CHESHIRE EAST COUNCIL

Cabinet Member for Communities

Click here to enter text.

Date of Meeting: 13 July 2015

Report of: Steph Corden (Head of Communities)

Subject/Title: Electric Pool Cars – Grant Opportunity

Portfolio Holder: Cllr Les Gilbert

1. Report Summary

1.1. The Council received grant funding in 2014 for the provision of electric vehicle charging infrastructure both on our own estate and in the Borough. The project was completed on time and within budget, and there are now five Fast charging units situated at Macclesfield Town Hall, Westfields, Delamere House and the Library Car Park, Crewe[1]

1.2. The project fits the Council's three year plan through Outcome 4 – Cheshire East is a Green and Sustainable Place, and Outcome 5 – People Live Well and for Longer. As Electric vehicles are zero emission (at the tailpipe) they have the potential to reduce carbon emissions, and improve local air quality in our towns which is in accordance with the Council's Air Quality Strategy and Air Quality Action Plan.

1.3. The project fits our Residents First values demonstrating that the Council is leading by example, encouraging business travel using ultra-low emission vehicle technology..

2. Recommendation

2.1. Cabinet is requested to approve the application for grant funding of four electric pool vehicles either in addition to, or as a replacement for the existing pool cars.

2.2. Cabinet is requested to endorse the development of a policy outlining the appropriate use of electric and conventional pool vehicles, and promoting the culture of using pool vehicles where available and suitable over and above the private car.

3. Other Options Considered

[1] The units at the library car park are also available for resident's use.

3.1. The three main options considered are as follows:

3.1.1. Do nothing.

3.1.2. Replace pool fleet with new EV

3.1.3. Supplement existing pool fleet with EV

4. Reasons for Recommendation

4.1. The Council currently operates four pool vehicles for general staff usage. The vehicles are generally under used. There are benefits to the Council when using pool vehicles as the mileage rate paid is (on average) 30% cheaper than paying officers current mileage rates, and the maintenance / procurement and servicing costs are centralised.

4.2. The pool fleet is relatively well used, however there is capacity for greater usage by staff for routine journeys around the Borough / between main office sites and satellite offices. The average age of the vehicles (9 years) means that maintenance and reliability are an issue and staff are reluctant to book pool vehicles. There is also the risk that relatively minor damage results in the total loss of the vehicle (which happened to a vehicle based in Crewe).

4.3. In order to increase pool car usage (and the commensurate savings to the Council) there would need to be either, higher quality more economic pool vehicles, or the provision of additional vehicles.

4.4. There is a **very** short window of opportunity to take advantage of a 75% grant from the Office for Low Emission Vehicles (OLEV) towards two years lease costs of EV's for the Council's use. If the council chose to do nothing, and perhaps seek to replace pool cars as they retire with EV, there may not be an opportunity to utilise any grant funding.

4.5. As such, the "do nothing" scenario has not been explored further.

4.6. If the Council wishes to take advantage of the grant funding, there is a need to provide either additional pool vehicles, or replace the current fleet with EV's.

4.7. The provision of electric pool vehicles has a number of benefits in addition to the running cost savings outlined in more detail below. The additional benefits are:

- Higher quality, more reliable pool vehicles which would encourage greater pool car use with commensurate business mileage savings to services (30% less than mileage reimbursement).
- The availability (untiol 31 July 2015) of the OLEV 75% grant for the initial two year lease.

- Encourage the wider uptake of EV's for staff (who are able to try the technology) and may then start to use EV for their own business use (with commensurate mileage reimbursement savings).
- Lower carbon emissions
- Electricity used to charge EV's can be offset against the Councils' Carbon bill.
- Reputation of the Council in demonstrably lowering emissions and promoting the use of Ultra Low Emission Vehicle Technology (all vehicles will be appropriately badged to reflect this).

4.8. In order to better understand the current fleet and investigate any potential benefits of electric vehicles, the Energy Saving Trust (EST) undertook an analysis based on 2014 data from our fleet, including journeys, average mileage and running costs. This information was used to compare the replacement costs of the pool fleet with electric vehicles.

4.9. The EST report showed that, in 2014 the current four pool vehicles covered (circa) 32,000 miles. The average daily journey was around 30 miles (well within the ~100 mile range of an electric vehicle).

4.10. Further analysis of pool car journeys over a longer period (2013 and 2014) found that 98% of the journeys undertaken were well within the range of an electric vehicle, and of the remaining 2% the majority would be within range with a suitable charging facility at the destination or on route.

4.11. By far the highest proportion of journeys were between Cheshire East offices, and a significant number of these resulted in the vehicle being left at that office for most of the day. As such there is capacity to increase the usage of pool vehicles by operating a more dynamic booking system. For example if a user took a vehicle from Macclesfield to Westfield's, remaining there all day the vehicle could be used by another driver from Westfields during that day.

4.12. The Council currently pays around £0.12p/kWh for electricity and at these prices the cost of charging an EV on our units would range from £0.50 to £1.50 per charge (depending on how depleted the batteries are). Based on 8,000 miles per year the "per mile" running cost of an EV (Fuel only) is 3 pence a mile, compared to 8 pence a mile for conventionally fuelled vehicles.Clearly the more miles undertaken in EV pool cars, the more this benefit is realised.

4.13. Table 1 below shows the savings available to the Council for whole vehicle running costs based on the EST report and taking into account the two year 75% subsidy available. This scenario assumes replacing the existing five vehicles with either electric vehicles or new conventional vehicles (of similar specification) and shows there is a small cost saving to the Council in operating EV's.

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	Year 5	TOTAL (5 years on fleet)
New Conventional	£3143	£3143	£3143	£3143	£3143	**£15715**
Nissan Leaf EV	£936**	£936**	£2853	£2853	£2853	**£10431**
SAVING PER VEHICLE	£2207	£2207	£290	£290	£290	**£5284**

TABLE 1: Assumptions: Replacing each pool vehicles with EV versus conventional. 8,000 miles per year, 5 years on fleet, including maintenance. Fuel prices based on CEBC actual 2014.

**75% OLEV Subsidy on EV in years 1 and 2 only.

4.14. At present however, there is no forward plan to replace the existing pool fleet. As such the costs of running our current pool cars (including maintenance, fuel and servicing) were obtained from ANSA.

4.15. It can be demonstrated (see table 2 below) there would only be a small increase in running costs to the Council (£131 over 5 years) if the current pool cars were replaced with EV (see Table 2 below) as per the recommendations in the EST report.

4.16. Also explored is the option to run the EV in addition to the current pool fleet, and finaly an option to run the existing fleet for a further 2 years alongside EV and then retire the conventional fleet.

COSTS PER VEHICLE	YEAR 1	YEAR 2	YEAR 3	YEAR 4	Year 5	TOTAL (5 years on fleet)
Current Pool Car costs*	£2060	£2060	£2060***	£2060***	£2060***	**£10300**
New Nissan Leaf EV	£936**	£936**	£2853	£2853	£2853	**£10431**
Replacing pool fleet with new EV	SAVING £1124	SAVING £1124	COST £793	COST £793	COST £793	**COST £131**
Add EV to existing Pool Fleet	COST £2996	COST £2996	COST £4913	COST £4913	COST £4913	**COST £20731**
EV and Existing for first two years	COST £2996	COST £2996	COST £2853	COST £2853	COST £2853	**COST £14,515**

Table 2: Options around procurement of EV pool cars & existing pool vehicles

*based on 2014 Average

**75% OLEV Subsidy on EV in years 1 and 2 only

***It has been assumed that maintenance and running costs for the existing fleet remain static, however as the vehicles age this is unlikely to be realistic so in effect the vehicles in the existing fleet would cost more.

4.17. The above costs demonstrate that for a very small running cost increase over the 5 year period (£131) it is possible to replace the existing pool fleet with EV.

4.18. There are however a number of key considerations with this approach;

- Not all journeys are suitable for EV's due to range and availability of charging infrastructure.[2]
- There would remain the same overall number of pool vehicles, thereby there would be little capacity to increase the usage of pool vehicles.

[2] As the availability of charging infrastructure increases there would be even more opportunity to charge and less need to rely on conventionally fuelled vehicles.

4.19. As such it is considered prudent to retain one conventionally fuelled pool vehicle in the fleet to cater for these journeys by exception. The by exception part is important as research shows that drivers initial reluctance to drive electric vehicles is overcome in a matter of minutes when they start driving and realise there is little difference between the EV and a conventional vehicle.

4.20. In order to offset any increases in costs (as outlined in table 2 above) it would be important to develop a policy which made sure that the pool vehicle use was optimised. Ideally EV's need to be covering between 50 and 70 miles a day, as this maximises the fuel savings available, with conventional vehicles being used for shorter journeys (or those outside the reasonable range of an EV).

4.21. It is entirely feasible that, with increased use of the pool vehicles and the commensurate fuel savings the small increase in running costs over the five years would be turned into a significant saving.

4.22. Lessons from other Councils indicate that, in addition to suitable policy changes, there also needs to be staff training and awareness of the efficiency of using EV pool cars. This is something which could easily be achieved alongside the present Pool Car Administration System.

4.23. It is therefore considered that the Council should take advantage of the grant available, and it is considered that the most economic way to do this is to replace the existing fleet with all electric vehicles, together with keeping a single conventional vehicle for exceptional journeys.

5. Background/Chronology

5.1. The Council received grant funding in 2014 for two projects aimed at the installation of electric vehicle (EV) charging infrastructure. The projects have subsequently been approved through the TEG and EMB gateways, and have now been finalised.

5.2. The Council now has five fast electric vehicle charging stations located at Macclesfield Town Hall, Westfields, Delamere House, and two in the Library Car Park, Crewe.[3]

5.3. At the MGB meeting of 1 July 2015 it was agreed that staff who use electric vehicles for business use could make use of the charging posts for an initial period of 12 months (subject to reasonable usage). It was also agreed to explore the potential for a lower (fair) mileage reimbursement rate for staff using EV taking into account workplace charging. This would be a cost saving to the Council.

[3] These units are provided to discharge a planning condition for the Crewe Lifestyle Centre. As such they are also available to the public.

5.4. In addition to the above, there is a further opportunity to procure electric pool vehicles for general staff use.

5.5. The Council commissioned the Energy Saving Trust (EST) to undertake an analysis of the pool car usage within the Council. The report is shown at appendix 1 and discussed above in section 4.

5.6. Cheshire East has been offered a two year 75% grant subsidy against the costs of procuring four electric vehicles for use in our pool fleet. Through the EST analysis they recommend that two vehicles are based at Delamere House, with the other two at Westfields and Macclesfield Town Hall.

5.7. The grant funding must be accepted by 31st July 2015.

6. Wards Affected and Local Ward Members

6.1. All wards.

7. Implications of Recommendation

7.1. Policy Implications

7.1.1. Development of a formal Pool car usage policy pushing where appropriate the use of EV pool cars

7.2. Legal Implications

7.2.1. None

7.3. Financial Implications

7.3.1. As outlined in the report.

7.4. Equality Implications

7.4.1. None

7.5. Rural Community Implications

7.5.1. None.

7.6. **Human Resources Implications**

7.6.1. Development of a formal Pool car usage policy pushing where appropriate the use of EV pool cars.

7.7. **Public Health Implications**

7.7.1. Improvements in Carbon emissions and local air quality have positive public health implications.

7.8. **Other Implications (Please Specify)**

7.8.1. Formal training and instruction needed initially whilst drivers adapt to the new vehicles (although this is a minor issue as EV cars drive very much like other cars)

7.8.2. Health and Safety Risk Assessment required as EV's are virtually silent when driving, and drivers need to be aware of hearing or visually impaired pedestrians / road users not being able to detect the vehicles.

8. Risk Management

8.1. Risk is outlined in the paper above and managed through the Council's project management framework.

APPENDIX 1 : Energy Saving trust ULEV readiness Programme Final Report

ULEV Readiness Programme 2014-15

Cheshire East Council

Contents

Executive Summary

There is already a substantial awareness of and enthusiasm for ultra low emission vehicles (ULEVs) within Cheshire East Council where infrastructure has already been installed at the main office locations. This project is therefore key in providing this with momentum and which will enable the team to then continue the process towards ULEV travel for all staff.

We have looked at the existing fleet of pool cars which are based at three sites. The analysis shows that four plug-in vehicles could be used by Cheshire East and the following could be implemented:

By Helen Moore

May 2015

OLEV/1415/023

Vehicle Location	Number of proposed vehicles
Westfields, Sandbach	1
Delamere House, Crewe	2
Macclesfield Town Hall	1
Total	**4**

The ULEV which is closest to the current model of the Vauxhall Corsas in operation, safety and also significantly more cost effective to operate being 3p per mile cheaper than either the Corsa or Zoe is the Nissan Leaf. It is important to ensure that the 6.6kW charger is included in the vehicle specification, as analysis has shown that the vehicles needs to be fast charged (in addition to slow and rapid charging). This allows the vehicle to be more flexible on a day to day basis in terms of range.

Cheshire East have already installed their infrastructure and would not require additional funded infrastructure from OLEV, and so the implementation of these recommendations can take place quickly.

The next step once approval is received from OLEV is to arrange final quotations for the procurement of the vehicles.

Introduction

This report, carried out by the Energy Saving Trust [EST], is funded by the Office for Low Emission Vehicles [OLEV] and is part of Phase 2 of OLEV's ULEV Readiness Programme which aims to encourage the take up of ultra-low emission vehicles [ULEVs] by the wider public sector in England who have previously worked with the Energy Saving Trust on the Plugged in Fleets Initiative.

EST is an independent, not-for-profit organisation, organised as a social enterprise with charitable status. We have engaged with hundreds of organisations in the last ten years, highlighting how to reduce fleet-related emissions and costs.

Should a business case for replacing a conventional vehicle with a ULEV be established, then OLEV will provide funding for the leasing of that ULEV for two years, reimbursing 75% of the lease costs incurred by the organisation. This is together with providing 75% funding, also on a reimbursement basis, for up to one charge-point per ULEV.

The vehicles' purchase costs were taken from the Crown Commercial Services website.

To support our thoughts and findings, the following information was used:

- Fleet list of existing pool vehicles
- Annual vehicle mileage and fuel consumption
- Average daily mileage for one year

We would like to thank Rebecca Shorrock and Phil Mason for supplying the data and also providing answers to supplementary questions.

Business Case Analysis

1. Report focus

This report has considered how Cheshire East might replace its current pool cars with ultra-low emission vehicles [ULEV], as listed on OLEV's plug-in vehicle grant list.

2. Current fleet background and analysis

Cheshire East own a fleet of cars which are used by staff on journeys locally between the offices and also to visit other locations in Cheshire. All the vehicles were outright purchased and are now due for replacement.

The existing pool fleet vehicles are as follows:

Registration	Make	Model	Annual Mileage 2014	Average Daily Mileage*	Location
DA56JVW	Vauxhall	Corsa	6106	23	Delamere House
DE56LGL	Vauxhall	Corsa	8483	33	Delamere House
DU08YLJ	Vauxhall	Astra Estate	11540**	44	Westfields
FN55LMX	Vauxhall	Agila	5990	23	Macclesfield Town Hall

*Daily mileage data based on annual figure/260.
** Higher mileage due to some private use in the last year. Normally the same mileage pattern as the other pool cars

OLEV have funded chargepoint infrastructure through their national infrastructure schemes at each of these sites where they have dual intelligent chargepoints in place. In addition, Delamere house has four publicly available chargepoints around the corner on the street.

The remaining pool cars all travel within the Cheshire East locality which will easily be served by fully electric vehicles.

3. Possible ULEV alternatives

To determine what can and cannot work operationally in the Cheshire East fleet we need to look at the vehicles and consider their requirements. Cheshire East's view is that pure EVs would work best as pool vehicles for local journeys. Their preferred vehicle is the Nissan Leaf.

Consideration was given to plug in hybrid vehicles and other EVs. However in keeping with their objective of moving to a pure EV fleet, and given the fact that for this size of vehicle the Leaf is currently the best value ULEV we have no issue with supporting this choice.

4. Cost Comparisons

Whole Life Cost calculations have been done to compare the costs of operating the ULEV cars with the new, equivalent vehicle of the existing pool fleet. The costs have been taken from the Crown Commercial Services Fleet Portal and are current at the date of this report.

Lease quotes were used in order to ensure as accurate a reflection of the current market view for the vehicles as possible.

Cheshire East pay the following rates for electricity:

- Westfields, Middlewich Road, Sandbach, CW11 1HZ – 12.59p/kWh (Avg)
- Delamere House, Delamere Street, Crewe, CW1 2JZ – 12.67p/kWh (Avg)
- Macclesfield Town Hall, Market Place, Macclesfield, SK10 1EA – 10.41p/kWh (Avg)

Therefore we have used the Delamere House rate as this is the highest of the three and so gives us the most expensive possible charging costs, and we could expect significantly greater savings at the other sites?

All of the vehicle lease quotes used in here were based on the following:

- 8,000 miles per year
- 4 years on fleet
- Including maintenance
- Fuel prices are based on the actual prices paid by Cheshire East in 2014 excl VAT

Full Electric Vehicle

Make	Vauxhall Corsa Excite A/C	Nissan Leaf Accenta 6.6 kW Charger	Renault Zoe
Vehicle type/fuel	Petrol	Electric	Electric
Annual mileage	8,000	8,000	8,000
Fuel cost = Petrol £/litre or electricity pence per kW hour	£1.12	12.67	12.67
Official emissions g/km CO_2	99	n/a	n/a
Annual funding cost, servicing maintenance and repair, VED	£2,517	£2,557	£2,838
Annual fuel costs	£625	£296	£286
Total annual cost	**£3,143**	**£2,853**	**£3,124**
Pence per mile	**39**	**36**	**39**

On a cost basis alone the WLC show that the Leaf offers 3 ppm or £1,159 (over the 4 year term) saving in comparison with the new equivalent of the existing Corsas, whilst the Renault Zoe is the same cost.

6. Charging Requirements

The charging requirements and abilities of the vehicles do vary and the key to this is whether they can be charged more quickly on occasions when the need arises, and what their standard charging requirements are, so for the vehicle under consideration we have summarised this:

Vehicle	Charging options	Recommendation	Rapid Charge Compatibility
Nissan Leaf	Slow standard, fast and rapid available	Specify model with fast and rapid charge compatibility and specify a type 2 infrastructure cable	CHAdeMO 50kW
Renault Zoe	Slow, fast and rapid charging standard	Type 2 cable standard	AC 43kW

7. CO_2e comparison

The environmental case for adopting EVs is even more straightforward than the business one. We have calculated the emissions based on the fuel and electricity using the standard UK mix of brown electricity. The comparison shows that the EV emissions are only slightly lower on this basis and the Corsa is unusually efficient. As the mix of sustainably generated electricity provided in the UK grows then the carbon saving will grow and the local air quality benefits are already significantly greater for EVs.

CO_2e comparison Cars	Miles	CO_2e - tonnes
Vauxhall Corsa (petrol)	8,000	1.3
Nissan Leaf	8,000	1.2
Renault Zoe	8,000	1.1

8. Conclusion and proposed next steps

We have looked at the existing fleet of pool cars which are based at three sites. The analysis shows that four plug-in vehicles could be used by Cheshire East and the following could be implemented:

Vehicle Location	Number of proposed vehicles
Westfields, Sandbach	1
Delamere House, Crewe	2
Macclesfield Town Hall	1
Total	4

The vehicle model which is closest to the current model of the Vauxhall Corsas in operation, safety and also significantly more cost effective to operate being 3p per mile cheaper than either the Corsa or Zoe is the Nissan Leaf. It is important to ensure that the 6.6kW charger is included in the vehicle specification, as analysis has shown that this will be necessary to allow the vehicle to be fast charged (in addition to slow and rapid charging). This allows the vehicle to be more flexible on a day to day basis in terms of range.

Cheshire East have already installed their infrastructure and so the implementation of these recommendations can take place relatively quickly.

The next step once approval is received from OLEV is to arrange final quotations for the procurement of the vehicles.

Appendix A: OLEV Electric Vehicle Grants

The following vehicles currently qualify for a Plug-in van or car grant (and so available for consideration for funding as part of the ULEV Readiness Programme):

The Plug-in Van Grant

Make and Model
BD Otomotiv Veicoli e Trafic van
BD Otomotiv eDucato
Citroen Berlingo
Daimler Mercedes-Benz Vito E-Cell
Mitsubishi Outlander GX3h 4Work
Nissan e-NV200
Peugeot Partner
Renault Kangoo ZE
Smith Electric Smith Edison

The Plug-in Car Grant

Make and Model
Audi A3 e-tron
BMW i3
BMW i8
BYD e6
Chevrolet Volt
Citroen CZero
Ford Focus Electric
Kia Soul EV
Mercedes-Benz B-Class Electric Drive
Mercedes-Benz C350 e
Mercedes-Benz S500 Hybrid
Mitsubishi i-MiEV
Mitsubishi Outlander PHEV
Nissan e-NV200 5 SeaterCombi
Nissan Leaf
Peugeot iOn
Porsche Panamera S E Hybrid
Renault Fluence ZE
Renault Zoe
Smart fortwo electric drive
Tesla Model S
Toyota Prius Plug-in Hybrid
Vauxhall Ampera
Volkswagen e-Golf

Volkswagen e-up!
Volkswagen Golf GTE
Volvo V60

9. Access to Information/Bibliography

9.1. Further information and supporting documents can be obtained from Phil Mason / Rebecca Shorrock (regulatory Services and Health).

10. Contact Information

Contact details for this report are as follows:-

Name: Steph Cordon
Designation: Head of Communities
Tel. No.: 01270 686021
Email: steph.cordon@cheshireeast.gov.uk