



RHONDDA CYNON TAF COUNTY BOROUGH COUNCIL

MUNICIPAL YEAR 2018 /19

**PUBLIC SERVICE DELIVERY, COMMUNITIES & PROSPERITY SCRUTINY
COMMITTEE**

**DEVELOPMENT OF INFRASTRUCTURE TO SUPPORT LOW CARBON VEHICLE
OWNERSHIP**

27th SEPTEMBER 2018

**JOINT REPORT OF THE DIRECTOR OF HIGHWAYS AND STREETCARE
SERVICES AND DIRECTOR OF COMMUNICATIONS AND INTERIM HEAD OF
DEMOCRATIC SERVICES**

AUTHOR: James Vale, Strategic Projects Manager

1. PURPOSE OF THE REPORT

The purpose of this report is to advise Members on background information and issues for consideration in relation to the development of infrastructure to support low carbon vehicle / ultra low emission vehicle ownership.

2. RECOMMENDATION

It is recommended that Members of the Public Service Delivery, Communities & Prosperity Scrutiny Committee:

- 2.1 Note the contents of the report
- 2.2 Agree to form a working group to consider the detail of this report.

3. REASONS FOR RECOMMENDATIONS

- 3.1 To enable the development of a policy which will improve the infrastructure required to support low carbon vehicle / ultra low emission vehicle ownership in Rhondda Cynon Taf.

4. BACKGROUND INFORMATION

- 4.1 In February 2018 a Notice of Motion, calling for a Scrutiny Working Group to consider options to develop Low Carbon Vehicle (LCV) infrastructure in RCT, was approved by Full Council.
- 4.2 In advance of Scrutiny consideration, officers have been undertaking research regarding LCV infrastructure and requirements, to identify the associated issues which will need addressing.

POLICY AND LEGISLATION

- 4.3 Members will be aware that the UK Government plans to ban the sale of petrol and diesel only combustible engine cars from 2040 and have reiterated this commitment in the “Road to Zero” Strategy, published July 2018.
- 4.4 The development of infrastructure to support low carbon vehicle / ultra low emission vehicle ownership in Rhondda Cynon Taf would complement the Welsh Government’s Well-being of Future Generations (Wales) Act 2015; the Environment Act (Wales) 2016 and; the council’s commitments as a member of the UK100.

TERMINOLOGY

- 4.5 Low Carbon Vehicle (LCV) is the term used to describe vehicles which emit fewer toxic and harmful gases than a standard car. ¹
- 4.6 A more specific term used to describe some collective LCVs is Ultra Low Emission Vehicle (ULEV). A ULEV is a vehicle that produces less than 75g/km of CO₂. Types of ULEV include:
- Electric Vehicles (EV)
 - Hybrids – combustion engine and electric propulsion motor. Battery charged through regenerative braking, very low zero emission range.
 - Plug in Hybrid Electric Vehicles (PHEV) – option to plug in to extend use of battery
 - Range Extended Electric Vehicles (REEV) – on board internal combustion engine used to recharge the (larger than normal) battery)
 - Fuel Cell Electric Vehicles (FCEV) - electric motor with Hydrogen energy source ²

¹ <http://www.energysavingsecrets.co.uk/LowCarbonVehicles.html>

- 4.7 When discussing low carbon fuels, alternatives to Petrol and Diesel also include Liquid Petroleum Gas (LPG), Natural Gas – either Compressed Natural Gas (CNG) or Liquefied Natural Gas (LNG), and biofuels.

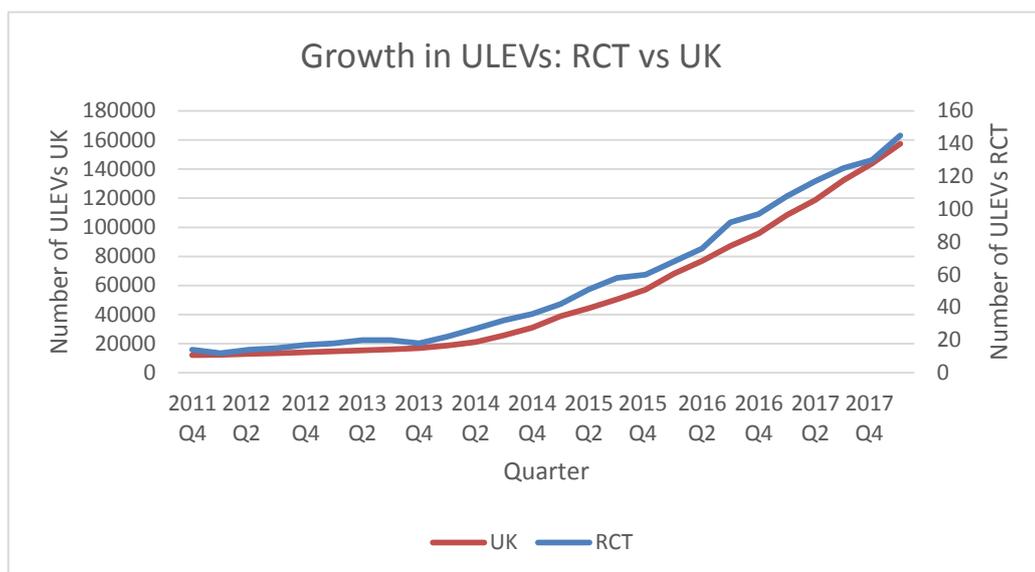
SCOPE

- 4.8 This report focuses on vehicles using electric as the most commercially available fuel type, and one which requires the development of supporting infrastructure i.e. charge points.
- 4.9 Officers will continue to monitor potential advancement of other technologies, such as Hydrogen, and report any future opportunities back to Members at the appropriate time.

CURRENT PICTURE

- 4.10 As at the end of Quarter 1 2018, there were 145 ULEVs registered in Rhondda Cynon Taf. Figure 1 demonstrates that the trend-line for ULEV registrations in Rhondda Cynon Taf is broadly consistent with the UK. Demand is predicted to rise rapidly with one million ULEVs projected by the early 2020s and as many as nine million by 2030. Based on this, and assuming the trend-line for ULEV ownership in Rhondda Cynon Taf continues in alignment with the UK generally, there could be over 900 ULEVs registered in Rhondda Cynon Taf by the early 2020s and over 8,000 by 2030.

Figure 1: Licensed ultra low emission vehicles by local authority: United Kingdom



² <https://www.osv.ltd.uk/what-is-an-ultra-low-emission-vehicle/>

- 4.11 There are currently (as at June 2018) six electric vehicle charging points (EVCP) in Rhondda Cynon Taf – one of which is generally available to the public, with four only available to customers. The remaining charge point is not currently in use but is located at Ty Glantaff. It was installed to charge an electric vehicle previously operated by the council.
- 4.12 Via the council's Salary Sacrifice Car Lease Scheme, two out of the 44 vehicles leased to date are ULEVs.

AVAILABILITY OF FUNDING

- 4.13 Grant funding support is currently available via the Office for Low Emission Vehicles (OLEV) for the following:

On-street Residential Parking Scheme (£4.5M for 18/19 and 19/20)

- Local Authorities can receive a grant to part fund (75%) the capital costs relating to the procurement and installation of on-street electric vehicle charge point infrastructure in residential areas
- OLEV will provide up to £7,500 per charge point installation (inclusive of connection costs and associated groundworks)
- Each project should not exceed more than £100k in OLEV funding (applications exceeding this will be reviewed on a case by case basis)
- Grants will be paid by OLEV in arrears upon completion of the project
- Car parks that are owned by Local Authorities and are accessible to residents 24/7 are eligible charge point locations (minimum expectation is that residents can access car parks for free overnight)
- First come, first served basis

Workplace Charging Scheme

- Any business, charity or public authority is able to claim the grant towards the installation costs of EV charging points providing they have dedicated off street parking for staff and/or fleet
- Funding available up to £300 per socket up to a maximum of 20 sockets

Welsh Government

The Welsh Government announced funding of £2m to support the development of ULEV infrastructure. To date no further details have emerged as to how this funding will be allocated and whether a Wales wide approach will be taken.

5. KEY CONSIDERATIONS FOR SCRUTINY

CHARGE POINT TYPES, COSTS AND LOCATIONS

5.1 There are a number of different charging unit options ranging from trickle charge – using a standard three-pin plug - to rapid charge. The table below outlines detail for different charge types.

Figure 2: Charge Type Details

Charge Type	Output Rate	Typical Use	Time to Charge	Approx. Miles Per Hour of Charge (where available) ³
Trickle	3kWh	Homes	12 hours	
Slow	3.7kWh	Homes	6-8 hours	15
Fast	7kWh	Homes / Workplaces / Public Places	3-5 hours	30
Fast	22kWh (NB not all EVs can charge at this rate but units can be used at 7kWh)	Public Places	1-2 hours	80
Rapid	43kWh and above	Motorway Service Stations	30 minutes to 80% capacity	

NB Charging speeds from fast chargers will depend on the car's on-board charger, with not all models able to accept 7kW or more. These models can still be plugged into the charge point, but will only draw the maximum power accepted by the on-board charger. For example, a Nissan Leaf with standard 3.3kW on-board charger will only draw a maximum of 3.3kW, even if the fast charger is 7kW or 22kW.

³ <https://pod-point.com/landing-pages/how-long-does-it-take-to-charge-an-electric-car>

- 5.2 Electric vehicle owners tend to charge on a top-up basis, plugging in at the gym, supermarket etc. (infrastructure allowing), before plugging in for a full charge, typically at home overnight. Supermarkets etc. are increasingly providing free charging provision to encourage electric vehicle owners to shop in their store whilst charging their car.
- 5.3 Listed below are a number of options in terms of possible locations and charge types, which could be considered by the working group:

Figure 3: Location Analysis

Location	Charge Type	Rationale
Leisure Centre / Town Centre Car Parks	Fast 22kWh	To provide opportunities for top-up and/or full charging in locations which will encourage town centre footfall and/or use of leisure facilities. Potential for use as charging hubs to serve residents without home charging capability
Visitor Attractions	Fast 7kWh	To provide opportunities for electric vehicle owners to top-up or fully charge their vehicle whilst spending time at a visitor attraction such as the Welsh Mining Experience at Rhondda Heritage Park
Park and Ride Car Parks	Slow 3.6kWh	To provide opportunities for top-up and/or full charging in a location where electric vehicles are likely to be parked for a long period of time – typically for the working day. Use of fast or rapid chargers may not be maximised if a car is plugged in for the entire working day as they will be charged within 30minutes (if rapid charge) to four hours (if fast 7kWh charge)
Council Offices	Slow 3.6kWh	To provide opportunities for staff and/or visitors to top up electric vehicles.

- 5.4 As well as the installation of charge points, factors such as enforcement and signage will also need to be considered as part of policy development.
- 5.5 Work is being undertaken to ascertain potential costs to provide charge points in the above locations. Costs will be incurred for connection and associate infrastructure development as required via Western Power, groundworks and for the charge point unit. Where units are installed in publically accessible car parks which are available 24/7, funding may be available from OLEV via the On-street Residential Parking Scheme (as outlined in 4.13).
- 5.6 Different models exist for fees and charges and the management of back office functions. This council will need to determine on what basis fees and charges are applied i.e. subsidised, cost recovery or commercial, or a

combination, and the most appropriate back office management arrangements i.e. in-house or use of charge point provider.

- 5.7 Particularly in the case of rapid chargers, companies are keen to undertake all installation work and provide rapid charge units in strategic locations, paying the local authority rent for land or parking spaces. Should this approach be pursued the council will have little or no control over fees but will receive an income from the charging provider.
- 5.8 Members will be aware of the high volume of houses within the county borough with no off-road parking. This presents a challenge to both electric vehicle owners and the local authority as clearly cables cannot be run from properties across footways and highway to plug into vehicles as they would be deemed as an obstruction to the highway.
- 5.9 One option being pursued by other local authorities is the use of street lighting columns, with some able to be adapted to allow the installation of charging units. However, research undertaken has identified a number of issues – including safety concerns relating to earthing requirements, and the infrastructure in place not being able to cope with the load requirements – meaning that the use of lighting columns cannot currently be considered a viable option for this council.
- 5.10 Should charging infrastructure be installed in either town centre car parks or leisure centre car parks (Appendix 1), the vast majority of residents would be within three miles of a fast charge point.
- 5.11 Potential areas outside of the three mile radius include north Cynon (Hirwaun, Rhigos and Penderyn) and areas of Taff Ely such as Llanharry and Llanharan. It is however considered likely that infrastructure will be installed in the future near to these locations given their proximity to strategic highway routes namely the M4 and the A465 Heads of the Valleys Road.
- 5.12 Members may also be aware that relatively recently oil companies such as BP have entered the electric vehicle charging market by procuring charging companies – Chargemaster in the case of BP. This indicates that there will be opportunities for residents to charge their vehicles in much the same way as they currently fill up with petrol or diesel in the future.
- 5.13 Other local authorities considering the installation of electric vehicle charging points have opted to consult with ULEV owners and potential owners. This may be considered a useful approach by the working group and could be facilitated to support their work.

ELECTRIC VEHICLE TECHNOLOGICAL DEVELOPMENTS

- 5.14 It is anticipated that technology, such as wireless charging and vehicle-to-grid, will continue to be developed and become more mainstream in the future. This highlights the importance of ensuring infrastructure does not become obsolete as technology develops.
- 5.15 With this in mind and given there remains uncertainty around how quickly and in which direction technology will develop, it is recommended that any initial investment in infrastructure meets current and predicted short-term future demand. This approach will ensure longer-term infrastructure requirements can be assessed and take into account developments in technology.

COLLABORATION

- 5.16 The majority of charge point providers use apps and provide access on a pay-as-you-go basis. With other organisations such as Cwm Taf University Health Board and Housing Associations currently also considering their own electric vehicle charging infrastructure, there may be an opportunity to work together to obtain best value for money and to provide a more consistent service to residents i.e. avoiding the need for multiple apps to access a range of charge point providers.

PLANNING AND COUNCIL DEVELOPMENTS

- 5.17 Welsh Government recently consulted on an update to Planning Guidance which stipulated future non-residential developments will require one electric vehicle charging point for every ten spaces.
- 5.18 As at July 2018, it is unknown whether, and if so when, this guidance may be implemented. Therefore it is the view of officers that Supplementary Planning Guidance (SPG) could be considered to clarify the council's position on electric vehicle charging points for developers. SPG on this matter could also potentially include guidance on residential developments.
- 5.19 The council is current delivering a number of investment projects such as developments in Robertstown and Coed Ely, and the redevelopment of the former Taff Vale site. In advance of any formal guidance from Welsh Government, the council is aiming to ensure electric vehicle charging points are included in designs.

RENEWABLE ENERGY SOURCES

- 5.20 An alternative to connecting to the grid to power charging points is the use of renewable energy sources such as solar and wind. Such an approach would provide "green" energy and negate potential WPD connection costs and strain on the grid.

- 5.21 Considerations would need to include how much wind and/or solar energy would need to be produced to sufficiently power proposed charging units; infrastructure costs; payback period and; potential to link in with existing or planned projects.

6. EQUALITY AND DIVERSITY IMPLICATIONS

There are no equality and diversity implications directly associated with this report.

7. CONSULTATION

The Scrutiny Working Group may wish to undertake or recommend consultation with ULEV owners / potential ULEV owners to help inform policy. However, there is no requirement to do so.

8. FINANCIAL IMPLICATIONS

There are no financial implications directly associated with this report, but detailed consideration of the capital and revenue implications will be required in order to inform a preferred strategy.

9. LEGAL IMPLICATIONS AND LEGISLATION CONSIDERED

There are no legal implications directly associated with this report. Legislation considered has been outlined in the report.

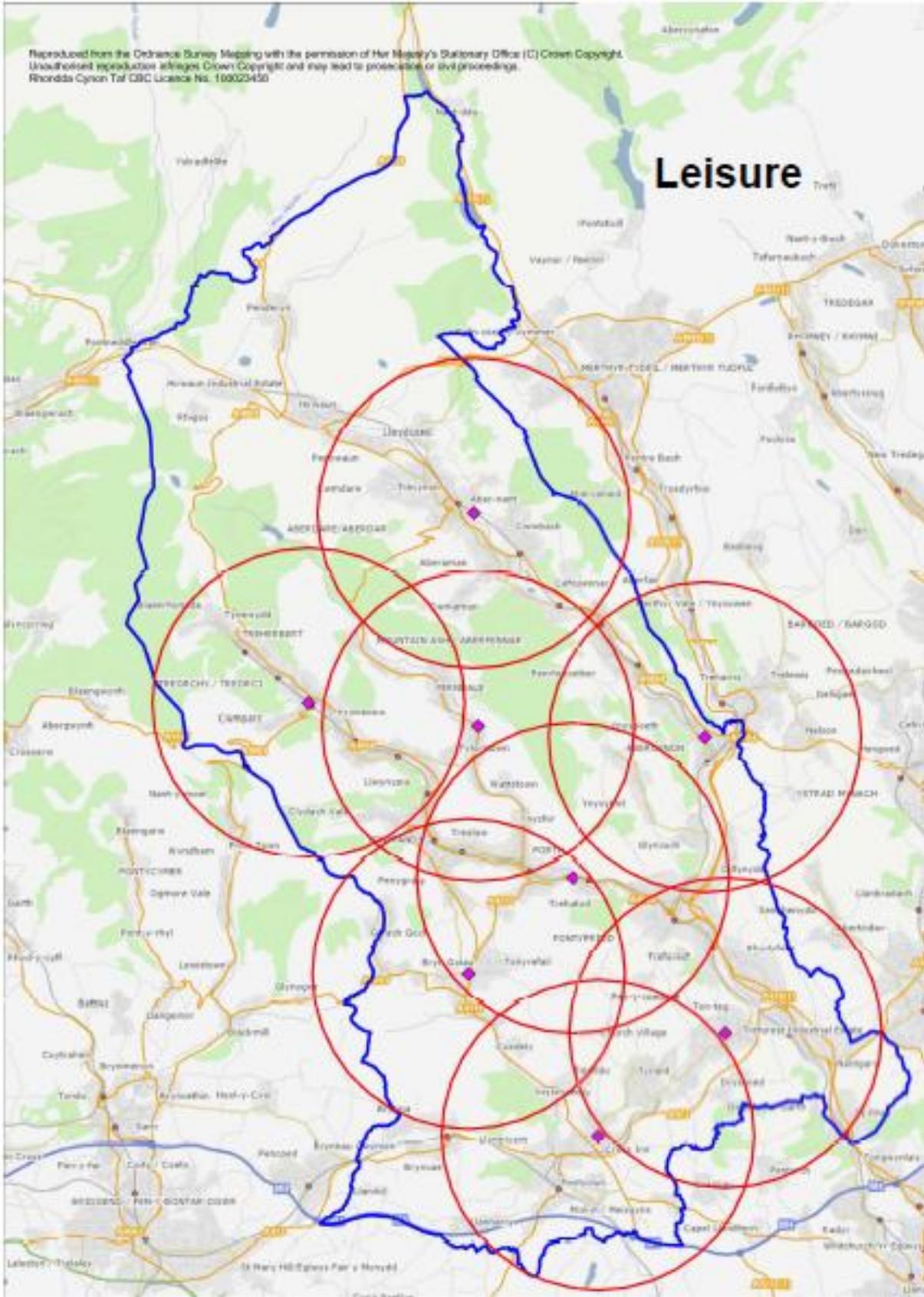
10. CONCLUSION

- 10.1 A Scrutiny Working group is required to consider the detail outlined in this report, undertake further research, and report findings and recommendations to Cabinet.

APPENDIX 1

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Leisure



LOCAL GOVERNMENT ACT 1972

as amended by

LOCAL GOVERNMENT (ACCESS TO INFORMATION) ACT 1985

RHONDDA CYNON TAF COUNTY BOROUGH COUNCIL

LIST OF BACKGROUND PAPERS:

Report to Full Council: 25 JULY 2018

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XX SEPTEMBER 2018

REPORT OF THE DIRECTOR OF STREETCARE AND HIGHWAY SERVICES

SCRUTINY WORK PROGRAMME: 2018/19 MUNICIPAL YEAR

Officer to contact: James Vale, Strategic Projects Manager

