BOMA BRITISH COLUMBIA

CARBON COMPLIANCE CREDITS:

How to Report and Generate Revenue from your EV Chargers

Provided By:

Leading Ahead ENERGY

Table of Contents:

EXECUTIVE SUMMARY

The number of EVs in British Columbia has been increasing exponentially and is ramping up to surpass the sale of internal combustion engine vehicles.

Despite efforts from various levels of government aimed at increasing home charging opportunities, an ever-increasing number of EV drivers will not have access to EV charging at home for the foreseeable future. These 'garage orphans' will seek to have access to EV charging at their workplaces and commercial sites that they frequent to meet their charging needs.

For BOMA BC members, there is a significant opportunity to generate income from EV charging services and, in turn, increase asset value.

In Canada, there are currently two carbon compliance credits programs that organizations can participate in.

British Columbia - Low Carbon Fuel Standard (LCFS)
Federal - Clean Fuel Regulations (CFR)

Both programs permit EV charging stations to generate carbon credits that may be sold in a public credit market.

CFR credits cannot be directly monetized, but it is encouraged that BOMA BC members with EV charging stations inquire about the CFR program revenues with their charging-network operator.

Through the LCFS, the owner of the charging station owns the carbon LCFS credits produced by that charging station and can thus monetize those credits to generate additional revenue from their EV charging assets.

LCFS credits may be generated and monetized from EV charging assets by following the steps outlined in this guidance document or by working with an aggregator who compiles the LCFS credits of multiple clients and then sells the LCFS credits with an organization with LCFS debts.

PURPOSE OF THIS GUIDE

This guide has been created to aid building owners, property managers, and their consultants in meeting the reporting requirements for the generation of carbon compliance credits associated with electric vehicle (EV) charging at their facilities through the Low Carbon Fuels Standard (LCFS) in British Columbia (BC).

Additionally, this document provides an overview of the methodology for compliance reporting for LCFS credits in BC and best practices for monetizing LCFS carbon compliance credits to obtain additional revenue from EV charging assets. The document also provides guidance for obtaining revenue associated with carbon compliance credits generated through the federal Clean Fuel Regulations (CFR).

Definitions

EV Charger or EVSE

The Canadian Electrical Code (CE Code) defines electric vehicle supply equipment (EVSE), or EV chargers as commonly called, as "a complete assembly consisting of cables, connectors, devices, apparatus, and fittings installed for the purpose of power transfer and information exchange between the branch circuit and the electric vehicle."

Charging Levels

Format	Voltage	Output	Approx. Charge Time (0-80%)	Asset Suitability
Level 1	110-120V	1kW	48hrs + hours	-Residential -Single Family Home
Level 2	208-240V	6.6-19kW	6-8 hours	-Retail -Workplace -Multi-unit
Level 3 (DCFC)	480-900V	25kW - 350kW	20 mins to 2hrs	-Retail -Gast Station

Network Operator

The EV chargers can be remotely operated and monitored by an EV charging network operator (sometimes referred to as a charge point operator - CPO). They are a third party contracted to manage the EV charging service. A network operator's typical responsibilities include:

- Access Control
- Remote Monitoring
- 24-hour Customer Service Line
- Billing & Revenue Collection
- Energy Metering
- Data Reporting
- Load Management Integration

The Growing Demand for EV Charging

Canadian EV Market 2023

In Canada, EV ownership is growing as more people become aware of the environmental and economic benefits of EVs. According to the Statistics Canada (Stats Can), there are over 516,000 EVs registered in Canada as of Q3 of 2023.[1]

However, this number is due to drastically increase based on sales growth. There are approximately 1.6m new vehicles sold in Canada each year. The percentage of new vehicle sales that are zero emission vehicles (ZEVs), defined by Stats Can as plug-in hybrid vehicles (PHEVs) and battery electric vehicles (BEVs), was 12.1% in Q3 of 2023, equating to 193,600 ZEVs per year (Stats Can 2023).

Sales Growth per Region

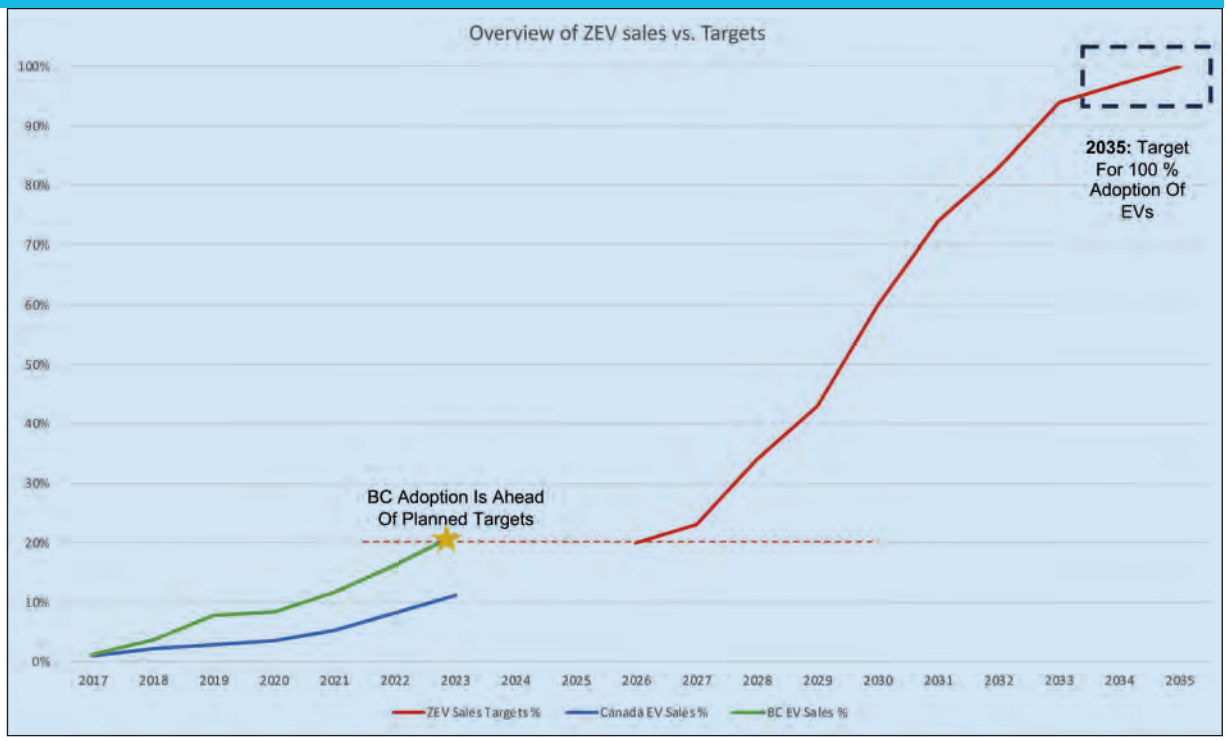
In 2023, British Columbia continued to lead the country, with ZEVs close to one in every four new vehicles registered in Q3 2023 (23.2%), up from 20.1% in Q2 2023.

EV adoption is strongest in cities where there is high population density, shorter distances are travelled and generally higher levels of income. Vancouver, Toronto, and Montreal have some of the highest EV adoption rates in Canada.

Outlook

The *Electric Vehicle Availability Standard* under the *Passenger Automobile and Light Truck Greenhouse Gas Emission Regulations* was published on December 20th, 2023, providing a ZEV sales mandate for new light-duty vehicle sales in Canada. The mandate requires a minimum of 20% of light-duty vehicles offered for sale across Canada to be ZEVs by 2026, 60% by 2030, and 100% by 2035.

1 New motor vehicle sales, quarterly



Overview of ZEV sales vs. Targets

EV Charging Requirements in BC

There are 28 municipalities in BC that require the installation of electrical infrastructure for EV charging at new residential developments. Most of these requirements are enabled through a municipal zoning bylaw that mandates that each parking stall features an energized junction box making it 'EV Ready.'

A number of these municipalities also require a percentage of parking stalls at commercial buildings to be 'EV Ready.' The City of Vancouver has taken an additional step to increase the number of EV chargers by increasing the business license fees for gas stations and commercial parking lots with over 60 stalls unless they meet *minimum charging specifications.*

A list of the municipal requirements across Canada, produced by Electric Autonomy Canada, can be found *here*.

Role of EV Charging in Buildings

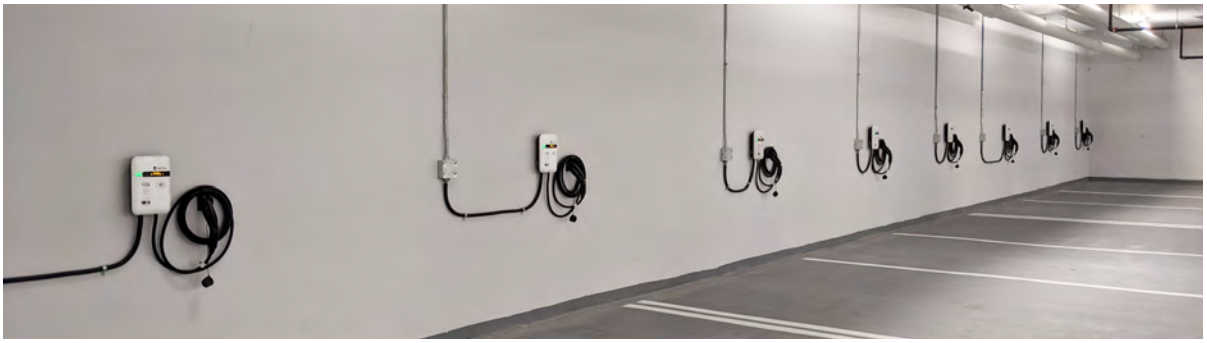
It is estimated that between 80-95% of EV charging occurs at an individual's home.[2] However, that is assuming that an individual has access to charging at their home, which is not likely the case with multi-unit residential buildings (MURBs) that were built before 'EV Ready' bylaws were in place.

New MURBs that have met the EV charging requirements will continue to meet some of the demand, but it is estimated that between 70-80% of the building stock that will be accounted for in 2050 are already built. [3]

Despite efforts from various levels of government aimed at increasing 'EV Ready' retrofits, an ever-increasing number of MURB residents with EVs will not have access to EV charging at home for the foreseeable future. These 'garage orphans' will seek to have access to EV charging at their workplaces and commercial sites that they frequent to meet their charging needs.

Providing access to EV charging for these 'garage orphans' can generate additional income for a property and in the case of commercial and retail properties, draw in customers that may not have frequented the property otherwise. The following section will explore the income opportunities from offering EV charging at a building

2 Charging Ahead: Electric-vehicle infrastructure demand
3 Climate Group: Energy efficiency measures will lead the way to net zero buildings



Income Opportunities

For BOMA BC members, there is a significant opportunity to generate income from EV charging services. Revenue can be generated in three different forms depending upon the site ownership model including: resale of energy, fee for EV charger access, and sale of carbon compliance credits generated.

Resale of Energy

EV charging services can generate revenue via the resale of energy. A typical model is to implement a pay-as-you-go type service with a dollar per hour ($/hr) or a dollar per kilowatt hour ($/kWh) rate set by the site to cover costs or to achieve an investment return.

For example, a typical Level 2 charging session lasts around 2 hours, or 16kWhs. Based on today's market standard rate this would generate a session revenue of approximately $4.00. The cost of the input electricity would be approximately $2.00 (based on the Canadian average). Additional costs that should be considered include network provider fees, maintenance budget(s), and transaction fees. The price should be set at a rate that generates profit with all these costs factored in.

Fee for EV Charger Access

In rental and/or workplace settings, a fee for access to EV charging stations can be billed to tenants. This can be done through an increase in the parking fee or a similar mechanism.

A typical example of this fee structure is a commercial site offering workers access to an EV charger in their dedicated parking for a higher monthly parking fee. Through the network service provider's platform, the site manager can restrict access to the EV charger so that only the user who pays for the parking spot may access the EV charger.

Carbon Compliance Credits

Carbon compliance credits offer an opportunity to generate additional revenue and significantly increase the ROI of EV charging infrastructure. The carbon compliance credit market is new for EV chargers and presents many complexities that will be discussed in the next section of this guidance document.

Overview of Carbon Credits

Carbon compliance credit programs are mandated laws that aim to reduce the carbon emissions associated with transportation in a jurisdiction. They provide financial incentives for applicable parties (e.g. fuel manufacturers, importers, and suppliers) to reduce the carbon intensity (CI) associated with the fuels they produce.

Carbon compliance credit programs are part of the government's efforts to reduce greenhouse gas emissions (GHG) and spur growth in the clean fuels industry. These programs are designed to incentivize businesses, organizations, and individuals to reduce their GHG emissions by creating a credit debt for every tonne of carbon dioxide equivalent (CO2e) generated from fuels with a CI above a mandated target and generating credits for every tonne of CO2e saved by using fuels below the CI target mandated.

In Canada, there are currently two carbon compliance credits programs that organizations can participate in.

British Columbia - *Low Carbon Fuel Standard (LCFS)*
Federal - *Clean Fuel Regulations (CFR)*

Both programs permit EV charging stations to generate carbon credits that may be sold in a public credit market.

EV charging stations located in BC may be eligible to participate in both programs simultaneously.

LCFS & CFR requirements

- Both the LCFS and CFR apply to suppliers of diesel and gasoline, and their substitutes, supplied for transportation in BC (LCFS) and Canada (CFR).

- Suppliers of fuels with a CI greater than the mandated target must generate or buy enough credits to offset their credit debts.

- Parties with extra credits may sell them to parties with debts and/or bank them for use in later years or sell them.

- Electricity, with a low CI is a credit generating fuel.

- When EV chargers deliver enough electricity to equate to a tonne of CO2 offset (difference between CI mandated target and CI of electrical grid) a credit may be generated.

- The CI mandated target and CI value given to provincial electrical grid(s) varies between the programs.

Clean Fuel Regulations - Federal (CFR)

The CFR is the Canadian Federal Government's carbon compliance program. The CFR was released in June 2022 and the first compliance period filing deadline occurred on June 30st, 2023. The CFR is mandated by the governance of the Canadian Environmental Protection Act. The program has a goal of reducing the CI of mandated fuels by 15% (of 2016 levels) by 2030.

Under the CFR, a charging host, defined as "a person who owns or leases a charging station and who has the legal right to have the charging station installed", may create carbon credits if they have not been generated by a charging-network operator.[4]

A charging-network operator may create carbon credits for EV charging stations that are intended primarily for use by the occupants of a private dwelling and/or by the public per section 102 (1) of the legislation.

It should be noted that section 103 (1) of the legislation mandates that a charging-network operator use revenue generated from monetization of CFR credits in either of the following activities:

> a) expanding electric vehicle charging infrastructure, including charging stations and electricity distribution infrastructure that supports electric vehicle charging, whether intended primarily for use by the occupants of a private dwelling-place or the public; or
>
> b) reducing the cost of electric vehicle ownership through financial incentives to purchase or operate an electric vehicle.

It is recommended that any BOMA BC member with ownership of EV charging assets that are oriented towards the public or occupants of private dwelling charging-network operator inquire with their contracted network operator regarding how they can benefit from the revenue associated with the CFR credits generated from their assets.

Section 103 (1) a) activities can benefit the owners of the EV charging assets through a variety of ways such as:

- Reducing equipment purchase price or networking fees for site hosts to incent additional charging station installation.
- Providing discounts for the purchase of residential network- connected charging stations.
- Upgrading electricity distribution infrastructure that is necessary to enable the installation of charging stations.

Due to the above noted sections within the legislation, generating and monetizing CFR credits will not be the focus of this guidance document.

The following section of this guidance document describes British Columbia's Low Carbon Fuel Standard (LCFS) which can generate additional revenue for an EV charging asset regardless of the target market or use of that revenue.

4 Clean Fuel Regulations Legislation

British Columbia - Low Carbon Fuel Standard (LCFS)

The LCFS is BC's carbon compliance program. It was implemented in 2009 and began to allow EV chargers to generate credits in 2022. It is mandated by the Low Carbon Fuels Regulation under the Low Carbon Fuels Act (formerly the Renewable and Low Carbon Fuel Requirements Regulation).

Carbon compliance credits are generated through the program via an annual compliance report that is submitted to the Ministry of Energy, Mines, and Low Carbon Innovation (Ministry). This reporting is completed through the Ministry's Transportation Fuels Reporting System (TFRS) and involves compiling, analysing, and reporting the data for all chargers that are being accounted for in the annual report.

The electricity that displaces gasoline and diesel in transportation vehicles is considered a "Type B fuel" under the Low Carbon Fuels Act and is subject to reporting requirements.

The following sections of this guidance document will provide an overview for BOMA BC members to meet the requirements of the LCFS and generate additional revenue for EV charging assets through the sale of LCFS credits generated.

Who can generate credits for EV charging?

Utilities

Per section 22 (2) (a) of the Low Carbon Fuels Act, the utility becomes responsible for the supplied electricity in the following situation:

- Vehicle charging at a residential building that includes fewer than five (5) dwelling units.

Organizations

Under the LCFS, an organization is responsible for the fuel (and thus has ownership of the LCFS credits generated from it) if it "supplies the fuel through final supply equipment in British Columbia" according to section 6 (4) (a) in the Low Carbon Fuels Act. In the case of EV charging, this means that the owner of the charging station owns the LCFS credits produced by that charging station.

To generate LCFS credits, an organization must be able to quantify the electricity supplied for transportation to a reasonable accuracy (kWh used to charge EVs). The following methods can be used to quantify the electricity supplied:

- Separate metering: Direct metering where electricity used to charge vehicles is metered separately from other electric loads. An example of this would be a separate utility account for the EV charging service.
- EVSE with built-in data management capabilities: EV chargers that track electricity consumption of vehicle

To participate in the LCFS market the total amount of electricity supplied or exported by the organization through EV charging in the compliance period must exceed 15,000 kWh.

Organizations that do not meet this minimum threshold can still participate in the LCFS market if they aggregate their credits with other organizations and the aggregate meets the minimum threshold.

For example, if an organization does not meet the supply threshold of 15,000 kWh, that organization can either:

- Work with an organization that aggregates the LCFS credits of multiple suppliers.
- Aggregate their carbon credits internally across their portfolio (assuming that the combined total is greater than 15,000 kWh).
- Partner with other suppliers to aggregate their credits. Refer to Allocation Agreements to learn more.

How ownership is validated

The most common method of validating that an organization has legal ownership of the EV charging station(s) is for an LCFS program administrator to request an electric utility bill for the EV charging service in the name of the organization that is reporting it as part of their annual compliance report.

Compliance period

Each compliance period is the calendar year from January 1st to December 31st. Organizations must submit compliance reports, in accordance with the Low Carbon Fuels Regulation, by March 31st following each compliance period.

Prior to producing a compliance report, the organization must register an account with the TFRS reporting tool. It is recommended that organization prepares the required information and apply for a TFRS account well in advance of the March 31st compliance reporting deadline.

Steps to register for a TFRS account

To gain access to TFRS, organizations will need to register with their BCeID and have a Business BCeID user account created for each company representative. Refer to the following link for a step-by-step process for registering a BCeID account:

Setting up a BCeID account

This process is managed by the BCeID Help Desk and all inquiries regarding the sign-up process or issues with an account should be directed to the Help Desk.

Once a Business BCeID user account has been created, the organization lead (one person) will need to request access to TFRS by emailing the Low Carbon Fuels Branch at lcfs@gov.bc.ca with the following information:

- *First and last name*
- *Organization name*
- *The User ID associated with the Business BCeID user account*
- *The email address associated with the Business BCeID user account*

Once the organization lead has obtained access it is their responsibility to manage the organization's users including adding or removing access.

Final Supply Equipment Identification

Prior to reporting electricity supplied through electric vehicle chargers, the Ministry recommends that organizations identify their chargers to the LCFS program administration team. To identify an electric vehicle charger, download and complete the Final Supply Equipment Identification form.

Upon completion of the form, submit it to lcfs@gov.bc.ca.

Allocation Agreements

Section 6 (4) (c) in the Low Carbon Fuels Act states that "a person becomes responsible for a type B fuel (i.e. electricity) if that person (c) is made responsible for the fuel under an allocation agreement." Allocation agreements enable an organization to transfer responsibility of the fuel(s) and enable another organization to aggregate their LCFS credits.

It should be noted that the agreements regarding compensation for aggregation services are not prescribed and/or monitored by the Ministry. It is recommended that a legal agreement be drafted between parties prior to signing an allocation agreement.

If the aggregator is a fuel supplier (defined in the Renewable and Low Carbon Fuel Requirements Regulation as a 'Part supplier'), the following steps may be taken to create an allocation agreement:
Complete and submit a Representation Agreement Form to inform the Ministry of the agreement.
The aggregator reports on the electricity supplied for each customer by emailing lcfs@gov.bc.ca with the Reporting Tools. (The organization that transferred responsibility of the fuel does not use TFRS).
The aggregator retains all legal responsibilities associated with its compliance per section 7 in the Low Carbon Fuels Act.

If the aggregator is not a fuel supplier, they assume the role of an agent acting on behalf of the fuel supplier(s). The following steps are taken to have an agent aggregate carbon credits on behalf of the fuel supplier:

Submit the Representation Agreement Form found with the Reporting Tools to lcfs@gov.bc.ca to inform the Ministry of the agreement between the agent and the fuel supplier.

Agent reports within the supplier's TFRS account on the fuel supplier's behalf.

Fuel suppliers retain all legal responsibilities associated with its compliance with the Low Carbon Fuels Regulation and Low Carbon Fuels Act.

Credits will need to be transferred individually from each fuel supplier's TFRS account during a transaction (i.e. sale of LCFS credits).

Beginning January 1, 2024, the person that has been allocated responsibility for electricity supply:

- Can be any organization (i.e. they will not have to be a fuel supplier).
- Will have legal responsibilities fuel reporting transferred to them.
- Can trade credits, provided they are registered in accordance with the regulations.
- Can have multiple Allocation Agreements and can aggregate credits.

This will begin when reporting for the 2024 compliance period (Jan – Dec 2024) in the 2025 calendar year. This will allow all aggregators to retain legal responsibilities associated with compliance per section 7 in the Low Carbon Fuels Act (previously only available to a fuel supplier).

CREDITS

Validating Credits

Once an annual compliance report has been submitted, whether by a fuel supplier or their aggregator, the annual compliance report must be validated by the Ministry. Once the annual compliance report has been approved by the Ministry, the LCFS credit balance for the reported compliance period will register in the TFRS account of the entity that filed the annual compliance report.

Any LCFS credits that are registered in an organization's TFRS account balance can be taken to market to be transacted. The Low Carbon Fuels Regulation does not provide restrictions as to when the credits must be monetized after they have been approved.

Transferring and monetizing credits

At the end of each compliance period, suppliers must have a balance of zero or more credits to achieve compliance. (Those in debt will need to acquire credits to avoid penalties). The following table, provided by the Low Carbon Fuels Branch, lists the participants in the Credit Market that voluntarily provided contact information:

RLCF-013: Validation & Transfer of Credits

LCFS credit transactions must be initiated via the TFRS system (via a Credit Transfer Proposal Form) once a potential trade has been agreed upon and submitted by the two parties involved in the trade.

All credit transfers must be approved by the Ministry and take effect on the date of approval. In some cases, fuel suppliers have entered into agreements to transfer credits at a set price over a multi-year period. While processing times may vary, the average processing time for a credit transfer proposal is 3-5 business days.

The LCFS transaction process through TFRS does not provide any requirements and/or validation of the legal agreements between the parties conducting the credit transaction. The agreement(s) and transaction value should be determined by legally binding agreements between the two parties involved in the transaction prior to submitting the agreement for approval on TFRS.

The ministry reports market data monthly based on transaction data reported via TFRS. Based on that data, the average value of a an LCFS credit in 2023 was $472 (Credit Market report).

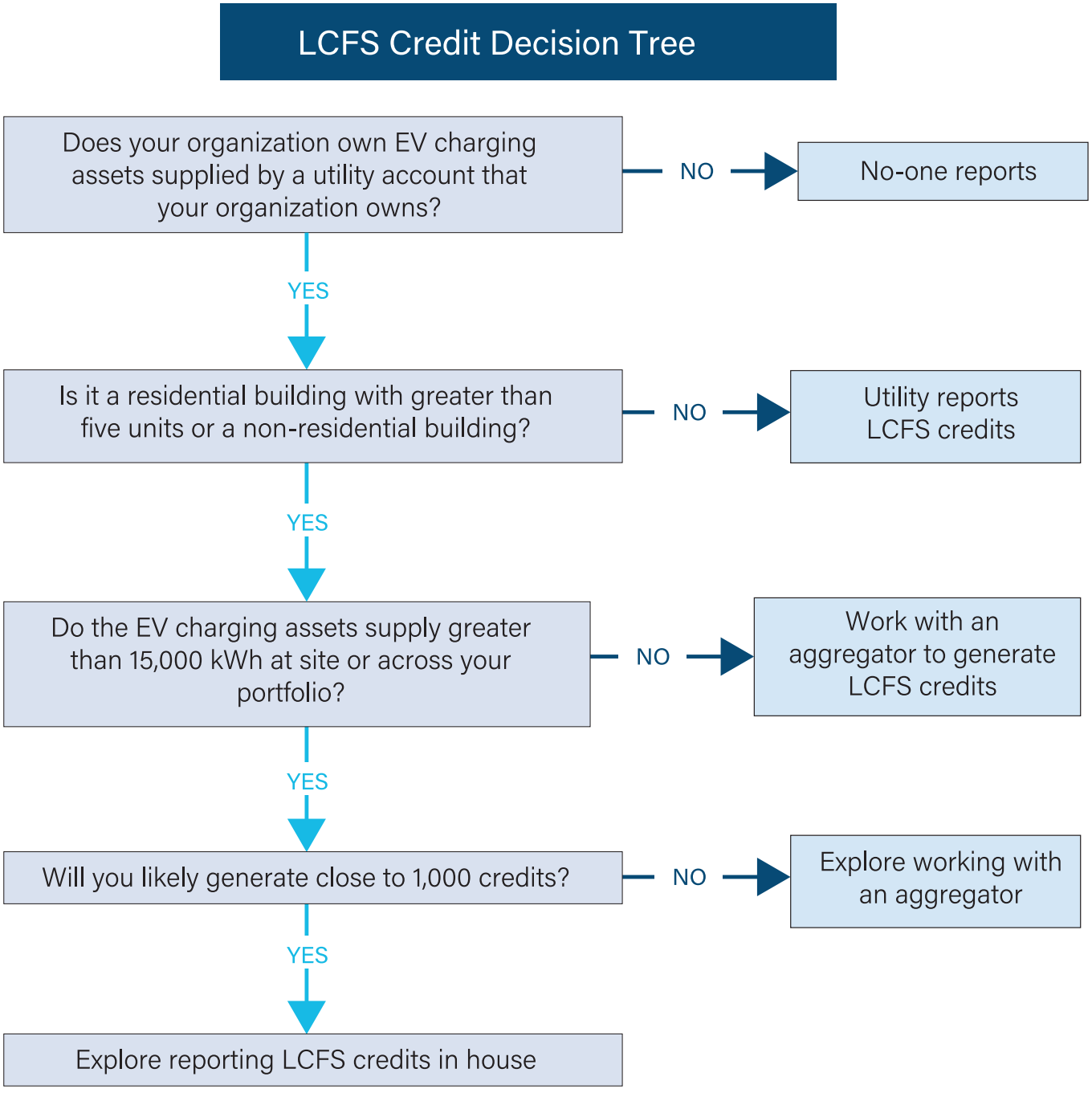
The only restrictions on the pricing of credit transactions are that transfer proposals must include a "fair market price" per section 10 (b) (ii) of the Low Carbon Fuels Regulation.

Best practices for monetizing LCFS credits

Organizations that incur LCFS credit debts are large organizations that produce, import, and/or sell regulated fuels such as gasoline and diesel fuels in BC. Due to size of these organizations and the amount of LCFS credit debts that they are often subject too, they typically prefer to engage in purchasing a large number of LCFS credits. These organizations may set a limit on the minimum number of LCFS credits that they will transact (usually around 1,000 to 5,000 LCFS credits) due to the legal costs associated with compiling and executing agreements prior to the transaction occurring.

Many BOMA BC members with EV chargers will not meet this minimum requirement and must partner with an aggregator who compiles the LCFS credits of multiple clients and then sells the LCFS credits to an organization with LCFS debts. It is common practice in today's market for the aggregator to charge a percentage fee at the time of sale for of the LCFS credits based on the number of LCFS credits monetized for each client.

If an organization has the resourcing to understand the mechanics of the LCFS program and the ability to generate credits greater than the above listed transaction thresholds, they may avoid aggregator fees and take the LCFS credits to market by reaching out to organizations listed as a "Buyer" in the Credit Market Participant list found here:
RLCF-013: Validation & Transfer of Credits



ABOUT

LeadingAhead Energy (LAE) is a professional services firm providing consulting and project management in the electric vehicle (EV) charging infrastructure space. LAE specializes in the real estate sector advising developers, asset managers and property managers on their EV charging infrastructure.

LAE offers a competitive carbon credit aggregation service to help clients obtain value from their EV charging assets.

LAE has advised on, and project managed over 200 new and retrofit EV charging projects across North America. The technical learnings from each project have developed the company into a market leading consulting business.

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