

Report of Programme Officer

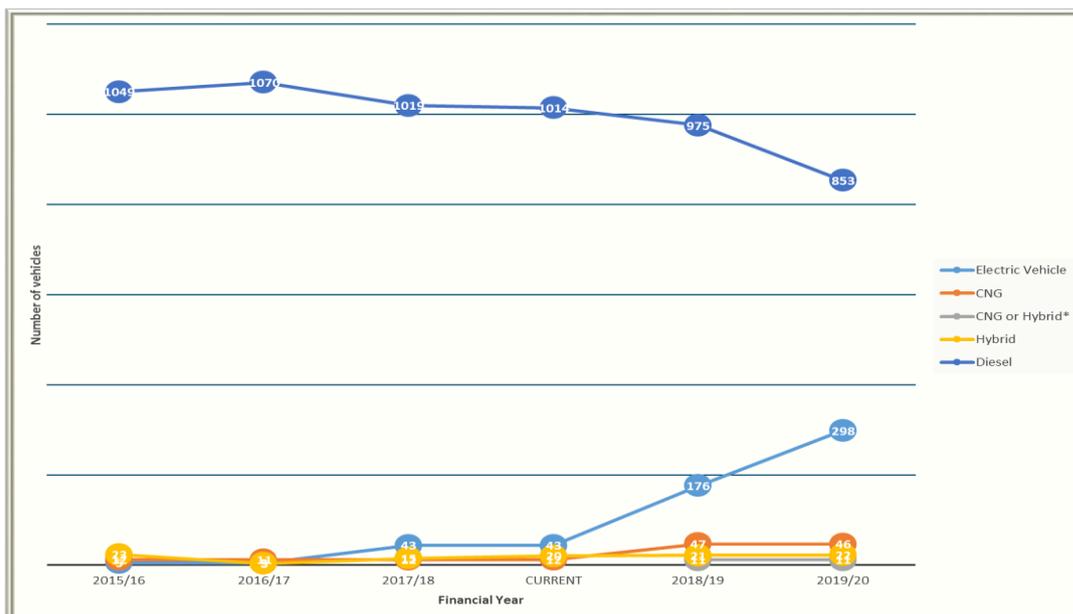
Report to MP Rachel Reeves

Date: 11th April 2018

Subject: Leeds Electric Vehicle Usage & Charging Infrastructure

1 Leeds City Council Fleet

- 1.1 The fleet currently consists of 1,133 vehicles across all directorates, with 7% of these being Ultra Low Emission Vehicles (ULEV) made up a mixture of pure electric, hybrid and CNG.
- 1.2 The council has an ambition for all of its fleet to comprise of ULEVs (primarily full electric or CNG) by 2025. It already has 44 electric vans with a further 51 on order, this will make it the local authority with the largest electric fleet in the United Kingdom. By 2020 this figure will have increased to almost 300 electric vehicles.
- 1.3 Significant progress has already been made on infrastructure for the council's fleet with 86 electric vehicle charge points (EVCP) installed across the council and a small capacity of storage for compressed natural gas (CNG) to fuel 5 CNG refuse collection vehicles currently in use. A project is underway to construct a CNG fuel station for the city by late 2019 – allowing LCC to operate 93 CNG vehicles by 2023/24, the ambition is to also fuel LNG, hydrogen & EVs from this alternative fuel station.
- 1.4 As the council is currently formulating a revised proposal to implement a charging Clean Air Zone (CAZ), it is imperative that the council continues to reduce the emissions of its own fleet as well as ensuring compliance with the required standards under the CAZ.
- 1.5 The following graph indicates how the profile of the council fleet is intended to change, over time, showing a decrease in reliance on diesel and an increase in primarily electric but also CNG.



1.6

- 1.7 There is an ambition for the fleet to be comprised fully of ULEVs by 2025. There are presently barriers to the Council to achieving this:
- Maturity of the market – there are not sufficient numbers of vehicles available on the market and certain themes of vehicles are not available,
 - Price – due to the recent development of ULEVs, there is an increased capital cost for these vehicles. For small cars & vans that travel in excess of 10,000 miles/annum, reduced fuelling and maintenance costs ensure whole lifecycle costs are lower. Larger vehicles have not yet reached a price point that is financially viable for the council to consider even at whole lifecycle cost compared to CAZ-compliant diesel alternatives.
 - Range – the electric vehicles available on the market in some vehicle types have insufficient range and payload to undertake their daily duties within a working day and would require refuelling part way through the day, impacting on service delivery.

Iveco Daily Electric - price comparison (six year lifetime - 5,000 miles per annum)

	Mileage	Price	Fuel	CAZ levy	Grant	Vehicle duty	Overall Cost	Cost differential	
								Lifetime	Per Annum
Iveco Daily Electric 3.5 tonne	30,000	£80,000.00	£1,230.00	£0.00	£8,000.00	£0.00	£73,230.00		
Iveco Daily Electric 5.0 tonne	30,000	£100,000.00	£1,230.00	£0.00	£20,000.00	£0.00	£81,230.00		
Iveco Daily 3.5 tonne Euro VI	30,000	£35,000.00	£1,980.00	£0.00	£0.00	£840.00	£42,020.00	£31,210.00	£5,201.67
Iveco Daily 5.0 tonne Euro VI	30,000	£35,000.00	£1,980.00	£0.00	£0.00	£840.00	£42,020.00	£39,210.00	£6,535.00

- 1.8 The above table highlights the whole life cost differential between a diesel and electric vehicle 3.5 tonne Iveco cab van. The overall cost for replacing this type of vehicle with electric as opposed to diesel Euro VI would currently add £7M to the budget requirement over the next two years. There are other vehicle types where an electric version is available, which currently would incur too significant an additional cost to be viable.

2 Public EV uptake & Accessible Electric Vehicle Charge Points

- 2.1 Leeds has seen a small increase in the number of new Electric Vehicle (EV) registrations in Leeds and West Yorkshire, however our ambition is to increase the proportion of EVs on our road in line with the national target of 8% vehicles being ultra-low emission – including EV - by 2020.
- 2.2 LCC currently offers free parking permits for ULEV owners across LCC parking sites (on-street and car parks). 430 permits have been issued since the scheme began in 2015. LCC delivered this scheme from 2015 – March 2018 despite lost revenue from parking charges, and has been successful in bidding for funding from Clean Air Zone Early Measures for £50,000 for future support to administrate the scheme for an additional 2 years to March 2020.
- 2.3 Historically, Leeds has been previously unsuccessful in bids for charge point infrastructure from Go Ultra Low Cities (GUL) and ‘plugged in cities programme’. The lack of access to funding to date accounts for the low number of public charge points with only 30 locations across Leeds. LCC itself has 86 charge points (part-funded by 16 OLEV workplace grants) across its estate to support our increasing number of electric fleet vehicles, however only a very small number of which are publically accessible.
- 2.4 Wider challenges also exist, as summarised below:
- Grid upgrade costs – particularly for rapid chargers, this can constitute a significant proportion of the overall value
 - Length of agreement – EV chargepoint require a long supply period to ensure the chargepoint is profitable given the relatively low demand for chargepoints currently.

- Land ownership – forming agreements to situate EV chargepoints on private land can introduce significant delays to projects

2.5 Recently, LCC has had success in attracting funding for EVCPs as detailed below:

- LCC assisted West Yorkshire Combined Authority's (WYCA) £1.9m bid for OLEV funding to install charge points for the Taxi & Private Hire trade to support EV uptake. This will deliver 40 charge points for Leeds, with at least 22 of these being rapid. These are expected to be implemented within the next 12-18 months.
- LCC was awarded £340,000 in March 2018 from CAZ Early Measures to deliver 10 fast (7kW) chargers and 3 rapid (43-50kW) chargers across 13 charge point sites. A further 6 fast chargers will be delivered in residential areas.

2.6 Officers are investigating the possibility of procuring a private partner to invest in, deliver, operate and maintain a Leeds Electric Vehicle Public Charge Point Network. This network would support the uptake of EVs across Leeds through installation of primarily fast and potentially rapid chargers at a number of local authority host sites offered to the appointed operator.

2.7 Funding residential EVCPs is problematic for local authorities. They have come under criticism for not making full use of OLEV Residential EVCP Grant funding, however charge points delivered via this mechanism require local authorities to provide 25% match funding and have a host of practical barriers including providing dedicated parking spaces for EVs in congested residential areas, access to appropriate electric supply, trailing wires on footpaths, and so on.

2.8 LCC has overcome this by securing CAZ Early Measures funding to provide the match funding element to the OLEV Residential grant to deliver 6 fast charges for on street residential charge points for those who have no home charging solution (e.g., living in terraces or flats without dedicated parking spaces).

2.9 LCC has also initiated a pilot scheme utilising the national grant to facilitate LCC's ULEV expansion through installing charge points at council officers' homes for those that have exclusive use of a small van to cover 24/7 operations as part of their work responsibilities. This scheme has been well received by staff, unions and services and will be extended further across the authority as more, suitable EVs become available to purchase.

2.10 Leeds is facilitating a trial of road side charging options through the use of street light based chargers. If the trial is successful this would offer us wider options for both fleet and public charging infrastructure development as it would enable charging in a wider range of locations and communities where off-street parking sites may not be available or feasible.

2.11 LCC is working with partners such as Leeds Teaching Hospital Trust & WYCA to demonstrate the viability of transitioning to EVs, and where possible loaning vehicles to partners for short-term trials to validate suitability of EVs in practice.

3 Electric Buses

3.1 Costs and uncertainties surrounding the development of electric buses & associated infrastructure to support them is delaying the uptake of these in Leeds and nationwide.

3.2 Presently, electric buses have a significant cost differential, and there are limited double deckers available with sufficient range capable of being deployed without affecting service delivery. In October 2017 a fully electric double-decker bus was trialled serving Elland Road & Temple Green park & ride sites, with a range of 150 miles following an overnight

charge. Single decker electric buses are being taken up more widely nationally due to a larger range and less barriers to operation.

- 3.3 A degree of nervousness exists amongst bus companies regarding the longevity of battery life and the cost to replace, and how this impacts on lifecycle costs compared to existing diesel buses where lifecycle costs are comprehensively understood. Electric buses are part of an emerging market, and operators are reluctant to heavily invest as these technologies develop.
- 3.4 Aside from the buses themselves, the associated infrastructure required to support an EV bus network is comprehensive with exaggerated challenges compared to EV infrastructure to support cars. EV buses have very large batteries and as such require powerful EVCPs to charge them quickly, often requiring grid reinforcement to deliver an appropriate electricity supply. This introduces challenges of locating such charge points, whether at bus stops for charge top ups or bus stations for longer charging resulting in investment required to be shared across companies which has further challenges.