

ENVIRONMENT AND ECONOMY OVERVIEW & SCRUTINY COMMITTEE

Date of Meeting	Tuesday 9 February 2021
Report Subject	Fleet Electrification
Cabinet Member	Deputy Leader and Cabinet Member for the Streetscene and Countryside
Report Author	Chief Officer (Streetscene and Transportation)
Type of Report	Strategic

EXECUTIVE SUMMARY

Welsh Government (WG) made a climate emergency declaration in April 2019 with a stated aspiration of achieving a carbon neutral public sector by 2030. Fleet emissions account for approximately 6.5% of the Council's greenhouse gas emissions which is the 3rd largest contributor, after goods and services (57.7%) and energy (19.5%). Developing technologies offer the Council significant opportunities to reduce this figure by the utilisation of low emission vehicles but in order to adopt this approach, the Council needs to change the way it procures, operates and fuels its frontline operational and public service vehicles.

There has been a significant increase in electric vehicle ownership over the last 5 years with many businesses and public sector organisations now investing heavily in electric vehicles. This is in response to the change in Government policy and rising concerns over poor air quality in some areas as well as the wider drive to reduce carbon emissions, operating costs and develop sustainable travel options.

The Streetscene and Transportation portfolio is constantly seeking to adopt alternative vehicle technologies in order to reduce its vehicle emissions, whilst continuing to deliver its frontline services however, it is not always clear which is the best way forward and new technologies are fast changing and expensive. The service is continually reviewing future energy options, including taking a leading regional role in developing new hydrogen fuelling facilities in the County.

This report sets out the ambition of the service and identifies the various projects that are being progressed to introduce low emission vehicles within the fleet and the development of infrastructure to support that uptake.

RECOMMENDATIONS

1	That Scrutiny notes the content of this report, and supports the ambition of the Council to introduce low emission vehicles across the Council's operational vehicle fleet.
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REPORT DETAILS

1.00	EXPLAINING THE BACKGROUND TO THE REPORT
1.01	<p>WG is committed to achieving a carbon neutral public sector by 2030 and made a climate emergency declaration in April 2019. In recognition of this, the Council is seeking to change the way we procure, operate and fuel our frontline operational and public service vehicles as we move forward. The move to low carbon transport options is also well rooted within Welsh Government Policy and the Environment (Wales) Act stipulates an 80% reduction in carbon emissions by 2050.</p>
1.02	<p>UK Government had set out an ambition to see at least 50% of new cars and 40% new van sales to be Ultra Low Emission Vehicles (ULEV) by 2030, with all cars and vans achieving zero emissions by 2050. This was accelerated in November 2020 with the announcement that the phase-out date for the sale of new petrol and diesel cars and vans was to be brought forward to 2030, with all new cars and vans to be fully 'zero emission at the tailpipe' from 2035.</p>
1.03	<p>The environmental impact of climate change, the (pre-COVID) rising cost of petrol and diesel, government penalties and targets imposed for carbon emissions along with the need to promote green travel makes environmental responsibility and carbon reduction a priority for this and every Council.</p>
1.04	<p>In recent years, there has been a significant increase in the demand for electric vehicles (EVs) in the UK with 3,500 plug-in cars registered in 2013, rising to more than 373,600 in October 2020, of which 164,000 were pure-electric cars. There have also been 10,300 plug-in vans registered in the UK by October 2020. There has also been significant developments in technologies for low emission vehicles across all other sectors but significantly for Refuse Collection Vehicles (RCVs), buses and electrically powered street sweepers.</p>
1.05	<p>Clearly it is essential that the charging infrastructure is developed at the same pace as the roll out of electric vehicles. The local District Network Operator's (DNO), Scottish Power Energy Networks (SPEN), provides mapping to help forecast the growth in electric vehicles and the capacity of the local grid to support such growth and has recently published their Transport Capacity Map which shows a swathe of high and very high areas of relative private car energy demand in many areas of Flintshire. Whilst it is expected that the majority of this demand will be met by the commercial sector, the Council is currently seeking UK government grants to enable the provision of electric charging points across the area to support this predicted growth.</p>
1.06	<p>Developing EV Charging Points across the County.</p> <p>Flintshire County Council have been working closely with WG in order to explore the benefits of adopting a regional and national approach to ensure consistency for users of the EV charging network in Wales. Whilst a regional strategy has yet to be developed, it is essential that local authorities and partners work collaboratively when considering the</p>

	<p>requirements of a regional EV strategy, which should consider the following:</p> <ul style="list-style-type: none"> • Ensuring a consistent arrangement exists at every site to ensure maximum availability to users. • Integrating low emission transport into a range of local authority policy areas: e.g. air quality, planning, parking and taxi licensing; • Setting performance standards for a local authority's own vehicles and their contractors; • Targeting and supporting taxis and car club fleets which have high usage and visibility; • Demonstration and promotional activities to increase awareness; • Providing incentives, such as free or reduced cost parking; • The adoption of a coherent regional operating model for charge-points to achieve a publically accessible network in all areas of the County. 																														
1.07	<p>Not only does a regional approach recognise the relationship between cross-border travel movements and sustainability of local economies, it would also have the advantage of injecting a much needed element of consistency in the availability of the charging infrastructure. Should a standardisation of the region's EV charging network be achieved, there is no doubt that this will be the catalyst required to increase local confidence, thus providing a further boost to EV ownership across the region.</p>																														
1.08	<p>A number of sites have been identified across the County for the installation of charging points which can be used by the general public, alongside pay and display parking and funding opportunities have been obtained to facilitate this.</p> <p>Car Park sites for which funding has been secured for the implementation of charging points are listed below:</p> <table border="1" data-bbox="320 1335 1238 1753"> <thead> <tr> <th>Car Park</th> <th>Town</th> <th>Charger</th> </tr> </thead> <tbody> <tr> <td>Plas-Yn-Dre</td> <td>Holywell</td> <td>2 x Dual 7kW Fast Chargers</td> </tr> <tr> <td>Castle Street</td> <td>Flint</td> <td>2 x Dual 7kW Fast Chargers</td> </tr> <tr> <td>Richard Heights</td> <td>Flint</td> <td>1 x Dual 7kW Fast Chargers</td> </tr> <tr> <td>Alt Goch - Large</td> <td>Flint</td> <td>2 x Dual 7kW Fast Chargers</td> </tr> <tr> <td>Pierce Street</td> <td>Queensferry</td> <td>2 x Dual 7kW Fast Chargers</td> </tr> <tr> <td>Precinct Way</td> <td>Buckley</td> <td>2 x Dual 7kW Fast Chargers</td> </tr> <tr> <td>Griffiths Square</td> <td>Mold</td> <td>2 x Dual 7kW Fast Chargers</td> </tr> <tr> <td>New Street</td> <td>Mold</td> <td>2 x Dual 7kW Fast Chargers</td> </tr> <tr> <td>Bridge Street</td> <td>Shotton</td> <td>2 x Dual 7kW Fast Chargers</td> </tr> </tbody> </table> <p>Invitations to Tender via the Crown Commercial Framework have been issued, with an expectation that the charge-points being implemented during spring 2021.</p>	Car Park	Town	Charger	Plas-Yn-Dre	Holywell	2 x Dual 7kW Fast Chargers	Castle Street	Flint	2 x Dual 7kW Fast Chargers	Richard Heights	Flint	1 x Dual 7kW Fast Chargers	Alt Goch - Large	Flint	2 x Dual 7kW Fast Chargers	Pierce Street	Queensferry	2 x Dual 7kW Fast Chargers	Precinct Way	Buckley	2 x Dual 7kW Fast Chargers	Griffiths Square	Mold	2 x Dual 7kW Fast Chargers	New Street	Mold	2 x Dual 7kW Fast Chargers	Bridge Street	Shotton	2 x Dual 7kW Fast Chargers
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1.09	Charging Capacities at County Workplaces																														

	<p>The Council has also engaged with our Fleet contractor to review the usage and journeys of our own vehicle fleet to identify optimum locations for 'charging hubs' at sites such as Alltami Depot and Ty Dewi Sant to support service delivery. The contractor is reviewing the tracking data to identify vehicles and journeys that are best suited to electric vehicles and the charging infrastructure required to support the vehicle movements in daily use by individual services (i.e. power supply, fast charge units etc.)</p>
1.10	<p>To facilitate this potential move the electric vehicles, work has been commissioned from the local DNO to assess the capacity within the local supply mains at each depot/site for the additional demand created by vehicle charging points. This would identify any limitations on charging units or whether additional development of the site and its supply would be necessary.</p>
1.11	<p>Given both the National targets for decarbonisation and the Council's vision to become a Carbon neutral organisation by 2030, we are conscious that any procurement of new vehicles must follow this required shift to more sustainable modes of travel.</p>
1.12	<p>We are currently starting discussions with our incumbent Fleet supplier regarding the expiry of the existing contract in 2023 and the option to extend the contract to 2030. As part of these discussions, we are exploring the aspirations of both FCC and the supplier to ensure that every aspect of new technologies are considered and built into any extension and that we are prepared for the step-change in procurement, maintenance, tooling, diagnostics, training and vehicle life that a move to a predominantly EV fleet would bring.</p>
1.13	<p>Developing Standard Recycling Facility</p> <p>The Standard Yard, Buckley site contains a waste transfer station, a material recovery facility (MRF) and a 647kWp solar PV array (Solar Farm), generating approximately 485,000kWh of electricity per annum and a gas turbine engine generating electricity from the landfill gas on the site.</p> <p>The solar array was commissioned in October 2016 and provides a private wire connection to the MRF, with the remaining energy sold to the national grid via a Power Purchase Agreement.</p>
1.14	<p>Following a successful bid to WG, funding has been secured to introduce a limited number of EV charging points at the site however, the future expansion of Standard Yard's EV capability offers an exciting opportunity for the Council to develop a 'Sustainable Transport Hub' at the site which would support the move to an all-electric fleet, powered by a 'home grown' source of renewable energy. Such an opportunity would greatly compliment the Council's vision for a sustainable transport future.</p>
1.15	<p>Operating Electric Buses on the County Bus Network</p> <p>The service has been successful in obtaining funding to purchase two Electric Busses which will enable the Council to lead by example with a view to encourage both operators and residents to become more</p>

	environmentally responsible in both the way we choose to travel and also the lifestyle choices we make in the community.
1.16	<p>Having investigated current passenger numbers, the needs of the local communities and projected passenger growth, the Optare Solo (EV) has been identified as the most suitable vehicle for operations on the Council's Local Travel Arrangement. It offers the following advantages:</p> <ul style="list-style-type: none"> • The Optare Solo is powered fully by electric; • The eco-friendly buses look identical to a conventional bus but have an electric power pack instead of a conventional gearbox and engine. The buses are operated using the Magtec P144 zero emission vehicle drive system; • The Optare is powered via two x26 Valance Lithium Iron Magnesium Phosphate batteries. These can be charged fully in six hours using the 15.2kW on-board charger; • Using a fast charger the buses can reach full charge in just two hours. The Optare Solo can run between 70-95 miles per full charge with additional demand and up to 125 miles in normal conditions; • Regenerated energy is controlled through the brake system. The energy is stored and used to maximise the distance the bus can travel before recharging; • The controls of the Optare Solo are almost identical to conventional diesel buses. The vehicle's top speed is 56mph (90km/h).
1.17	<p>Journey times and journey reliability should not be affected when compared to the diesel powered vehicles. Provision of an electricity supply, topography and climate conditions (e.g. requirement for heating during the winter will mean increased electricity usage) have been considered but with a range of up to 125 miles on a full charge, this should be sufficient to allow for all daily operations. Electric buses also offer a reduction in noise compared to alternative solutions. This reduction can be particularly prevalent when used in urban areas or areas in which there are higher proportions of large vehicles or heavy traffic. Studies have shown that in quieter, residential areas electric buses can offer a reduction in noise of up to five decibels.</p>
1.18	<p>The introduction of the Council's first electric bus fleet will allow for familiarisation of the technology prior to an increased roll-out in the future, as is inevitably going to occur given the National Grid's Future Energy Scenarios and Central Government's plans to cease the sale of vehicles powered by combustion engines. This will provide increased in-house education of the skills required to service the vehicles.</p>
1.19	<p>Although the capital cost of both the vehicle and the associated charging infrastructure is considerably higher than that of a standard euro 6 diesel vehicle, the ongoing savings can be significant, providing some payback on the additional purchase cost of the vehicle, particularly in this instance as the electricity to be used to charge the vehicle will be from locally sourced renewable generation. The main benefit of course would be the zero carbon emissions created whilst operating the vehicle.</p>

	<p>The proposed charging point for the vehicles will be located at Standard Yard in Buckley which will be able to provide electricity to the charging point overnight from the landfill gas engine. The running costs will be significantly less than having to purchase fuel and even at the current rate grid electricity provides a cheaper alternative than diesel. Revenue operating costs are also generally lower than for conventional buses, with less moving parts and a lower maintenance requirement.</p>
1.20	<p>Waste Vehicles</p> <p>The Council's waste vehicles are the largest vehicles operated by the Council with the highest emissions. Given the distances covered each day by the vehicles and the stop/start nature of the work, the suitability of electrically powered vehicles is still in doubt. Options to utilise Hydrogen fuel cells to charge batteries during the day, which will allow the routes to be completed on one charge, are being considered.</p> <p>The Council has recently submitted an expression of interest for funding to support the conversion of an existing refuse diesel vehicle to a fully electric motor arrangement and we have also secured 50% contribution to the purchase of a fully electric recycling vehicle to support collections in Flintshire and the vehicles will provide information on the future and suitability of these vehicle types in the work that we do. These vehicles will enter service in the summer 2021.</p>
1.21	<p>Hydrogen Fuel Aspirations</p> <p>Whilst it is clear that electric vehicles will provide the main fuel option for the vehicle fleet in future years, doubts remain regarding the ability of this solution to fuel larger LGV vehicles, such as waste vehicles.</p> <p>With WG support the Council has commissioned consultants to develop a Strategic Outline Business Case to develop a potential Hydrogen Hub on Deeside Industrial Park (DIP). The commission will consider hydrogen production and storage at the facility with capacity to provide fuel to both the Council, businesses on DIP, other North Wales Councils and private vehicles and LGV's using the North Wales coast road.</p> <p>The commission will also consider sustainable production options to create a hydrogen plant which produces 'green' hydrogen through the use of nearby renewable energy sources.</p>
1.22	<p>Opportunities to work with our existing forecourt fuel provider to look at innovative new costing models.</p> <p>We currently make use of Allstar fuel card to facilitate forecourt purchase of diesel and petrol. Discussion with the supplier have identified their recognition of the changing market place, and they are now offering services that include management of charging costs including innovations such as at-home charging reimbursement, and site-survey and installation services for at-work charging points.</p>

2.00	RESOURCE IMPLICATIONS
2.01	There are a number of streams of investigation and applications of funding being explored in relation to the information above, and each will consider the impact on resource in its own right.
2.02	Capital investment in vehicles and infrastructure will be required to support WG funding bids, and to enable the uptake of new technologies.

3.00	IMPACT ASSESSMENT AND RISK MANAGEMENT	
3.01	Ways of Working (Sustainable Development) Principles Impact	
	Long-term	Positive – The move to low carbon transport options aligns itself with the long term aspirations of The Environment (Wales) Act, The Well-Being of Future Generations (Wales) Act & The Air Quality Standards (Wales) Regulations. The concept is also strongly endorsed within the Council’s Council Plan under the priority of a ‘Green Council’ for which is reinforced by the Council’s approach to integrated and sustainable transport.
	Prevention	Positive – The introduction of EV charging points will reinforce the Council’s commitment to climate change whilst also facilitating a vision for a zero carbon future as defined within Welsh Government legislation. Implementation of the required infrastructure will also boost the Council’s status as a ‘key player’ within the region thus reducing the risk of public abandonment in terms of tourism, residential and business growth.
	Integration	Positive – The adoption of electric vehicles is key to the success of a sustainable, integrated transport network.
	Collaboration	Positive – Implementation of charging infrastructure will provide an opportunity for FCC to work with local authorities across the region in order to standardise the provision of charging infrastructure, operating models and maintenance. The nature of this approach recognises the importance of strategic cross-border movements to the local economy in terms of commuter movements, business and tourism.

Involvement	Positive – completion of studies thus far demonstrates the Council’s engagement with key stakeholders both cross border and within Welsh Government.
Well-being Goals Impact	
Prosperous Wales	Positive - Implementation of the required infrastructure will boost the Council's status as a 'key player' within the region thus reducing the risk of public abandonment in terms of tourism, residential and business growth.
Resilient Wales	Positive - The adoption of electric vehicles is key to the success of a sustainable, integrated transport network.
Healthier Wales	Positive - The adoption of electric vehicles for use on the highway network has obvious benefits to air quality through the reduction of Co2 emissions. This will also greatly assist the Council to achieve decarbonisation targets set within Central and Welsh Government legislation.
More Equal Wales	Positive – Improved air quality will benefit the Council’s most deprived communities, often associated with densely populated areas. Implementation of the infrastructure will also benefit tourism, residential and business growth.
Cohesive Wales	Positive – The visible presence of EV charging points within the County will have a positive effect on public awareness whilst displaying the Council’s outward commitment to climate change.
Vibrant Wales	Positive – The implementation of much needed EV charging infrastructure will improve EV uptake thus improving the quality and sustainability of the natural environment whilst providing benefits to the local and regional economy in terms of tourism, residential and business growth.
Globally Responsible Wales	Positive - the introduction of EV charging points will reinforce the Council’s commitment to climate change whilst also striving to achieve a zero carbon future as defined within Central and Welsh Government legislation.

4.00	CONSULTATIONS REQUIRED/CARRIED OUT
4.01	With Cabinet Member
4.02	With incumbent Fleet supplier and other specialist vehicle suppliers

5.00	APPENDICES
5.01	None
6.00	LIST OF ACCESSIBLE BACKGROUND DOCUMENTS
6.01	None
7.00	CONTACT OFFICER DETAILS
7.01	Contact Officer: Stephen Jones Telephone: 01352 704700 E-mail: stephen.o.jones@flintshire.gov.uk
8.00	GLOSSARY OF TERMS These are provided corporately on the Infonet (link) and maintained by the Executive Office
8.01	<p>(1) EV– Electric Vehicle:</p> <p>(2) Hybrid Vehicle: A vehicle which utilising both electricity and conventional energy sources e.g. petrol or diesel.</p> <p>(3) Council’s Approved Strategy: An agreed approach to act as an ‘enabler’ rather than a direct provider of electricity charging points and facilitates the upgrade of the existing electricity supply network at economically viable locations on the highway network and other key locations.</p> <p>(4) The Environment (Wales) Act: Sets targets to achieve 80% reduction in carbon emissions by 2050.</p> <p>(5) The Well-Being of Future Generations (Wales) Act: A legal framework for improving social, economic, environmental and cultural well-being of current and future generations in Wales.</p> <p>(6) The Air Quality Standards (Wales) Regulations: Requires the implementation of measures to improve air quality at any location at which national standards are not met.</p> <p>(7) Leader Study: LEADER is a fund for rural areas in Wales and aims to explore innovative new approaches and experimental technologies to tackle poverty, create jobs and drive sustainable economic development. It is part of the Welsh Government Rural Communities – Rural Development Programme (RDP) 2014 – 2020, which is financed by the Welsh Government and European Agricultural Fund for Rural Development (EAFRD).</p>

(8) **Office for Low Emission Vehicles (OLEV) Fund:** Funding stream allows local authorities to receive funding towards the costs of installing on-street residential charge points for plug-in electric vehicles. This grant scheme will cover up to 75% of capital costs of procuring and installing the charge-point with the remaining 25% being funded via the individual Council.

(9) – **Brown Hydrogen:** This is hydrogen that is produced as a by-product of another industry.

(10) – **Green Hydrogen:** This is produced using electrolysis powered by renewable energy, like offshore wind, to produce a clean and sustainable fuel.