



City of Richmond

Report to Committee

To: Public Works & Transportation Committee

From: Peter Russell,
Director, Sustainability and District Energy
Suzanne Bycraft,
Director, Public Works Operations

Date: April 17, 2024

File: 10-6125-01/2024-Vol 01

Re: Public Electric Vehicle Charging Network – Use of Proceeds from Low Carbon Fuel Standard (LCFS) Credits

Staff Recommendations

That, as described in the report titled “Public Electric Vehicle Charging Network – Use of Proceeds from Low Carbon Fuel Standard (LCFS) Credits”, from the Director, Sustainability and District Energy and Director, Public Works Operations, dated April 17, 2024:

1. Staff be authorized to sell LCFS carbon credits at the highest value to the City;
2. Revenue from the sale of LCFS carbon credits be put into the City’s Carbon Tax Provision account and be reserved for capital and operating costs related to the installation and maintenance of new electric vehicle charging stations;
3. The Chief Administrative Officer and General Manager, Finance and Corporate Services be authorized to enter into an agreement for the sale, aggregation and/or contract to sell LCFS carbon credits; and
4. Staff report back in three years updating Council on use of revenue generated from the sale of LCFS carbon credits to expand the City’s EV charging infrastructure.

Peter Russell,
Director, Sustainability and District Energy
(604-276-4130)

Suzanne Bycraft
Director, Public Works Operations
(604-233-3338)

Att. 2

REPORT CONCURRENCE		
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
Finance Department	<input checked="" type="checkbox"/>	
Capital Buildings Project Development	<input checked="" type="checkbox"/>	
Fleet	<input checked="" type="checkbox"/>	
SENIOR STAFF REPORT REVIEW	INITIALS: 	APPROVED BY CAO

Staff Report

Origin

This report provides an overview of the provincial Low Carbon Fuel Standard's (LCFS) carbon credit market and requests authorization to conduct a sale of LCFS carbon offset credits that the City accumulated in a four year period, from January 2020 to December 2023. Accumulated credits correspond to the reduction in gasoline and diesel consumption resulting from vehicles charging at the City's public and fleet electric vehicle (EV) charging network. Staff are seeking Council direction on the overall use of the credits, and allocation of revenue from the sale of LCFS credits. This pertains both to credits earned to date and for future credits generated until the scheduled conclusion of the LCFS carbon offset market in 2030.

At the General Purposes meeting on December 18, 2019, Council received a report titled "Parking Stall Fees at City-Owned Electric Vehicle Charging Stations". This report recommended fees for users of the city-owned EV charging network based on a cost-recovery approach. The proposed fees were intended to recover costs for electricity, annual operation and maintenance associated with the public charging network. The fees were not designed to generate revenue for expansion of the network.

At the General Purposes meeting on January 20, 2020, Council received a report titled "Comments on the BC Zero Emission Vehicles (ZEV) Act Regulations Intentions Paper" which contained staff comments urging the Province to reduce the number of credits issued for Zero Emission Vehicles (ZEVs) to be used for compliance with the ZEV Act. The new ZEV sales credits addressed in that report are different from, and not exchangeable with, the EV charging credits for LCFS compliance addressed in this report.

This report supports Council's Strategic Plan 2022-2026 Focus Area #2 Strategic and Sustainable Community Growth:

Strategic and sustainable growth that supports long-term community needs and a well-planned and prosperous city.

2.3 Ensure that both built and natural infrastructure supports sustainable development throughout the city.

2.4 Enhance Richmond's robust transportation network by balancing commercial, public, private and active transportation needs.

This report supports Council's Strategic Plan 2022-2026 Focus Area #5 A Leader in Environmental Sustainability:

Leadership in environmental sustainability through innovative, sustainable and proactive solutions that mitigate climate change and other environmental impacts.

5.1 Continue to demonstrate leadership in proactive climate action and environmental sustainability.

This report supports the implementation of Richmond’s Community Energy and Emissions Plan (CEEP) 2050, and Official Community Plan emission reduction policies through:

Strategic Direction 2: Transition to Zero Emission Vehicles

Action Category: Build out a network of public EV charging stations at civic facilities to accelerate rate of local EV adoption

This report also supports the Sustainable Green Fleet Policy by maximizing the use of alternative fuels and technologies, and minimizing emissions and fuel consumption where practicable.

Analysis

BC Low Carbon Fuel Standard and Carbon Credit Market

The Province of BC has implemented a Low Carbon Fuel Standard (LCFS) to reduce greenhouse gas (GHG) emissions from the transportation sector as part of the larger CleanBC strategy to address climate change. The LCFS is a regulatory framework with the objective of reducing reliance on non-renewable transportation fuels in BC, and spurring the growth of low-carbon fuel alternatives in the transportation sector, such as, light-, medium- and heavy-duty electric vehicles. The LCFS sets increasingly stringent annual carbon intensity limits for gasoline and diesel fuels from 2022 until 2030¹. Of note, the federal and provincial government have mandated that all new light-duty vehicle sales must be zero emission vehicles (ZEVs) by 2035, increasing the need for EV charging infrastructure.

The LCFS allows regulated fuel suppliers in BC to purchase GHG emission offsets as an alternative to investing in measures that would directly reduce emissions from the production and combustion of gasoline and diesel fuels. Accordingly, a credit trading system has been created within the LCFS that allows fuel suppliers to acquire carbon offsets by purchasing the GHG emission reductions achieved when battery electric and plug-in hybrid vehicles charge with near zero emission electricity at EV charging stations. Suppliers that deploy EV charging systems, including municipalities with public EV charging facilities, earn credits for the clean energy delivered to vehicles using their facilities. These credits can then be sold to LCFS regulated transportation fuel suppliers. Because the LCFS market came into operation in 2020, all electricity provided by the City’s EV charging network since this date is eligible for conversion into carbon credits.

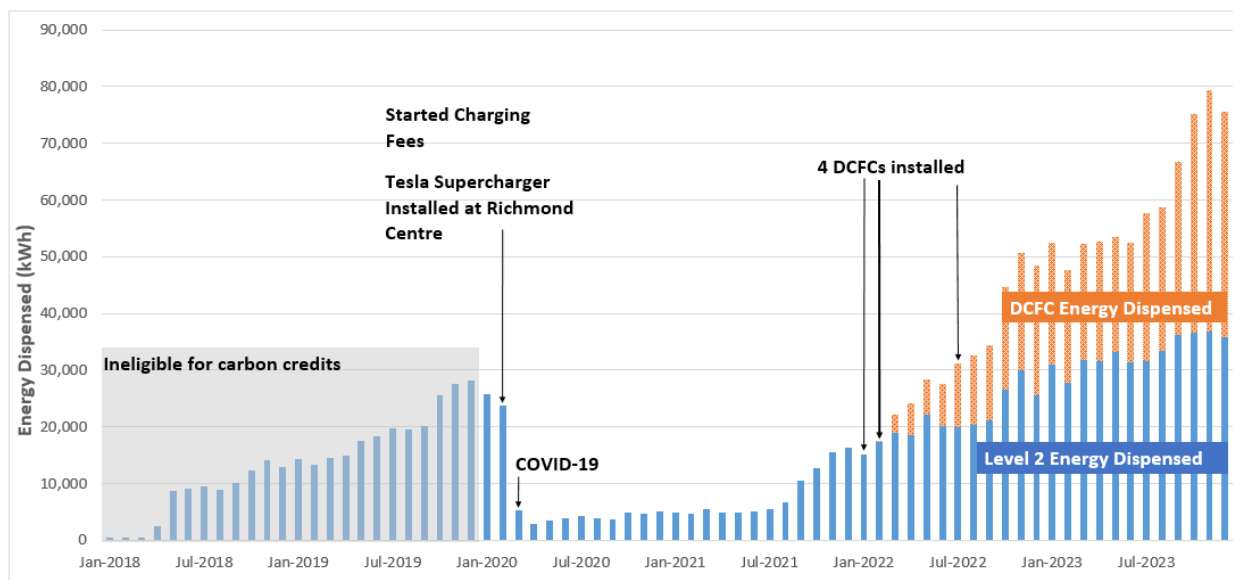
Use of City’s Public and Fleet EV Charging Network (2018-2023)

The City’s public and fleet EV charging network has grown over the past five years, and currently comprises 114 chargers (see Figure 1 showing monthly utilization levels from January 2018 to December 2023). Starting in 2018, staff observed an accelerating growth in the amount of electricity provided to ZEVs through to March 2020. Shortly after a drop in use of the City’s public EV chargers occurred, which persisted until mid-2021. Causal factors for this included onset of the COVID pandemic, introduction of fees for the City’s public charging network, and the opening of Tesla’s large ‘supercharger’ facility at Richmond Centre.

¹ Measured in grams of CO₂e per mega joule of energy consumed.

However, by the second half of 2021, use of the City’s public charging network rebounded, driven by easing of pandemic restrictions, ongoing increase in the number of electric vehicles within Richmond, and expanding number of City-owned EV charging stations. Overall charging activity on the City’s network had recovered to pre-COVID levels by mid-2022, and has more than doubled again by fall 2023.

Figure 1: Use of the City’s Public & Fleet EV Charging Network (2018-2023)



Monetizing EV Charging Credits through LCFS

Between January 2020 and the end of 2022, the City of Richmond’s public and fleet EV charging system provided 488 MWh of electricity, generating 434 LCFS offset credits. In 2023 alone, the City’s charging network provided an additional 724 MWh to ZEVs. Using the November 2023 average price per credit of \$490, staff estimate that the 1.21 GWh of electricity provided during the 2020-2023 period would result in 1057 credits with an estimated market credit value of \$517,930.

To monetize the credits generated through the City’s EV charging network, two options are available. The first option involves a direct sale or transfer of credits to a fuel supplier at a mutually agreed-upon amount per credit. This approach is straightforward and allows the City to negotiate directly with purchasers, ensuring a transparent transaction and a predetermined value for the credits. The second option entails contracting an ‘aggregator’ to act on the City’s behalf. In this scenario, the aggregator consolidates credits from various organizations and sells them as a collective batch to purchasers. There is no definitive “best approach” to sell credits as market conditions fluctuate; the most advantageous option for the City may be different each time the City sells credits.

Should Council endorse the recommendations, staff will initiate a procurement process to strategically choose between direct sales to fuel suppliers or utilizing an aggregator, aiming to maximize the value of credits and selecting the most advantageous method for each transaction. The Chief Administration Officer and General Manager, Finance and Community Services will

oversee and approve such transactions ensuring the City receives the highest value. Staff will update Council annually detailing the quantity of credits generated and any sales conducted.

Use of Revenue Proceeds from LCFS Carbon Market

Staff recommend that revenue from the sale of credits be reinvested to support ongoing expansion of City's public and fleet charging network. Staff will bring forward opportunities to add EV chargers in the annual capital budget process to support continued expansion of the City's public and fleet EV charging network.

New 'on-the-go' public charging will preferentially be installed in areas of Richmond with relatively high numbers of residents who do not currently have easy access to charging at home. Doing so will maximize the percentage of Richmond households that can easily access charging opportunities, thereby accelerating the pace of EV adoption. Locations will also be based on existing electrical capacity and site constraints.

Staff note that there is currently no dedicated capital funding for the expansion of the EV charging network; all previous expansions were largely achieved through provincial and federal grants. Further expansion of the City's EV charging network is expected to generate additional LCFS offset credits relative to current levels. Reinvestment of this revenue into the City's public and fleet EV charging network could move the City towards a self-financing model through to 2030, when the LCFS program is anticipated to end.

Staff are developing a scope of work for an e-mobility strategy that involves a financial analysis of the current EV charging network and a feasibility study for expansion, incorporating existing EV-ready policies. The aim is to model the required number of chargers, considering the anticipated increase in zero-emission vehicles (ZEVs) within the City.

Canada's Clean Fuel Regulation

Similar to the LCFS, the Canadian Clean Fuel Standard (CFS) is a regulatory framework aimed at reducing greenhouse gas emissions associated with the production and use of transportation fuels. The CFS establishes carbon intensity targets for each fuel type requiring suppliers to decrease the carbon intensity of their products over time. Staff are researching the implications and potential benefits of the CFS. The CFS credit market started in June 2022 and the first credit transactions began one year later in June 2023. While credits under CFS cannot be claimed retroactively, preliminary findings suggest potential credit opportunities, particularly from the City's deployment of EV chargers and the utilization of propane for fleet vehicles. It may also be possible to claim credits under both the British Columbia Low Carbon Fuel Standard and the Canadian Clean Fuel Regulation. Staff are in conversation with the City's EV charger provider and staff from the federal government, and staff will update Council once clear opportunities within CFS credit market are determined.

Financial Impact

The value of LCFS credits is demand-driven and fluctuates. As of November 2023, each credit was valued at \$490. At this estimated market price, the total LCFS carbon offsets generated by the

City's public and fleet EV charging network in 2020-2023 would be \$517,930, of which \$305,270 came from offsets generated in 2023 alone. These proceeds would be allocated to the Carbon Tax Provision account to support ongoing reinvestment of these proceeds in new EV charging stations. These proceeds would reduce the amount of capital and operating costs required from other City budgets.

Conclusion

The City's EV charging network serves as a key component of the City's commitment to achieve deep emission reduction targets for transportation for 2030 and 2050 as set out in the CEEP 2050. BC's near zero emission grid electricity provided to ZEVs through the City's chargers generates Low Carbon Fuel Standard (LCFS) credits, since this electricity replaces the use of gasoline and diesel by vehicles.

Staff are recommending that GHG emission reduction credits generated by the City's EV charging network be sold to purchasers seeking to meet their obligations under the Provincial Low Carbon Fuel Standard, and that revenue realized through the sale of LCFS credits be invested in further expansions of the City's public and fleet EV charging network. Staff will update Council annually via memo on total credits generated and any carbon credits sold.



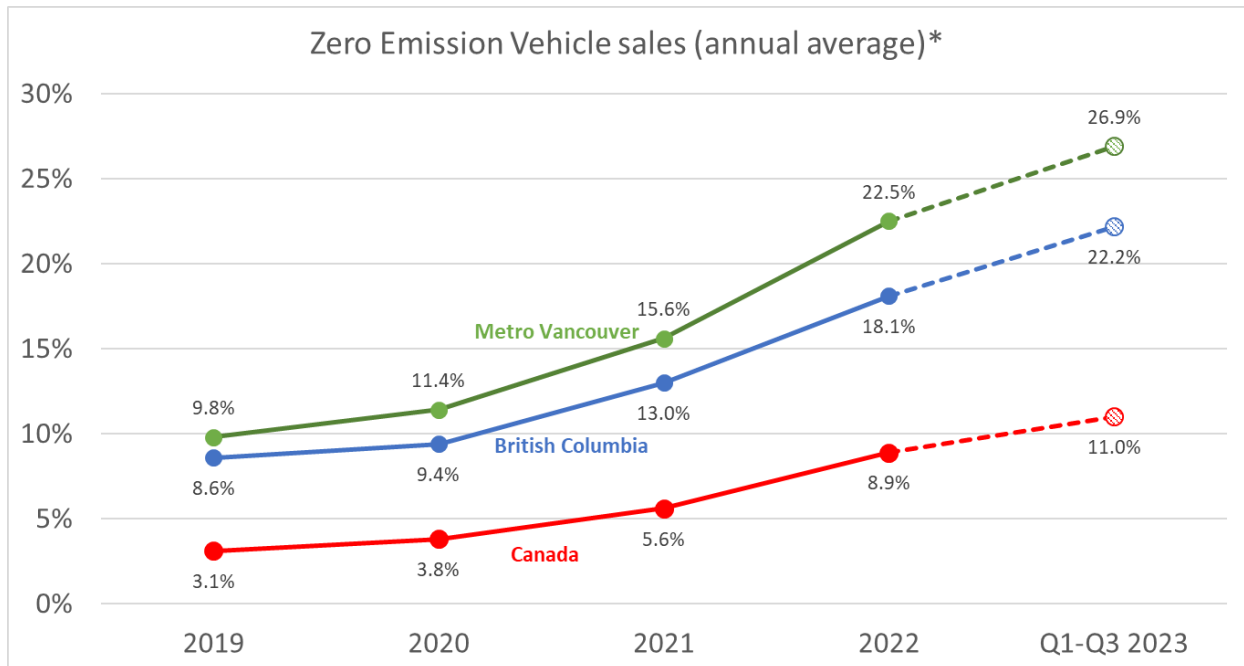
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- Att. 1: Market adoption of Zero Emission Vehicles (ZEVs)
- 2: Value of LCFS Carbon Offset Credits over time

Market adoption of Zero Emission Vehicles (ZEVs)



* % of light-duty vehicle sales in Canada, British Columbia and Metro Vancouver

Value of LCFS Carbon Offset Credits over time

