business case will need to be made if a section requires an ICE vehicle, which will need to be signed off at Director Level.

Workshop requirements

EV's require less maintenance that ICE vehicles which may give capacity for fleet technicians to offer services to partner organisations, contract hire companies and the general public which gives opportunity to generate income.

Work has already started with 1 EV bay already in place at Tregelles Court. However, further infrastructure improvements at both Tregelles Court and the SRC workshops will have to be introduced which will require further investment to update workshops.

Fleet's callout breakdown van has already been converted in line with the AA response vehicles to enable the technicians to attend EV breakdowns. Fleet has worked in conjunction with H&S on procedures and Risk Assessments that are required for EV, maintenance, repairs and call outs.

Currently 10 technicians have been trained to level 3 City and Guilds in EV maintenance and repairs. It is planned for further technicians to upskill before 2025. The aim is for all technicians to progress to level 5 City & Guilds which will provide more specialist knowledge on EV. As technologies develop and new zero emission fuel sources become available technicians will need further training and workshops realigning to the new technologies.

Training needs for staff

Staff have concerns regarding E.V's. this ranges from range anxiety, charging and driving of automatic vehicles. Education in transitioning to zero emission vehicles is therefore key. Staff will need to be part of the journey and this training may also help with their own private vehicle transition.

- Driving styles
- Fuelling/charging vehicles
- What to do in the event of a breakdown/accident
- Automatic gearbox driving
- Range anxiety
- Journey Planning
- Vehicle checks and new vehicle induction can be provided by NPT Road Safety Training Section http://www.nptroadsafety.co.uk/2775

Vehicle charging locations/parking arrangements

To ensure the transition of the council's vehicle fleet to zero emissions. Locations will need to be identified where there is sufficient parking and energy capacity available to facilitate the number of charge points required to cater for future fleet requirements.

A review of current working practices and home parking policies, for example on call vehicles, will need to be undertaken by each department.

Charge point Management

The back office management software for the chargers will have to be capable of interfacing with the vehicles telemetry and tracking system. The chargers management software will automatically prioritise the charging of vehicles.

Fleet services currently have access to all charge point management software and online systems used to manage the charging system. Fleet will arrange breakdown repairs, maintenance and replacement of charge points.

If any other alternative fuels come to the market such as hydrogen then the same methodology will apply in regard to fuel and fuel point management.
Monthly reports will be produced for all user sections and finance section for recharge purposes which will be on a vehicle registration basis.

School minibuses

Fleet will work with schools and are able to assist with the transition of their vehicles. Schools will also have the opportunity to generate income when L.A vehicles are on site and utilise their charging facilities.

Transition Plan Management

Procuring new or replacement fleet vehicles and plant should be done in line with this transition plan and the fleet renewals programme. The targets set out in this plan can be achieved as long as technology allows, the fleet service will continuously liaise with all sections to trial new technologies and to ensure they are operationally fit for purpose. If operational adjustments to suit zero emission vehicles need to be made the fleet services will assist the section Managers with this process.

Fleet services will report back to departments, senior managers and councillors when formulating annual renewals schedules. Discussions will be focused around;

- Short term emission reductions (use of bio fuels, telematics etc) before zero emission target deadlines
- Option to reduce life cycle if opportunities to purchase zero emission vehicles arise early as well as identifying funding streams
- Vehicles life may be extended until such time a particular vehicle types i.e. 4x4 are more readily available.
- Refurbish and convert existing assets to zero emissions instead of purchasing new vehicles if practically possible.
- Any new technologies that come on the market.

The above approach will give the Authority options and flexibility going forward to ensure its Carbon footprint is lowered and zero emission targets are met in line with the transition plan. The selection of these options is key to ensure the departments have vehicles capable of meeting their operational requirements whilst being the most economically advantageous vehicles available on the market at that point in time.