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REPORT TO FINANCE COMMITTEE
MEETING OF WEDNESDAY, OCTOBER 5, 2016

SUBJECT Zero Emissions Fleet Initiative

ISSUE

To provide an overview of the Zero Emissions Fleet Initiative, which aims to significantly reduce greenhouse gas (GHG) emissions from the operation of the Capital Regional District (CRD) fleet through a pilot and eventual transition towards zero emissions technology, as well as to seek approval to further develop the initiative and apply to the Green Municipal Fund for project funding.

BACKGROUND

The CRD is accelerating GHG emissions reductions activities and working towards meeting a 33% GHG reduction target within corporate operations by 2020. The CRD's corporate GHG emissions come primarily from the operation of buildings and facilities (46% in 2015) and vehicles and equipment (54% in 2015).

The CRD maintains a fleet of approximately 306 vehicles and 51 pieces of equipment, located at numerous centres of operation around the region. The fleet includes both light duty vehicles, such as sedans SUVs, and small sized pick up trucks, medium duty vehicles including larger pick-up trucks and heavy duty vehicles such as fire trucks and dump trucks. Staff have been working towards generating GHG emissions reductions within the fleet for over a decade through procurement of hybrid vehicles and smart cars when operationally appropriate, and by favouring diesel over gas engines which have lower emissions profiles.

In 2015, the CRD conducted an Energy Environment Excellence (E3) review of the fleet to identify further GHG emissions reductions opportunities, and in 2016 the CRD procured its first fully electric plug-in vehicle (a Kia Soul). In 2016 CRD also became a signatory of the West Coast Electric Fleets Pledge, which promotes taking action to expand the use of zero emissions vehicles within public and private fleets.

The 2015 E3 review results and staff analysis have identified further opportunities for GHG emissions reductions within the CRD fleet, particularly within the light duty vehicle class. The Green Municipal Fund pilot project stream provides funding of up to $350,000 to support local governments to evaluate new technology under expected operating conditions.

ZERO EMISSIONS FLEET INITIATIVE

Within this context, staff have initiated a partnership with the BC Ministry of Energy and Mines (MEM) and researchers at the University of Victoria's Institute for Integrated Energy Systems (IESVic) to identify a pathway towards a zero emissions fleet. Zero emissions vehicles and equipment eliminate tailpipe GHG emissions and reduce GHG inventory emissions by greater than 95% compared to conventional vehicles/equipment. The initiative will strive towards substantial GHG emissions reductions by: (1) testing and employing zero emissions vehicles and equipment where operationally appropriate; (2) working with IESVic to learn from and optimize these applications; and (3) sharing the results across the Capital Region.

A full overview of the proposed initiative is included in Appendix A.

A project team with representatives from the CRD, MEM and IESVic is working together to conduct feasibility analysis and develop a project proposal and work plan. Staff are currently developing a proposal and funding application to the Green Municipal Fund for the initiative. A full overview of the proposed initiative, including proposed partners and proposed funding model, is included in Appendix A.

ALTERNATIVES

That the Finance Committee recommends:

1. That staff be directed to prepare and submit an application to the Green Municipal Fund for project funding.

2. That the report be referred back to staff for further review.

IMPLICATIONS

ENVIRONMENTAL IMPLICATIONS

This project estimates that zero-emissions vehicles and equipment will reduce GHG inventory and tailpipe emissions by greater than 95% compared to their conventional counterparts. In 2015, the CRD fleet accounted for 1,248 tonnes CO_2-e (carbon dioxide equivalents). Staff are developing the project proposal and conducting feasibility analysis; however, if this pilot initiative is successful and fully realized, it will result in significant reductions in emissions.

ECONOMIC IMPLICATIONS

The cost to CRD is expected to be equivalent to the cost of owning and operating equivalent conventional vehicles (net with funding through grants).

INTERGOVERNMENTAL IMPLICATIONS

Central to this initiative is the opportunity to study, test and learn from the pilot experience and share these results with other fleets within the Capital Region (e.g. municipal and provincial governments). Staff are developing the project and identifying potential project partners.

CONCLUSION

The proposed Zero Emissions Fleet Initiative represents an opportunity to significantly reduce GHG emissions from the CRD fleet while advancing the adoption of zero emissions technology both internally and more broadly within the Capital Region. By developing and submitting an application to the Green Municipal Fund, CRD can strive to implement the Zero Emissions Fleet Initiative.

RECOMMENDATION(S)

That staff be directed to prepare and submit an application to the Green Municipal Fund for project funding.

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Attachments: Appendix A (Zero Emissions Fleet Project Summary)

Appendix A: Zero Emissions Fleet Initiative Summary:

As part of its commitment to reducing corporate greenhouse gas emissions by 33% by 2020 (compared to 2007 emissions) the CRD is investigating a pathway towards a "zero emissions fleet".

The "Zero Emissions Fleet Initiative" includes four major goals over the next three years (2017 – 2019):

1. **To continue efforts to reduce greenhouse gas emissions from CRD fleet vehicles by:**
    a. Testing hydrogen fuel cell electric vehicles (FCEV) to replace existing gas/diesel powered vehicles that are used for longer trips and heavier-duty applications
    b. Adding two battery electric vehicles (BEV) to the CRD fleet that are made available for staff to test out and determine the locations/uses where a BEV is a good 'fit' to replace gas/diesel vehicles
    c. Continuing to replace end-of-life gas/diesel vehicles with zero emissions vehicles when possible, including further battery electric vehicles to the fleet.
    d. Testing the application of electric bikes for use in downtown/short trip applications
    e. Conducting an in-depth analysis of the entire CRD fleet to identify ways to optimize the fleet to reduce emissions and cut costs
2. **To support the efforts of other south island fleets (public and private) and vehicle owners to reduce their greenhouse gas emissions from transportation by:**
    a. Supporting the development of publicly available hydrogen fuel cell charging infrastructure
    b. Sharing the results of the CRD pilot project with others at a symposium and through ongoing communications
3. **To support the development of "clean tech" opportunities in the CRD by:**
    a. Encouraging the private sector to examine clean, renewable and local energy sources for hydrogen production
    b. Supporting learning opportunities for University of Victoria students
4. **To identify opportunities for greater regional resilience (emergency preparedness) by:**
    a. Researching possibilities to use electric vehicles as a power source during outages
    b. Where appropriate, incorporate strategies to enhance emergency preparedness and resiliency through the use of electric vehicles into corporate plans

This project is being developed in partnership with the Province of British Columbia (Ministry of Energy and Mines) and the University of Victoria Integrated Energy Systems (IESVic). A project team with representatives from each entity is conducting feasibility analysis and developing a project proposal and work plan.

The project will be jointly funded through industry, grants, university, and government contributions in the following way:

- Piloting of zero emissions technology, including fuel cell electric vehicles, battery electric vehicles and electric bicycles, will be jointly funded through the Green Municipal Fund Pilot Project stream, the CRD equipment replacement fund, and the Provincial Clean Energy Vehicle Program. The net cost to the CRD will be equivalent to existing costs for equivalent vehicles, after grant and incentive funds are factored in, and vehicle cost is analysed on a life-cycle basis.

- Telematics devices providing data (e.g. fuel consumption and usage pattern etc.)necessary to understand the opportunities for financial, operational and GHG savings will be jointly funded through the CRD and the Provincial Fleet Champions Program.

- Funding for research and analysis will be jointly funded through the Institute for Integrated Energy Systems (IESVic), the Pacific Institute for Climate Solutions, and the Green Municipal Fund.

The Green Municipal Fund provides grants up to 50% of project costs, with a maximum contribution of $350,000 for pilot projects. The zero emissions fleet initiative will be developed to align with the Green Municipal Fund pilot definition:

> "A pilot project allows for the evaluation of a new technology under expected operating conditions. It assesses technical and financial feasibility using a verifiable monitoring and evaluation process, and examines the environmental social and economic performance of potential full-scale implementation. Typically, a pilot project minimizes capital costs and is geared for permanent instillation should the pilot succeed".

The initiative has an overall budget of 3 million dollars, of which 2.3 million dollars is for the cost of hydrogen fuelling infrastructure. The CRD intends to apply to the Federation of Canadian Municipalities' Green Municipal Fund for a grant of $350,000 to support this project, and cash and in kind funding would be provided through the University of Victoria and the Province of British Columbia.