

Finance and Resources Committee

10.00am, Thursday, 10 November 2022

Award of the Supply of Five Electric Refuse Collection Vehicles

Executive/Routine Wards Council Commitments	Routine All
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1. Recommendations

- 1.1 It is recommended that Finance and Resources Committee approves:
 - 1.1.1 The award of a contract for the supply of five Electric Refuse Collection Vehicles to Dennis Eagle Limited via a direct award process from the Crown Commercial Services RM6060 Vehicle Purchase framework agreement at a value of £2,177,525.
 - 1.1.2 The commencement of the contract in November 2022, which will be completed upon delivery of the vehicles, subject to the requirements of the City of Edinburgh Council.

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Executive Director of Place

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Award of the Supply of Five Electric Refuse Collection Vehicles

2. Executive Summary

- 2.1 This report seeks approval to award a contract for the supply of five electric refuse collection vehicles to Dennis Eagle Limited, to commence in November 2022, with an expected lead time of approximately 32-34 weeks at a total value of £2,177,525. The award of these vehicles will contribute towards the Council's Net Zero target, reducing the Council's carbon footprint through a reduction in carbon output.

3. Background

- 3.1 The Council has declared a climate emergency in 2019 and is working towards becoming a Net Zero carbon organisation by 2030. One of the Council's key areas in ensuring the delivery of the Net Zero target is the Council's Fleet, which represents 10% of the total corporate carbon footprint.
- 3.2 The Council currently operates 66 diesel-fuelled 26-tonne refuse collection vehicles. This vehicle group burned a total of 677,994 litres of diesel in financial year 2021/22 delivering the waste collection service equating to 27% of total fleet emissions or 3% of the Council's total emissions.
- 3.3 The Council Emissions Reduction Plan (CERP) was approved in [November 2021](#) outlining a phased action plan for reducing these emissions. It sets out the strategic approach and key actions the organisation will take to ensure that, subject to the appropriate funding being secured, it will be a net zero organisation by 2030. The CERP follows on from the Council signing the Edinburgh Climate Compact in December 2020 where it committed to make changes to its operations, transport and buildings to support the city's target of net zero by 2030. The [Climate Compact](#) is a commitment by the leading businesses and employers in Edinburgh to take action within their own organisation to contribute to a green recovery and radically reduce the city's carbon emissions.¹ It has 25 members to date.
- 3.4 Council fleet emissions have remained stable compared to last year (+0.4% increase in overall emissions) and have only decreased by 11% compared to

¹ Commitment 1.3 of the Climate Compact: "Invest in a switch to zero emission company owned vehicles."

2014/15. It is critical to transition the fleet to low-carbon alternatives to achieve carbon targets. The CERP includes a dozen of actions to decarbonise the Council fleet. Action F8 in particular focusses on the heavy fleet: “Begin the roll out of alternatively powered heavy vehicle fleet”.

- 3.5 There is potential to source future grant funding and match funds internally to target additional electric refuse vehicles, in the future, when these can be evidenced as a suitable and successful replacement to typical diesel refuse collection vehicles. Purchasing any new diesel refuse collection vehicle would “lock-in” future emissions given that those would still be in operation by the 2030 net zero target date.
- 3.6 The Council was awarded Zero Waste Scotland grant funding to the value of £2,125,000 to purchase five fully electric refuse collection vehicles, the additional funding for this requirement will be met from the Council’s Fleet Capital budget.

4. Main report

- 4.1 Fleet Services identified the requirement for the purchase of electric refuse collection vehicles which are required to be narrow chassis in order to successfully deliver within the cityscape and some of its narrow and difficult streets.
- 4.2 Commercial and Procurement Services (CPS) conducted a review of potential suppliers who had the capability to provide narrow chassis electric refuse collection vehicles. The outcome was that Dennis Eagle Limited were the only supplier who could meet this requirement. Whilst Dennis Eagle Limited do sell their narrow chassis to other suppliers for use with their own body, the most commercially viable option was to contract with the Original Equipment Manufacturer (OEM) for the fully completed vehicles.
- 4.3 Following the supply market review, it was identified that the Crown Commercial Services (CCS) Framework RM6060 – Vehicle Purchase framework agreement (Lot 3: Medium to heavy Commercial Vehicles 7.5 tonnes and above) offered a suitable route to procure the requirement.
- 4.4 Following the review of CCS documentation, Dennis Eagle Limited was invited to quote for the Council’s requirement on 22 September 2022.
- 4.5 Their quotation was submitted on 6 October 2022 and met all the Council’s specified requirements for the vehicles as well as including a full three-year warranty as standard.
- 4.6 Electric refuse collection vehicles have several environmental benefits:
 - 4.6.1 They produce significantly lower greenhouse gas emissions than their diesel counterparts, even when taking into account embodied emissions from the battery manufacturing. A key factor influencing the lifecycle analysis is the carbon content of the electricity grid. An analysis by Carbon Brief² shows that EVs are ‘responsible for considerably lower emissions over their lifetime than

² [Factcheck: How electric vehicles help to tackle climate change, Carbon Brief. Accessed 19/10/2022](#)

conventional (internal combustion engine) vehicles across Europe as a whole. As countries decarbonise electricity generation to meet their climate targets, driving emissions will fall for existing EVs and manufacturing emissions will fall for new EVs. In the UK in 2019, the lifetime emissions per kilometre of driving a Nissan Leaf EV were about three times lower than for the average conventional car, even before accounting for the falling carbon intensity of electricity generation during the car's lifetime.'³ A report⁴ produced by Ricardo for the UK Department for Transport in 2021 concludes that this is true 'across all vehicle types (...) due to the UK's very clean electricity mix.' They add that 'improvements in battery technology, battery manufacturing and end-of-life treatment are projected to significantly reduce the lifecycle GHG emissions of battery electric vehicles in the future';

4.6.2 They improve local air quality by not producing exhaust fumes. Particles are, however, still produced by brake abrasion and tyre wear; and

4.6.3 They are quieter than their diesel equivalent, which improves working conditions for collection crews while marginally reducing noise pollution.

4.7 It is estimated the replacement of five refuse collection vehicles could save 127 tCO₂e in the first year of operation, or 2% of total fleet emissions. Cumulated savings over the vehicles' lifetime (assumed 8 years) could be as high as 912 tCO₂e, taking into account embodied emissions from the battery.⁵ This is equivalent to the emissions generated by 3.3 million miles driven by an average car, or the annual carbon footprint of 109 average UK residents.

4.8 A report produced by Eunomia⁶ provides answers to frequently asked questions around electric refuse vehicles, such as around range, steep slopes, availability, charging time.

5. Next Steps

5.1 Subject to Committee approval, the contract will commence in November 2022 and delivery of the vehicles will be made within 2023, following an approximate lead time of 32-34 weeks.

5.2 The contract will be managed by the Fleet and Workshops manager. The contract manager will support implementation and contract management delivery throughout the contract lifecycles and be supported by the Contract and Grant Management

³ The same conclusion is reached in an analysis by Transport & Environment in '[T&E's analysis of electric car lifecycle CO₂ emissions](#)' (2020). 'An average EU electric car is already close to three times better than an equivalent conventional car today. (...) Electric cars outperform diesels and petrols in all scenarios, even on carbon intensive grids such as Poland, where they are about 30% better than conventional cars.'

⁴ [Lifecycle Analysis of UK Road Vehicles, Ricardo \(2021\)](#)

⁵ Assumptions: grid decarbonisation in line with Treasury Green Book projections; average annual diesel consumption from a 26T RCV = 11,143 L; electricity consumption: 1.15 kWh/km; battery capacity: 300 kW; embodied emissions from battery = 106 kgCO₂e/kWh

⁶ [Ditching Diesel - A Cost benefit analysis of electric refuse collection vehicles](#), Eunomia (2020)

Team (CAGM). A contract management and handover report, detailing the necessary steps and measures, will be produced, and agreed.

6. Financial impact

- 6.1 The contract value of £2,177,525 comprises the specified vehicle costs and includes optional extras (value of £7,425). The costs associated with this contract are intended to be met by the following funding routes:
 - 6.1.1 £2,125,000 will be met through the Zero Waste Scotland grant funding;
 - 6.1.2 The grant shortfall of £45,100 has been requested to be met by Zero Waste Scotland. If this is not possible, the funding will be fulfilled from the Fleet Capital budget; and
 - 6.1.3 The optional extras (hopper reinforcement and cleaning accessories for each vehicle) cost of £7,425 will be met from the Council's Fleet Capital budget.
- 6.2 These costs associated with this contract award are fixed one-off costs for the supply of the five electric refuse collection vehicles.
- 6.3 The costs associated with procuring this contract are estimated to be below £10,000.
- 6.4 Financial savings are expected in the following areas:
 - 6.4.1 Fuel costs: driving an electric refuse vehicle is around three times cheaper than a diesel refuse collection vehicle (RCV);
 - 6.4.2 Vehicle excise duty (VED): several hundreds per year for diesel vehicles; free for electric vehicles;
 - 6.4.3 Air quality damage costs⁷: it is estimated that each Litre of diesel used costs seven pence to the society due to impacts on human health, costs to the NHS, productivity, wellbeing and the environment;
 - 6.4.4 Carbon costs⁸: Carbon values used by the UK Government in policy appraisal represent a monetary value that society places on one tonne of carbon dioxide equivalent (£/tCO₂e). The carbon value (£248/tCO₂ in 2022) is set at a level that is consistent with the level of marginal abatement costs required to reach the targets that the UK has adopted at a UK and international level;
 - 6.4.5 Service, maintenance and repair costs: expected to be lower for electric vehicles; and
 - 6.4.6 Vehicle insurance: expected to be lower for electric vehicles.
- 6.5 The Eunomia report: Ditching Diesel A Cost-benefit Analysis of Electric Refuse Collection Vehicles (2020) finds that 'the total cost of ownership (TCO) of electric

⁷ [Air quality appraisal: damage cost guidance - GOV.UK \(www.gov.uk\)](https://www.gov.uk)

⁸ [Valuation of greenhouse gas emissions: for policy appraisal and evaluation - GOV.UK \(www.gov.uk\)](https://www.gov.uk)

and diesel vehicles over their lifespan is very similar. The eRCV's TCO is £29,608 (5.2%) greater than that of the diesel equivalent; if the monetised impact of emissions is included, the eRCV offers a saving of £12,365 (2.0%).

7. Stakeholder/Community Impact

- 7.1 Dennis Eagle Limited has committed to the delivery of appropriate localised Community Benefits. Potential community benefits will include:
 - 7.1.1 500 free Dennis The Dustcart Books - The books provide an engaging approach to making homework fun and enjoyable for children and parents, following the national curriculum through interactive, colourful crosswords and puzzles. The primary objective of the book is to change the recycling behaviour of families through practical parental engagement with their children to understand why recycling is important; and
 - 7.1.2 Two days provision of a converted refuse collection vehicle classroom - working with the Council to develop roadshows on recycling, waste, engineering and other related topics that we can take to local schools.
- 7.2 Dennis Eagle Limited pay the Real Living Wage and are fully accredited and all employees including sub-contracted staff are paid the Real Living Wage across the United Kingdom. Their apprentices are paid a higher salary than the national apprentice rate and they do not operate zero-hour contracts in any part of the business.
- 7.3 Dennis Eagle Limited are Investors in People Accredited, an equal opportunity employer and currently have 38 apprenticeships in place.
- 7.4 The replacement of five diesel vehicles with electric alternatives is a key action of the CERP and will contribute to the Council's net zero target by 2030.
- 7.5 This procurement contributes towards the Council Commitment 'Delivering a sustainable future - Improve Edinburgh's air quality and reduce carbon emissions and Business Plan Priorities - 2. Becoming a net zero city and 12. On track to deliver our 2030 net zero target

8. Background reading/external references

- 8.1 [Council Emissions Reduction Plan](#), 2021
- 8.2 [Ditching Diesel: A Cost-benefit Analysis of Electric Refuse Collection Vehicles](#), Eunomia, 2020
- 8.3 [Lifecycle Analysis of UK Road Vehicles](#), Ricardo, 2021

9. Appendices

9.1 None.