

Canada Infrastructure Bank's Zero Emission Bus Program

Canada Infrastructure Bank Debt Financing of Additional Electric Buses

Recommendation

That Executive Committee recommend to City Council:

That capital profile 21-61-3621 - Electric Buses - ZEB Program, set out in Attachment 2 of the April 12, 2021, City Operations report CO00366, be approved with funding as follows:

- \$12,560,000 transferred from existing capital profile CM-66-3600 Bus Fleet & Equipment Rehabilitation and Replacement, and
- \$14,440,000 of new Tax-Supported Debt from the Canada Infrastructure Bank - Zero Emissions Buses Program.

Executive Summary

The Canada Infrastructure Bank (CIB) is offering financing through their Zero Emission Bus Program to enable cities to borrow the upfront cost difference between a zero emission bus (ZEBs) or electric bus, and a conventional diesel bus. For a total cost of \$27.0 million, with \$12.6 million reallocated from the existing fleet and equipment rehabilitation and replacement profile and \$14.4 million of debt financing from the Canadian Infrastructure Bank, the City can purchase 20 electric buses to replace diesel buses reaching their end of life.

Currently, the upfront cost difference is approximately \$722,000 per bus, with a diesel bus costing \$628,000 and an electric bus costing \$1.35M. Borrowed amounts will be repaid with savings from lower operating costs of the electric buses compared to diesel buses. By accessing this funding, the City could purchase an additional 20 electric buses to replace diesel buses reaching their end of life. Twenty additional electric buses would bring the total electric buses in the fleet to 60, the maximum that can be served by existing charging infrastructure at Kathleen Andrews and Centennial transit garages. CIB's Zero Emission Bus Program will allow ETS to improve the customer experience and help the City meet its climate resilience goals. Maximizing electric bus capacity will support The City Plan and ConnectEdmonton's strategic goal of climate resilience by lowering the City's greenhouse gas (GHG) emissions.

Report

Electric buses contribute to the City's shift toward more sustainable transportation, a lower carbon footprint, and high-quality transit service for Edmontonians. ETS' electric buses produce near zero tailpipe emissions, are much quieter and require less maintenance because an electric motor has fewer moving parts compared to a diesel engine. ETS is currently an industry leader in North America as the first transit service to have overhead chargers inside transit facilities. Charging from above, rather than using floor-mounted plug-in chargers, greatly reduces the amount of floor space needed for charging. ETS currently has 40 electric buses in service. As the transit industry looks to transition to electric buses, ETS is sharing knowledge and data to help inform electrification programs in other jurisdictions.

Electric buses are currently 38 to 44 percent better than diesel equivalents in terms of GHG emissions when both upstream and tailpipe emissions are considered. They are expected to become 72 to 74 percent better by 2034 as the GHG intensity reduces as Alberta's electric grid improves.

Electric Bus Fleet and Charging Infrastructure Capacity

Existing electric bus infrastructure at the Kathleen Andrews Transit Garage and Centennial Transit Garage can support a maximum of 60 electric buses distributed between the two garages. Currently, the City has 40 electric buses in the fleet and can accommodate an additional 20. To expand the fleet beyond 60 buses would require substantial additional investment in the supporting charging infrastructure.

Zero Emission Bus Program proposed by Canada Infrastructure Bank

The upfront purchase cost for a zero emission bus or an electric bus is significantly higher than a diesel bus. To assist in funding the gap and accelerate the deployment of electric buses, Canada Infrastructure Bank has launched a program to finance a portion of the cost of acquisition of electric buses across Canada. Details of the program are outlined in Attachment 1.

The electric buses are expected to have lower operating costs than diesel buses. Canada Infrastructure Bank will provide the City a loan to finance the additional costs of purchasing an electric bus instead of a diesel bus. The financing is repayable through operating cost savings of electric buses compared to diesel buses over the term of the financing. The financing term is 12 years based on the expected lifespan of the electric buses in Edmonton. A formal loan agreement between the City and Canada Infrastructure Bank will outline reporting requirements and the repayment schedule, which is 75 percent of the annual baseline cost savings forecast between diesel buses and electric buses. In any given year, the repayment of the loan is the lower of 75 percent of the forecasted savings and the actual savings. Each year all

actual savings above 75 percent of the forecasted savings are retained by the City, or used for repayment for prior or future years where the forecasted savings are not achieved.

In the event that savings are not achieved, the CIB may require the City to prepare and provide a remedial plan to demonstrate how actual savings may be improved.

Next Steps

Ensuring ETS' electric bus capacity is fully realized will allow the City to achieve lower GHG emissions. If City Council wishes to access Canada Infrastructure Bank's loan for electric buses, Administration will adjust the capital budget to reflect purchasing electric buses rather than diesel buses that were planned to reduce the total fleet age. Should Council approve the recommendation, Administration would finalize an agreement, including loan rates and terms. Should Council approve the recommendations in this report, borrowing Bylaw 19665 is on the April 19, 2021, City Council meeting agenda ready for first reading of the borrowing bylaw with the loan terms identified authorizing the City to borrow from Canada Infrastructure Bank.

Subject to approval of third reading of the borrowing bylaw Administration would enter into an agreement based on the existing contract with the electric bus manufacturer for the additional 20 buses.

Public Engagement

Prior to second reading, the bylaw will need to be advertised and proceed to a public hearing in accordance with the *Municipal Government Act*. As part of Vision 2050 public engagement was conducted to inform Council's strategic plan, ConnectEdmonton. The strategic goal of climate resilience would be supported by purchasing 20 electric buses instead of diesel buses. Feedback on each element of the plan, the vision, principles and goals, was collected and validated with over 5,000 (4,053 survey, 1,634 session participants) Edmontonians providing input. This report requests funding to replace retiring diesel buses with additional electric buses to expand on the existing electric bus program which is aligned to the goals articulated in ConnectEdmonton, as such, no further public engagement is required.

Budget/Financial Implications

Replacement diesel buses are currently funded under the CM-66-3600 Bus Fleet & Equipment Rehabilitation and Replacement capital profile for the 2019-2022 capital budget. The Canada Infrastructure Bank funding would be used to pay for the incremental difference between the cost of an electric bus compared to a diesel bus. The incremental difference is approximately \$722,000 per bus (cost of a replacement diesel bus is \$628,000, compared to \$1.35M for an electric bus). A total of 20 electric buses would be acquired, resulting in a total borrowing of \$14.4M

To fund the entire purchase of 20 electric buses, a total of \$27.0M in funding is required for the 21-61-3621 Electric Buses - ZEB Program capital profile (Attachment 2). This funding would comprise approximately \$12.6M transferred from capital profile CM-66-3600 Bus Fleet & Equipment Rehabilitation & Replacement, and the remaining funding of \$14.4M would be from the Canada Infrastructure Bank financing agreement.

Initial discussions with CIB suggest an estimated interest rate of one percent per year would be charged on the outstanding loan balances during the term of the loan. The interest rate will not be finalized until the transaction is complete but Administration expects the interest rate to be competitive with the current rates available with Treasury Board and Finance. The City's current interest rate through the Treasury Board and Finance for a 15 year loan is 2.332 percent per year (as of March 15, 2021).

Repayment of the CIB loan would take place over 12 years, which is the expected life of an electric bus, and would be funded through operating savings as a result of converting from diesel buses to zero emission buses. It is anticipated that in the first year of operation, cost savings of approximately \$67,000 per bus would be required in order to repay the loan. The cost savings are the sole source of funds that will be used to repay the loan. The City will take on the retained savings risk should there be an excess of savings in one period, the savings will be used to offset periods where there may be a savings shortfall. This risk is capped at the maximum amount of actual savings realized over the term of the loan. Canada Infrastructure Bank takes the risk of loan repayment if, overall, actual savings are less than the forecasted amount required for the entire load period.

If this capital profile is approved by City Council as a part of the Spring 2021 Supplemental Capital Budget Adjustment discussion on May 31, 2021 a funded service package will be brought forward as a part of the Fall 2021 Supplemental Operating Budget Adjustment report in December 2021. It would include all operating impacts of capital including the redirection of reduced operating costs to pay for the debt servicing on the CIB loan. There should be no operating impacts of capital for 2021.

Corporate Outcomes and Performance Management

Corporate Outcome(s): Edmonton is an Environmentally Sustainable and Resilient City			
Outcome(s)	Measure(s)	Result(s)	Target(s)

Canada Infrastructure Bank's Zero Emission Bus Program - Canada Infrastructure Bank Debt Financing of Additional Electric Buses

Edmonton is an environmentally sustainable and resilient City	Community Greenhouse Gas Emissions (millions tonnes of carbon dioxide equivalents)	19.4 (2017)	11.0 by 2035 (35% below 2005 levels by 2035)
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Risk Assessment

Risk Element	Risk Description	Likelihood	Impact	Risk Score (with current mitigations)	Current Mitigations	Potential Future Mitigations
Financial	Operating cost savings of ZEB compared to diesel buses are different than forecast.	3-Possible	2-Moderate	1- Low	If actual savings are lower than 75% the forecast savings, then the repayment to the CIB is only the actual savings.	If actual savings are above 75% of forecast savings, the savings will need to be retained to be used for repayment of prior/future years where the 75% forecasted savings was/may not be achieved.

Risks if NOT approved

Risk Element	Risk Description	Likelihood	Impact	Risk Score (with current mitigations)	Current Mitigations	Potential Future Mitigations
Public Perception	Transition to a low carbon city has been identified as a priority. Not proceeding with CIB-ZEB program would increase the risk of not succeeding with this goal.	3-Possible	2-Moderate	6-Low		Increased renewal capital allocated to fund replacement buses.

Attachments

1. Canadian Infrastructure Bank Growth Plan: Overview of \$1.5B Zero Emission Buses Initiative
2. Capital Profile 21-61-3621 - Electric Buses, ZEB Program

Others Reviewing this Report

- M. Persson, Chief Financial Officer and Deputy City Manager, Financial and Corporate Services
- C. Owen, Deputy City Manager, Communications and Engagement
- S. McCabe, Deputy City Manager, Urban Form and Corporate Strategic Development
- A. Laughlin, Deputy City Manager, Integrated Infrastructure Services
- K. Fallis-Howell, Acting City Solicitor