

Report of: Chief Officer Sustainable Energy & Air Quality (SEAQ)

Report to: Director of Resources & Housing

Date: 16th August 2019

Subject: EV-Elocity Electric Vehicle Charging Infrastructure

Capital Scheme Number:

Are specific electoral Wards affected? If relevant, name(s) of Ward(s):	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Are there implications for equality and diversity and cohesion and integration?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Is the decision eligible for Call-In?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Does the report contain confidential or exempt information? If relevant, Access to Information Procedure Rule number: Appendix number: 10.4 (3) Appendix number:	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

Summary of main issues

1. Leeds City Council (LCC) has been allocated a grant of £197,825 through Innovate UK as part of the EV-Elocity project. The funding awarded to LCC will facilitate the authority to be at the forefront of using cutting-edge technologies in the form of Vehicle-to-Grid (V2G) charging infrastructure as well as allowing for the update of existing electric vehicle charge points across several LCC owned sites. V2G technology enables the release of residual charge stored in an electric vehicle to the electricity grid when required. Additionally, the funds will be used to assign a full-time project officer to the project. Leeds City Council is part of a consortium including the following stakeholders: A.T. Kearney Limited, University of Warwick, Honda Motor Europe Limited, E-Car Club, Peel Energy Limited, Nottingham City Council, Cenex, University of Nottingham, Toto Energy Limited and Slam Jam Limited.
2. The EV-Elocity project supports the installation of electric vehicle infrastructure in locations such as LCC's depots and sites which are accessible to the general public – contributing to the building of a public electric vehicle charging infrastructure network across LCC sites. Furthermore, the project enables LCC to address capacity issues at a number of LCC owned sites via the use of V2G technology.
3. The EV-Elocity project demands the appropriate resources, including a full-time officer to overlook the installation of the electric vehicle charge points. As the project enters the delivery phase there is an additional requirement for a full-time officer as

resources become stretched. The funding will therefore allow for the appointment of a full-time officer to work on the project for the year 2019/20.

4. Recommendations

4.1 The Director of Resources & Housing is requested to:

- 4.1.1 Approve the injection of £197,825, into the Capital Programme, funded by approved Innovate funding awards.
- 4.1.2 Authorise expenditure of up to £197,825 to be funded via the Innovate funding award to cover the cost of the work streams as itemised above.
- 4.1.3 Approve the appointment of a full-time officer to lead on the delivery of the project for a period of 12 months from 2019/20.
- 4.1.4 Note that a further bid to the value of £453,000 has been submitted to Innovate UK as part of a consortium application to trial wireless charging technology and that a further report will be submitted to request an appropriate capital injection in the event of this bid being successfully awarded.

5. Purpose of this report

- 5.1 This report provides a summary of the EV-Elocity project including;
 - 5.1.2 The proposed sites for electric vehicle charge point installation as part of the EV-Elocity project.
 - 5.1.3 Outline how the EV-Elocity project can generate an income for LCC by selling power back to the electricity grid.
 - 5.1.4 How the EV-Elocity project will assist in contributing towards ensuring that LCC's fleet has the appropriate infrastructure to be compliant with the proposed CAZ by January 2020.
 - 5.1.5 The benefits of having a dedicated officer and resources for the EV-Elocity project
 - 5.1.6 The costs associated with the EV-Elocity project (including LCC's costs)
- 5.2 The purpose of this report is to seek approval to incur expenditure of up to £197,825 which will be funded via Innovate UK funding to support activities related to the planning, installing and assessment of V2G charge points at selected LCC Fleet locations.
- 5.3 To commence a procurement exercise to allow for the purchase of the V2G and standard charge points to the specifications of the wider project to facilitate the research and assessment of V2G technology as part of lowering the overall cost of EV ownership.
- 5.4 The report will also provide a high-level overview of a further application for Innovate UK funding that, if successful, will provide funding for the authority to trial wireless charging technology.

6. Background information

- 6.1 Leeds City council has ambitions targets for the expansion of its electric near-zero emission fleet. Currently the existing EV fleet is understood to be the largest of any UK local authority with rapid expansion plans to increase that through the fleet replacement programme as projected up to 2025.
- 6.2 The need to support that expansion through delivery of a network of electric vehicle charge points is therefore critical. This project offers both funding to support installation of charge points, and the opportunity to trial a method of reducing the overall whole-life cost of EV's through the potential for vehicle-to-grid charging providing a revenue stream to the local authority.
- 6.3 The EV-Elocity project facilitates LCC to be at the forefront of using cutting-edge technologies in the form of Vehicle-to-Grid (V2G) charging infrastructure. In doing so, the project will provide a financial opportunity for LCC by generating a revenue from the use of electric vehicles – which is particularly prominent given the transition of LCC's vehicle fleet to electric.
- 6.4 The V2G technology allows LCC's electric vehicles to act as a storage device for electricity, drawing electricity from the grid in periods of low demand as well as being able to feed the electricity back to the grid in periods of high demand. The ability to store and release energy to balance the grid from an electric vehicle allows

the vehicle owner to become an energy trader – with one potential outcome being the opportunity to sell the electricity back to the grid to create an income. This will be achieved by discharging the residual charge back to the electricity grid from an electric vehicle in peak times and then storing electricity within electric vehicles when demand on the electricity grid is low – the difference in the price of electricity during these two periods creates a revenue.

6.5 V2G could therefore be used to create income streams from LCC’s own fleet – to reduce the fleet cost and/or the cost of LCC power consumption. V2G also provides huge potential for further future development – when LCC are able to generate electricity through renewable sources to charge vehicles and store electricity, the power can then be sold back to the grid in periods of high demand, and a significant revenue stream can be generated. LCC’s role in the EV-Elocity project facilitates these revolutionary ideas to be tested.

6.6 On a wider scale, LCC will be contributing to the knowledge surrounding the establishment of business models and underlying data services that will support the growth of the V2G market.

6.7 Currently, there are 104 charge points across LCC’s owned sites. Where charge points have been chosen for replacement they are “*dumb terminals*”, meaning that the infrastructure does not facilitate any data connectivity – unlike the electric vehicle charging points proposed for installation. Further, the charge points expected to be installed as part of the project are future-proofed, as they have the ability to charge customers for their use (dependent upon policy changes around charge point use for Leeds’ residents).

6.8 The EV-Elocity project facilitates the installation of electric vehicle charge points across 4 sites which are accessible to either public or council staff with V2G or standard dual electric vehicle charge points. Therefore, the EV-Elocity project allows for the holistic implementation of electric vehicle charge points – where their locality is better matched to their purpose. The prospective electric vehicle charge point locations are outlined below.

Site	Site address	V2G	Public (Dual)	Total
Farnley Hall	Hall Lane, Farnley, Leeds LS12 5HA	1	2	2
Lotherton Hall	Off Collier Lane, Aberford, Leeds LS25 3EB	1	2	2
Fleet Services	225a York Road/Torre Road, Leeds LS9 7QL	2	0	2
Henshaw Depot	Green Lane, Yeadon, Leeds LS19 7BY	2	0	2
Total		6	4	10

6.9 The public charge points are dual provision, so each point will support charging across two parking bays, as such the public provision will support up to 8 parking bays at these popular parks & countryside locations.

7. Main issues

7.1 The EV-Elocity project provides the resources to support the trial of the V2G technology that could assist with better managing the energy consumption of the

LCC vehicle fleet. In conjunction with telematics data, the data collected by the updated charging infrastructure will allow for more information to be collated about LCC's vehicle fleet and will allow for the consideration of creating a revenue stream from vehicle to grid power streaming.

7.2 The project will deliver additional benefits which are not quantifiable in terms of cashable savings but instead will raise the profile of electric vehicle charge points within the public domain across the city, to overcome issues associated with the lack of uptake of electric vehicles such as charge anxiety (the fear that the destination travelled to by the electric vehicle owner will not have available electric vehicle charging infrastructure).

7.3 There are two options available to the council for the procurement of the charge points – Option 7.3.2 is preferable for the EV-Elocity project:

7.3.1 Conduct our own procurement exercise for the appointment of a supplier for the V2G charge-points, however these must match the criteria of the lead project and currently there is no expertise within the authority on technical specifications for such points.

7.3.2 Use a framework that is being developed as part of the EV-Elocity project by one of the partners, who are working with Cenex to identify the most appropriate and cost-effective supplier for the charge points. Once this framework has been developed the procurement exercise, terms and conditions and terms of use will be assessed by LCC's legal section for compliance with corporate Contract Procedure Rules.

7.4 There has not been a fixed member of staff working on the electric vehicle charge point network for LCC, this work has been included within the wider remit of the Sustainable Energy & Air Quality team. To mitigate the risk of overlaps in work, and to ensure maximum efficiency, the EV-Elocity project has been brought into line with other EVCP projects and fall under a single project manager. The funding secured for the EV-Elocity project has provided the SEAQ team with the ability to resource delivery of these capital assets using existing officers. A project manager and project officer have been assigned to the project to provide advice and consistent contact points throughout the delivery of the project, they will continue to work on other SEAQ projects once this project has been completed. The involvement of legal and procurement will ensure that any decisions made surrounding the EV-Elocity project will be in line with LCC's Contract Procedure Rules. The grant awarded by EV-Elocity will be broken down to fund an additional officer(s) in the following way.

Labour

Officer	% time	From	To	Salary + oncosts	Project Salary
Project Officer	100.0%	01/04/2019	31/03/2020	£28,074.00	£28,074.00
Project Manager	15.0%	01/04/2019	31/03/2020	£58,142.00	£8,721.30
Legal & Procurement	15.6%	01/04/2019	31/03/2020	£64,322.52	£10,002.15
					£46,797.45

The overall project breakdown of the funding allocation is as below.

Funding Allocation		
Labour	Outlined in Section 7.4	£46,797.45
Travel & Resources	The travel to appropriate meeting and events associated with the EV-Elocity project.	£5,000.00
Equipment	The site assessment, purchase and installation cost of electric vehicle charge points.	£146,028.55
Total		£197,826.00

7.5 Innovate provide funding in arrears on a quarterly basis with claims being submitted by projects through their _Connect system. As such the authority will be required to provide finance to support project costs that will be repaid by Innovate UK.

7.6 As noted in 5.4 a submission has been made to Innovate UK for funding for an additional project to trial electric vehicle charge technology. A bid with project partners to trial wireless charging was submitted in May 2019 that has been given outline approval and if the full finance proposal is approved will provide £453,030 in funding as detailed below. In the event of this application being fully approved by Innovate following their second stage assessment a further report to the Director will be submitted requesting the injection of capital as applicable to the final award from Innovate UK.

7.7. Wireless charge point application;

- Vehicles: 5 x Nissan ENV200 @ £27,555 (Excl VAT) = **£137,775**
- 5 x Wireless conversion units @ £25,000 = **£125,000**
- Charge Points: 2 x Wireless Charge Pads @ £10,000
- Install of wireless Charge Pads @ £20,000
- 1 x Supply & Install of 50Kw Rapid Charge Unit @ £50,000 = **£90,000**
- Transport & Subsistence - **£10,000**
- Labour - **£100,255**
- **Total = £453,030**

7.8 Details of the locations of the wireless charge points and rapid charge point are yet to be determined and will require site assessment that will commence once funding has been granted final approved. A decision on the full funding to be awarded is expected in October 2019.

8. Corporate Considerations

8.1 Consultation and Engagement

8.1.1 Fleet Services and the project have consulted with site and depot managers on the specifications of all of the electric vehicle charging infrastructure being implemented.

8.1.2 Fleet Services and Sustainable Energy and Air Quality (SEAQ) team have worked closely together to ensure that the electric charge points to be installed are compatible with the fleet vehicles and to ensure that they are suitable to the electrical capacity of each location. EV-Elocity will therefore support the strategic work by reducing emissions from LCC's vehicle fleet and making a contribution to improving public health through bettering air quality.

8.2 Equality and Diversity / Cohesion and Integration

8.2.1 An equality, cohesion and diversity impact assessment has been undertaken as part of LCC's plan to deliver an infrastructure of electric vehicle charging points across LCC's estate. This showed that there were no equality, diversity or cohesion issues.

8.3 Council policies and City Priorities

8.3.1 This report draws attention to co-ordinated working that demonstrates a contribution towards the following priorities contained in the Best Council Plan:

- Achieve the savings and efficiencies required to continue to deliver frontline services

8.3.2 The report highlights the contribution to the following Council Business Plan priorities:

- Developing Leeds as a Low Carbon city and declaration of a Climate Emergency in April 2019.
- An ambition to be carbon neutral as a city by 2030.
- Improving the city's Air Quality through reductions in harmful pollution from diesel engines
- Spending Money Wisely – Achieving Value For Money in respect of its fleet replacement programme
- Ensuring that Leeds City Council's Fleet will be compliant with the introduction of a Clean Air Zone by 2020.

8.4 Resources and value for money

8.4.1 LCC's current electric vehicle charge points have been funded directly through the services as part of replacing diesel vehicles with electric vehicles. As part of the procurement exercise to replace diesel vehicles, the funding was also provided for the purchase and installation of electric vehicle charge points to be located where the electric vehicles are charged overnight.

8.4.2 The project will provide the funding to extend the Authority's charge point network in support of its expansion of its electric fleet. The external funding is subject to audit by Innovate UK and as such best value must be delivered in the appointment of a framework supplier for the charge points as detailed in 7.3.

8.4.3 The investment in V2G electric vehicle charge points to support LCC's electric vehicle fleet provides value for money via the following means:

- Reduced maintenance charge to services: the maintenance of an electric vehicle is significantly cheaper than a conventional vehicle with an internal combustion engine.
- Reduced fuel charge to service: the cost of running a diesel vehicle is 7p per mile, 3p more expensive than an electric vehicle, which costs 4p per mile.
- Through the innovation project there is opportunity to identify potential future revenue streams, or revenue savings that V2G technology may offer.

8.4.4 This programme of work will support LCC to be compliant with the Clean Air Zone by January 2020 and will also aid in the development of a self-sustaining electric vehicle charging infrastructure network via the V2G technology.

8.4.5 Capital funding and cashflow:

Previous total Authority to Spend on this scheme	TOTAL £000's	TO MARCH 2020 £000's	FORECAST				
			2019/20 £000's	2020/21 £000's	2021/22 £000's	2022/23 £000's	2023 £000's
LAND (1)	0.0						
CONSTRUCTION (3)	0.0						
FURN & EQPT (5)	0.0						
DESIGN FEES (6)	0.0						
OTHER COSTS (7)	0.0	0.0	0.0				
TOTALS	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Authority to Spend required for this Approval	TOTAL £000's	TO MARCH 2020 £000's	FORECAST				
			2019/20 £000's	2020/21 £000's	2021/22 £000's	2022/23 £000's	2023 £000's
LAND (1)	0.0						
CONSTRUCTION (3)	0.0						
FURN & EQPT (5)	0.0						
DESIGN FEES (6)	0.0						
OTHER COSTS (7)	197826.0	0.0	197826.0				
TOTALS	197826.0	0.0	197826.0	0.0	0.0	0.0	0.0
Total overall Funding (As per latest Capital Programme)	TOTAL £000's	TO MARCH 2020 £000's	FORECAST				
			2019/20 £000's	2020/21 £000's	2021/22 £000's	2022/23 £000's	2023 £000's
LCC Supported Borrowing	0.0						
Private Sector	0.0						
Section 106 / 278	0.0						
Government Grant	197826.0		197826.0				
Any Other Income (Specify)	0.0						
Total Funding	197826.0	0.0	197826.0	0.0	0.0	0.0	0.0
Balance / Shortfall =	0.0	0.0	0.0	0.0	0.0	0.0	0.0

8.5 Legal Implications, Access to Information and Call In

6.5.1 This is classified as a significant operational decision, and is therefore not eligible for call in.

8.5.1 There should be no legal issues relating to this report and all information within this report is publicly available.

8.5.2 The procurement process will be compliant with LCC's Contract Procedure Rules and involves a call off from an established framework that is compliant with European Union legislation as outlined in Section 3.3.

8.5.3 Due to the value of this procurement exercise the decision is not subject to call in.

8.6 Risk Management

8.6.1 A full risk assessment has been undertaken and risk register has been developed as part of the development of the business case to deliver this procurement exercise.

9. Conclusions

9.1 At a time of continued financial pressure, this investment will lead to longer term financial savings in terms of creating a self-sustaining electric vehicle charge point infrastructure due to the capabilities of V2G technology. The capabilities of V2G technology allows LCC to generate an income from LCC's vehicle fleet. Furthermore, the updating of electric vehicle charge points across 10 LCC owned sites to infrastructure which has data collecting capacity offers a plethora of opportunities – notably fiscal savings through the ability to better manage LCC's vehicle fleet. The possibility of having a full-time officer working on the EV-Elocity project would result in the provision of a holistic overview of the project, where progress could be monitored to ensure deadlines are being met efficiently and sustainably.

10. Recommendations

10.1 The Director of Strategy and Resources is requested to:-

10.1.1 Approve the injection of £197,825, into the Capital Programme, funded by approved Innovate funding awards.

10.1.2 Authorise expenditure of up to £197,825 to be funded via the Innovate funding award to cover the cost of the work streams as itemised above.

10.1.3 Approve the funding of a full-time officer to lead on the delivery of the project for a period of 12 months from 2019/20.

10.1.4 Note that a further bid to the value of £450,000 has been submitted to Innovate UK as part of a consortium application to trial wireless charging technology and that a further report will be submitted to request an appropriate capital injection in the event of this bid being successfully awarded.

11. Background documents¹

None.

¹ The background documents listed in this section are available to download from the Council's website, unless they contain confidential or exempt information. The list of background documents does not include published works.