BC NET ZERO
INNOVATION NETWORK

Electric Vehicle Charging Alliance Roadmap

Phase 1 Report

2025

Acknowledgements

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This report was prepared by Foresight Canada. It was written by Randy Zadra with support from Alyssa Kelly, Kylie Williams and members of the EV Charging Alliance Working Group. Design by Steady Studio.

About Foresight Canada

Foresight Canada helps the world do more with less, sustainably. As Canada's largest cleantech innovation and adoption accelerator, we de-risk and simplify public and private sector adoption of the world's best clean technologies to improve productivity, profitability, and economic competitiveness, all while addressing urgent climate challenges.

Foresight's Net Zero Innovation Network in British Columbia de-risks and builds capacity for sectors working towards decarbonization and sustainability. Through our network and working groups, we partner with industry and develop solutions by building projects with innovators, academia, government, communities, and First Nations.

Tapping into BC's powerful natural resources, BCNZIN fosters collaboration and connection across four sectors:

- Mining
- Forest Bioeconomy
- Transportation
- Water

About the Alliance

This project concept was initiated by SFU based on the idea that colleges and universities could collaborate in expanding the overall procurement, development, and availability of charging infrastructure through their extensive land holdings and parking areas. SFU contracted Foresight Canada to assemble a working group and develop this Roadmap.

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Executive Summary

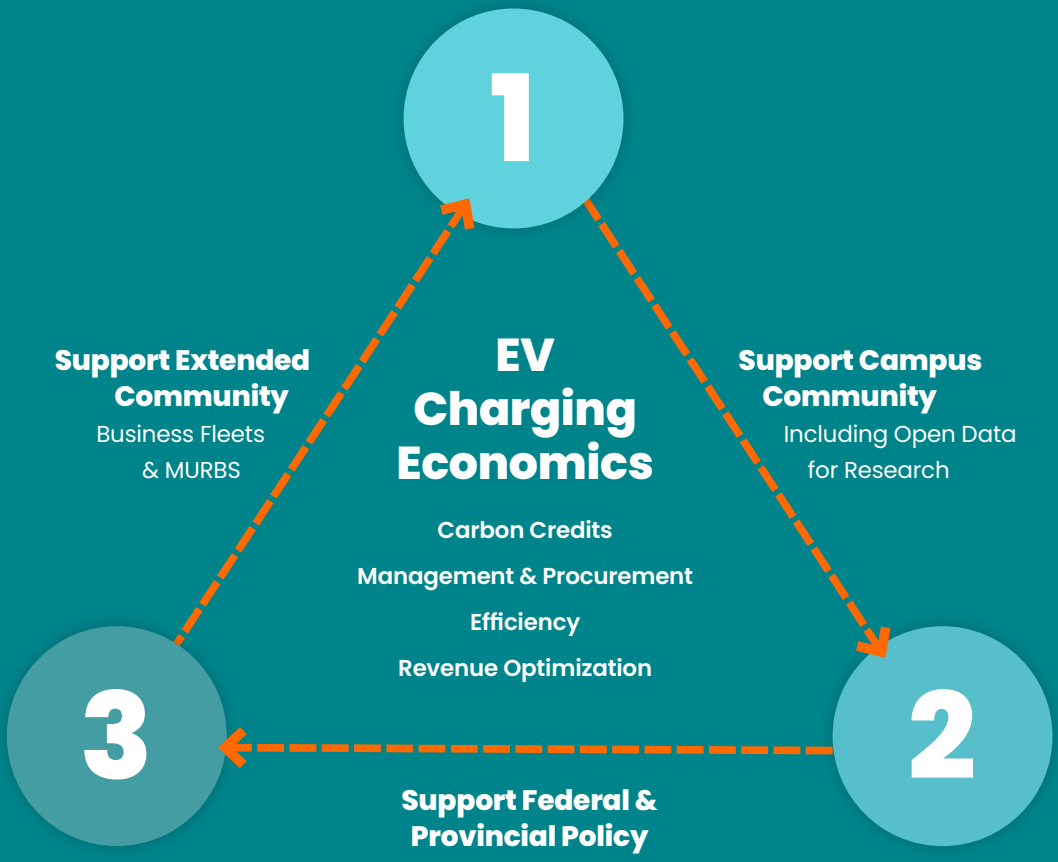
A province-wide alliance of universities, colleges, and polytechnic institutes has the potential to transform EV charging infrastructure in British Columbia. By leveraging their extensive real estate holdings and parking areas, these institutions can add much-needed charging stations while unlocking significant revenue opportunities. A BC Charging Alliance would provide a more reliable, accessible, and integrated charging network, addressing key customer challenges and improving overall system efficiency.

With 36 institutions and multiple campuses across the province, BC's post-secondary sector is uniquely positioned to support EV adoption. A coordinated approach can enhance charger uptime, ensure price transparency, and optimize usage by linking different consumer groups to available chargers at various times of the day. By strategically placing chargers near campuses and high-traffic areas such as hospitals, stadiums, and retail centers, an alliance would accelerate the shift to electric mobility.

To advance this vision, Foresight Canada and Simon Fraser University, through the BC Net Zero Innovation Network, have formed an EV Alliance Working Group. This group has developed a Roadmap to guide decision-makers, outlining key challenges, opportunities, and the business case for a BC-based Charging Alliance. The Roadmap provides a foundation for investment, partnerships, and financial planning, with Phase II planned to focus on detailed implementation strategies.

Phase I Key Messages:

- Post-secondary institutions can be catalysts for expanding BC's EV charging infrastructure, leveraging their parking real estate to fill critical charging gaps.
- BC aims to install 10,000 public chargers by 2030 but has only 6,500 so far. A College and University Alliance could add 1,500 ports.
- A Charging Alliance would enhance reliability, price transparency, and utilization, ensuring more accessible, well maintained and efficient charging for diverse users.
- Alliance participants can unlock new revenue streams through fleet parking fees, EV charging fees, and carbon credits.



Background

Foresight, Canada's largest cleantech innovation and adoption accelerator, has been commissioned to develop a Roadmap and strategy for expanding electric vehicle (EV) public charging on the campuses of colleges and universities in British Columbia (BC).

The idea, initially introduced by Simon Fraser University (SFU), is for colleges and universities to collaborate in expanding the overall procurement, development, and availability of charging infrastructure through their extensive land holdings and parking areas around the province.

As of 2023, British Columbia's higher education landscape comprises 25 publicly funded institutions, including 11 universities, 11 colleges, and three institutes, and additional private universities and colleges, and theological colleges. Each has at least one physical campus, with some of the larger institutions having up to four campuses each.

An alliance of universities, colleges and polytechnic institutes could deliver a valuable service to augment the current lack of charging in BC and throughout Canada. The initiative aims to increase available infrastructure and offer more reliable, integrated, and cost-effective solutions for users and, implicit in this offering, are significant revenue opportunities for each participating institution.

The project intends to monetize charging investments by increasing the availability of charging for the campus community and also providing charging to clients in the extended community. It will provide a consistent experience and collectively seek capital investment and subsidies from the various EV charging programs.

SFU has introduced a highly successful model for campus EV charging and has shared the model and results with other colleges, universities, and technology partners, through various meetings and conferences in 2024 in the province and nationwide. This has resulted in a high level of interest among other colleges and universities. Ultimately, the initiative could form the basis for a Canada-wide clean infrastructure future and provide a "made in Canada" solution to contribute to the EV transition in a profitable way.

Objectives & Methodology

The EV Charging Alliance project involves three phases:

Figure 1:
EV Charging Alliance Project Phases

EV Charging Alliance Project Phases

	How we approach this best together?	**Will it work in BC? How can it work?**	**Planning on what Alliance needs to do in detail?**	**"Let's do it"**
	Phase 0 Scoping	**Phase 1** Roadmap	**Phase 2** Full detailed engineering & business plan	**Phase 3** Implementation
Approach	→ Mapping of Partners → Integration of networks → Exchange of data and information → Kick off → Planning of time schedule → Visit to different sites	→ Integrations/interview of key partners → Analysis of regional specifics → Customer needs including business → Stakeholder & capability analysis → Development of possible business structure and governance → Creation of a BC vision	→ Detailed investment planning → Technical planning hub operation → Addressing different funding options → Integration of local companies and communities into the planning process → Identification of financing options and interlinking with federal, provincial programs	→ Supporting of the implementation phase → Cooperation with construction companies and other stakeholder → Delivering of technical support → Project Management → Development of a teaching and research concept with local partners
Deliverables	Project Strategy → Initial partners → Confirm approach → Work plan and TOR's → Funding for Phase 1	Roadmap Study → Business model canvas → HI level Costs and Benefits → Timeline for implementation → Stakeholder asset map → High Level Technical Requirement	Implementation Plan → Business case → Lead partners, customer and stakeholders → Legal framework as baseline → Cost and finance plan (detailed) → Technical planning (detailed)	→ Alliance Service in operation → First customers in selected institutions - University, college students and local training underway - Manuals, business cases, playbooks → Community Workshop → Procurement documents
	Decision Point 1 Roadmap Plan	**Decision Point 2** Detailed Costs, benefits, business model, feasibility, timeline, technical concept	**Decision Point 3** Final business plan blueprint ready for implementation	

This Roadmap is intended to be a guide for decision-makers and outlines both challenges and opportunities in assembling a Charging Alliance in the BC context. This Roadmap report, along with an accompanying presentation deck, outlines the Alliance's high-level business model rationale, stakeholder assets, customer needs, financial and investment requirements, revenue-generating opportunities, and high-level funding requirements. Detailed business and engineering implementation plans will be created in Phase II.

To develop the Roadmap for Phase I of this project, Foresight Canada undertook the following process:

1

Conducting interviews with colleges and universities.
20 participants

2

Distributing a questionnaire detailing specific operational issues relating to EV charging on college and university campuses.
19 participants | Results in appendix

3

Undertaking secondary research to further understand:

- The current status of EV charging on campuses
- The potential for a scaled-up supply of services and other offerings
- The extended community demand for the services, particularly with business fleets.

Based on our findings, this report outlines the rationale for an Alliance. It lays out potential operating models, costs, and other considerations in preparation for developing a comprehensive business plan in Phase II.

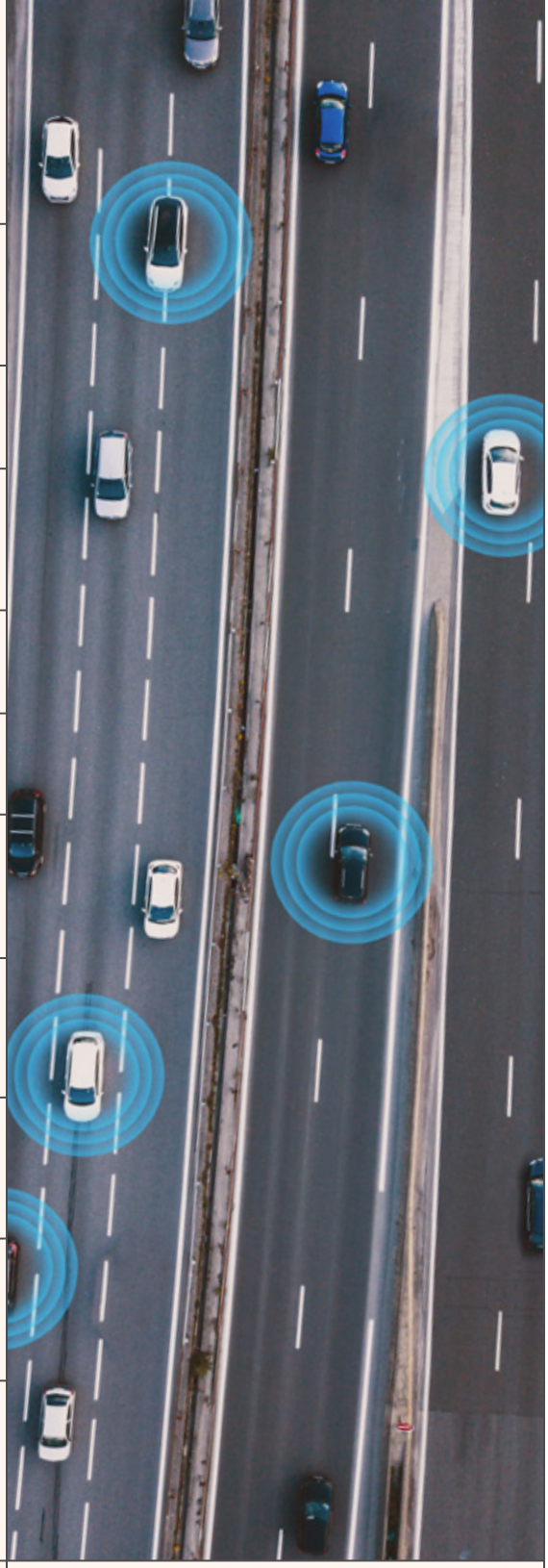
EV Charging Challenges and Opportunities in BC and Canada

EV owners and fleet operators looking to transition to electric vehicles in BC and throughout Canada face many challenges. Therefore, it is essential to understand the problems currently facing EV users and customers to understand the sector's needs.

A significant challenge in BC and the rest of Canada is range anxiety due to the lack of charging stations distributed across the province and the country. Moreover, current goals set out by the provincial and federal governments are not being met. Natural Resources Canada estimates that depending on the availability of home charging, Canada will need between 442,000 and 469,000 public charging ports by 2035. As of December 1, 2023, there are 10,425 charging stations and 25,246 charging ports in Canada. [1]

The operational challenges with the implementation of charging infrastructure can be summarized as follows:

- The fragmentation of existing providers has led to a shortage of implementation expertise.
- Not enough high-speed level 2 and 3 chargers.
- Insufficient charging voltage and/or unknown overall electrical supply on existing sites (levels 2 and 3).
- Inconsistent costs and pricing confuse users and customers.
- Poor EV station maintenance results in excessive downtime.
- Inconsistent and unpredictable charging speeds lead to customer dissatisfaction.
- Multiple phone apps are needed for comprehensive charging service, especially on long trips.
- Significant gaps in underserved areas including smaller municipalities and rural areas.
- A lack of interoperability among providers and limited roaming options hinder seamless access.
- Low awareness and usage of carbon credits of charging infrastructure providers, both at the provincial and federal levels.
- Misaligned and competing interests among user groups and stakeholders create barriers to equitable charging access, highlighting the need for collaboration. For example, urban vs. rural communities, workplaces vs. recreational sites, and those without home charging all face unique challenges that could be better addressed through shared solutions.



Recent surveys have shown that more than one-third of B.C. EV owners surveyed (36%) don't have the confidence to drive their EV on a long road trip, and most EV drivers (67%) still own a gas vehicle, which they are more likely to use for longer journeys. [2]

Consumers

For consumers, the primary requirements are the accessible quantity of public charging stations, their proximity to one another, and their easy availability, especially in the interior of BC and smaller municipalities. Trust and consistent pricing in the reliability of the EV charging networks are another issue that concerns consumers. Recent studies have indicated that 30% or more of public chargers can be out of service at a given time.

A charging alliance could improve uptime, price transparency, and overall management. In addition, a charging alliance can link the charging needs of different consumer stakeholder groups to available chargers at different times of day increasing the accessibility and usage rates of charging infrastructure.

Faculty, staff, and students who use currently existing charging stations on university and college campuses have demonstrated high demand, with each charger being used 6-8 hours per day on average, with some locations having even higher occupancy. In many campus locations, additional chargers could be added to justify the existing consumer demand from faculty, staff, and students. In terms of usage patterns, consumers generally use chargers to "top up" during campus visits and therefore do not require overnight "full charge." On the other hand, light-duty fleets typically require a full charge only overnight, where a campus environment could provide the necessary charging availability.

Businesses

Business fleets represent 17.5 percent of new vehicle sales. [3] Most of these are last-mile delivery companies which deliver packages to homes and businesses using small vans. Fleets are now seeing the return on investment (ROI) of procuring EVs. Many fleets pay between $2,500-$3,000 per month in gas costs so the ROI of an EV is significant.[1] However, despite the apparent financial justification, in many cases there are still barriers. In particular, range anxiety, and lack of availability of consistent charging are often arguments against converting electric fleets. If these problems can be solved, demand will accelerate rapidly.

Fleets have one additional issue: electric business vehicles, especially those used for last-mile delivery, often do not have a depot to park overnight when they are not in use and can charge. They currently rely on parking their vehicles and charging them overnight in private parking lots. Insufficient numbers of park-and-charge lots, especially for overnight charging, is therefore a key challenge.

Similarly, multi-unit residential buildings (MURBs) and strata buildings, hospitals, and arenas, as our survey demonstrates, do not often have sufficient charging facilities, yet are often located close to major university and college campuses.

If the Charging Alliance provides charging solutions near campuses—serving both campus-adjacent residents and visitors accessing hospitals, pools, stadiums, and high streets—EV charging adoption on campus will accelerate rapidly.

[1] Based on discussions with key last mile delivery fleets.

Table 1: Use Case -Fleet electrification needs for Life Labs

Use Case: Life Labs

Number of Vehicles

450 delivery vans and cars largely in BC and Ontario

Plans for Electrification

Initial pilot project of 5 vehicles in BC and Ontario (beginning March 2025)

About Life Labs

Life Labs is a national medical testing company which transports medical tests on a daily basis from hospitals, testing centers to their labs.

Challenges Faced

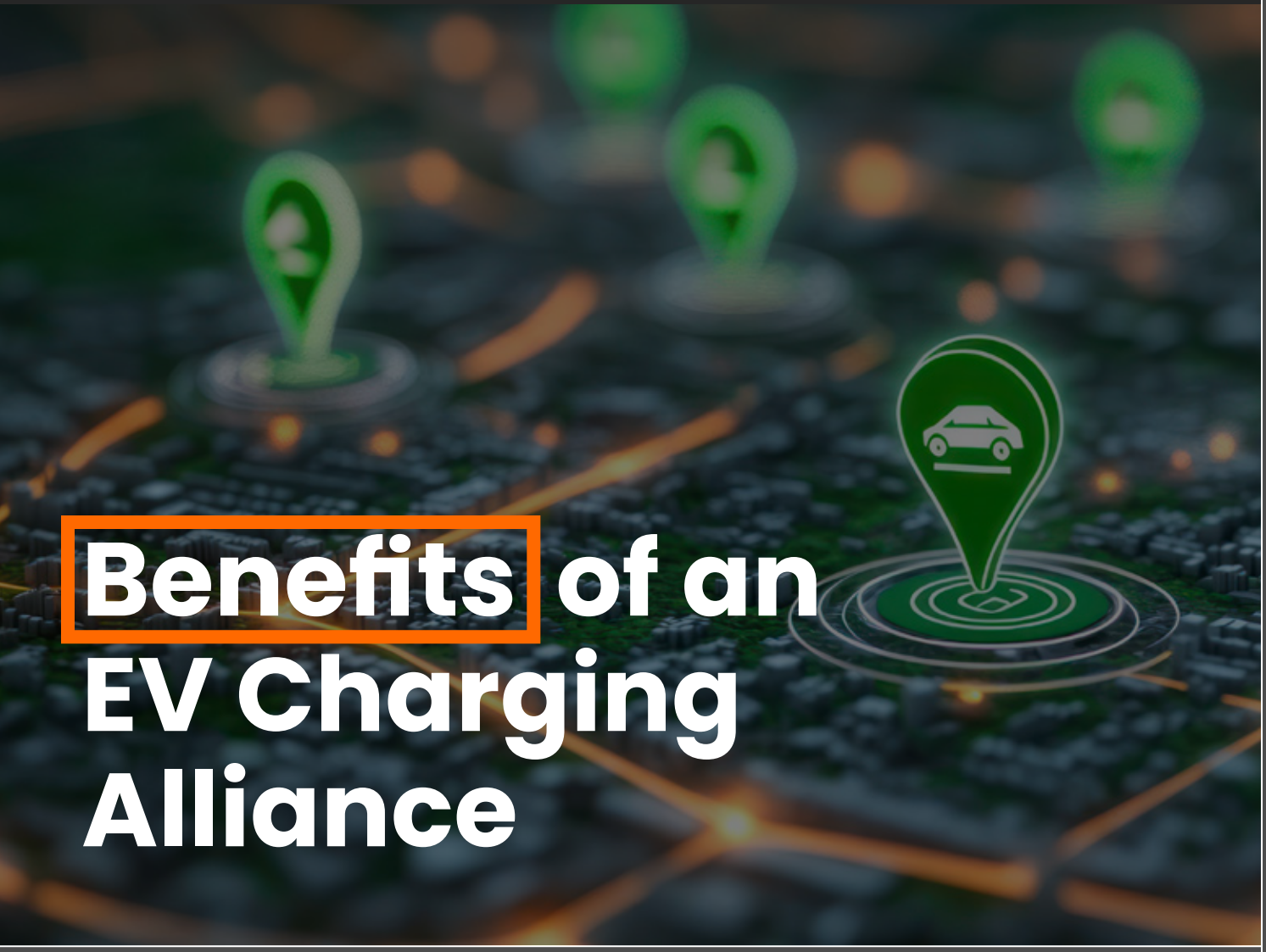
- ICE Vehicles are currently parked overnight in various parking areas around Vancouver and Toronto with no availability to charging
- Do not have reliable charging and parking locations
- Lack of integrated nationwide billing
- Drivers require multiple charge and access cards

Pilots & Timeline

450 delivery vans and cars largely in Park and charge overnight in BC and Ontario initially for 5 vehicles for the pilot project and later for the charging of approximately 450 vehicles

Solutions Needed

- Overnight EV parking and reliable level 2 and later fast charging charging
- Parking for driver vehicles
- BC and later nationwide integrated billing and reporting
- Reliable safe parking for small GM Brightdrop vans



Benefits of an EV Charging Alliance

An EV Charging Alliance could directly address many of the issues customers face and provide reliable solutions across the province. Colleges and universities are uniquely positioned. As our survey indicates, their vast real estate holdings and parking areas could accommodate many public charging ports and help achieve multiple objectives.

Helping to Achieve Public Policy Objectives

Colleges and universities can play a key role in supporting the government's public charging goals and contribute to addressing many of the barriers identified by EV consumers and business users. The BC government's target is to reach 10,000 public chargers by 2030; however, only 6,500 have been commissioned to date. [2] Based on the existing availability of parking and real estate, it is estimated that a BC College and University Alliance could contribute 1500 charger ports to this objective.

As our survey and research shows, colleges and universities have started to provide electric vehicle charging primarily for faculty, staff, and students. The current service offering varies widely ranging from a couple of chargers or none to many more in larger urban institutions. The current focus is primarily on serving faculty, staff, and students. The EV alliance proposes to expand this by serving the public and the community at large. In general there is a strong interest in expanding on-campus charging availability if funding was available to deploy chargers.

The available supply of parking spots can accommodate a large number of new chargers. Parking is largely controlled directly and institutions have built a strong base upon which to build out extended infrastructure. Colleges and universities are ideally positioned in terms of space available, including parking and land holdings, geographic reach, and parking/land availability. Additionally, most campuses are in accessible locations with reliable electrical infrastructure, making them well-suited for public charging.

[2] Based on interview data

Institution		Acreage Available
University of British Columbia (UBC)	Vancouver Campus Okanagan Campus	990 acres 259 acres
Simon Fraser University (SFU)	Burnaby	420 acres
University of Victoria (UVic)	Burnaby	395 acres
British Columbia Institute of Technology (BCIT)	Burnaby Langley	185 acres 160 acres
Camosun College		99 acres
Langara College		20 acres

Table 2:
Land holdings of universities and colleges in BC (including parking areas).

Providing Services to the Extended Community & Business Fleets

To date, the chargers installed by institutions are largely seen as a "nice to have" service and do not represent a strategic investment for revenue generation. Our survey indicates that for most institutions, no capital budget exists for this, and installations have been done on a reactive, opportunistic basis to service, faculty, staff, and students.

However, our survey identifies a strong interest among institutions to provide services to the extended community and include the general public - both consumers and business fleets which have strong demand. Many campuses are very close to or have on-site hospitals, arenas, and recreational facilities. In addition, many of the campuses are very close to multi-unit residential units. Figure 2 illustrates the large number of strata surrounding the University of Victoria, for example. Using publicly available geographic information system (GIS) data from the BC government, Phase II could map this in detail province-wide.

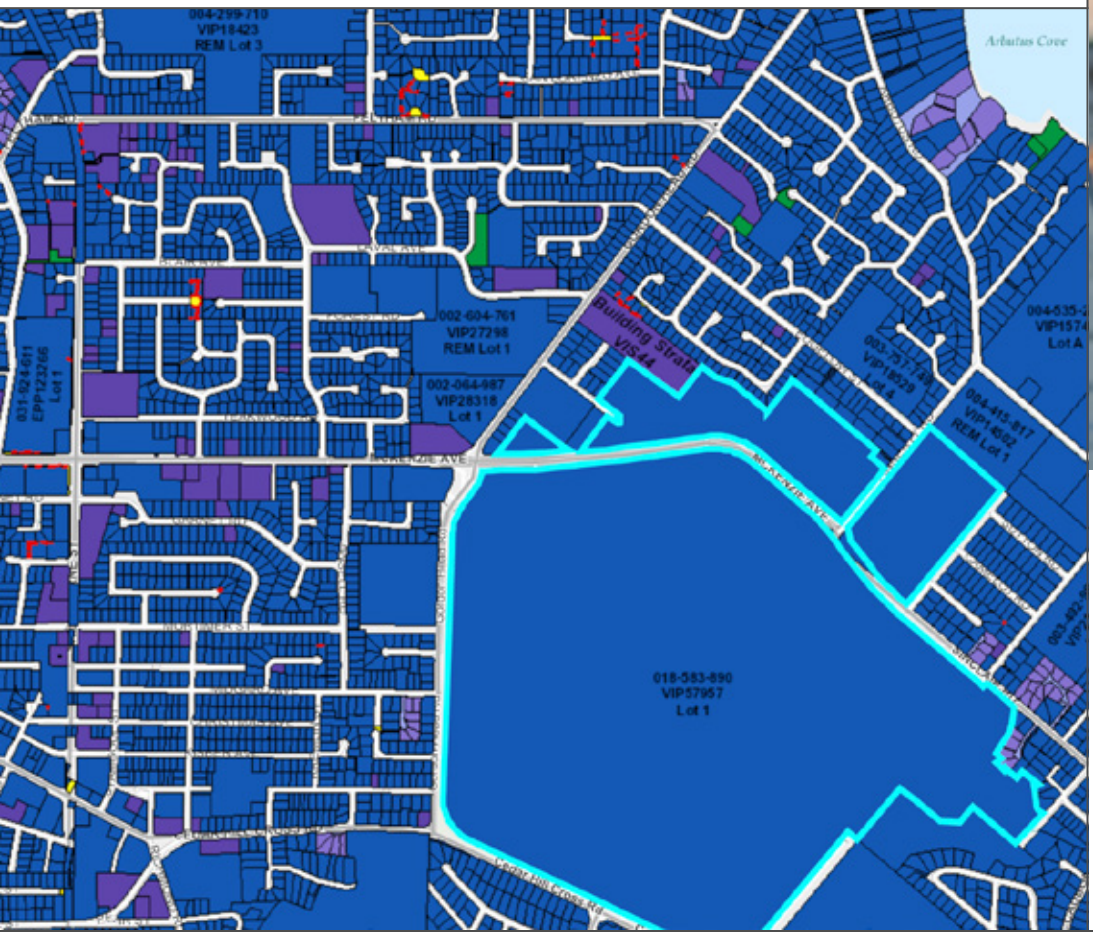
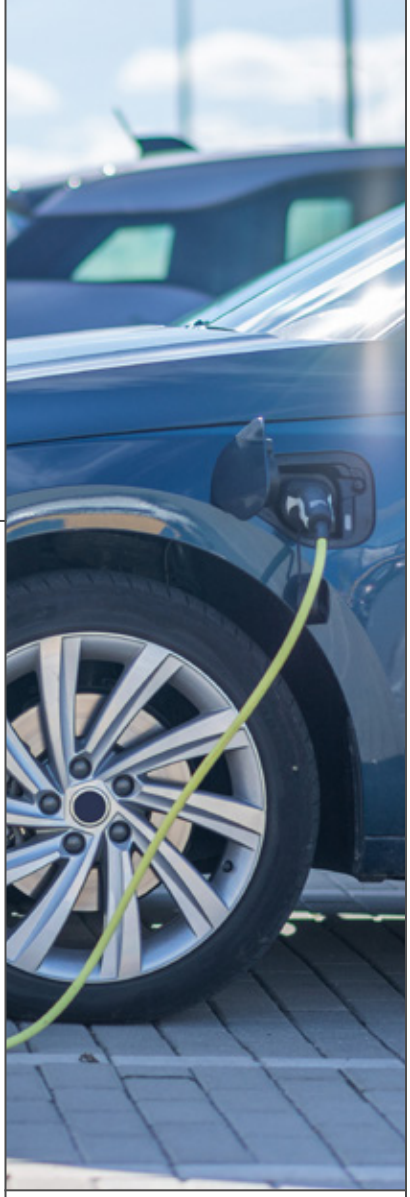


Figure 2:
Strata surrounding the University of Victoria (Vancouver Island Strata Association)

For example, UBC and SFU have formed real estate trusts to develop land and build residential units. Some of these new units have already begun offering limited charging services to tenants.

On average, 70% of the colleges and universities surveyed indicate that they can accommodate 45 vehicles per day. Some institutions could accommodate more and some less. Using this average number, it means that if all 36 colleges and universities participated in the Alliance, over 1600 charging slots could be added.



Please estimate how many fleet vehicles such as small delivery vans your main campus, regional campuses or learning centers could accommodate for overnight charging?
20 Responses

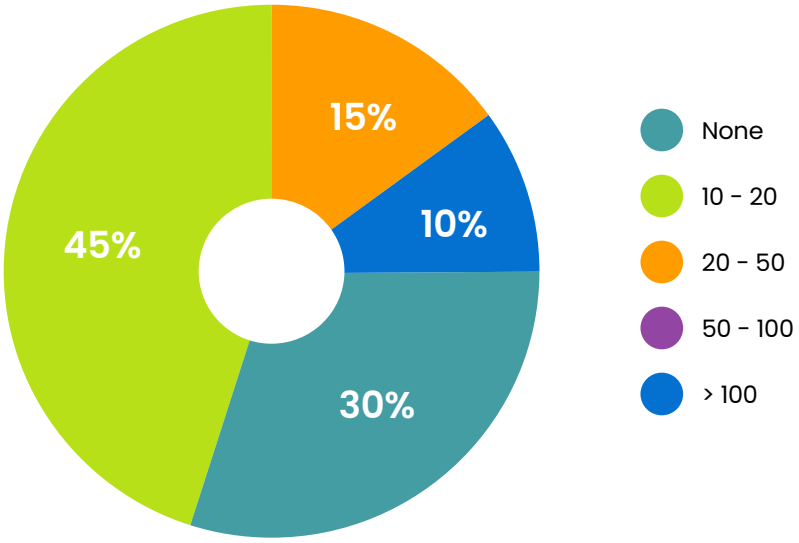


Figure 3:
Survey results

Generating Income for Institutions

Many institutions are experiencing budget shortfalls due to reduced government funding, caps on tuition fees, and a decline in international student enrollments. This financial strain has led to staffing cuts, program reductions, and concerns about the quality of education.

There are several opportunities for additional revenues for the Alliance participants including additional parking revenues from fleets, EV charging revenues and revenues from carbon credits.

Carbon credits are a key revenue source for the Alliance. Although carbon credits are relatively new and poorly understood, they can provide significant income. BC is particularly fortunate as both the provincial Low Carbon Fuel Standard (LCFS) and the federal Clean Fuel Regulations (CFR) are available.

While a few Universities and Colleges are applying for and collecting carbon credits via the BC LCFS, none are doing so directly via the Federal CFR as that program requires the applicant organization to be a "network provider". The EV Charging Alliance can leverage the initiative to allow Universities and Colleges to qualify as network providers and access the Federal CFR. Moreover as there is currently a lack of awareness about carbon credits in general, the Alliance can play an important role in supporting training and awareness in this area.

It is beyond the scope of this report to provide a detailed analysis of the impact of carbon credits as a form of revenue generation for colleges and universities. Nevertheless, we provide an example below of the carbon credit revenue that could be generated by a single commercial delivery vehicle:

Table 3

Light Duty Last Mile Delivery Vehicle Revenues Example for 1 Vehicle for 1 Year

Number of LCFS Credits Generated	27	$10,800
Number of CFR Credits Generated	50	$6,500
LCFS Credit Price	$400 (in 2023)	
CFR Credit Price	$130	
Gross Yearly Revenue for Each Vehicle		**$17,300**
Gross Yearly Revenue for 5 Vehicles	$130	
Yearly Driving	-25,000-30,000 Km	
Kw/h Consumed per Year	-6,250 kWh/year	

All Sources: Clean BC, Rewatt. Freightliner, Radicale, Lion Electric, and data from Natural Resources Canada (NRCan) and Green Trucking Industry Standards, 3 Degrees.

SFU has identified significant revenue potential even with only existing users (faculty, staff, students):

Table 4

Based on 14 Port (7 Machine) Hub in Central Parkade - June 2024

Financial	Per Port/Yr	Total/Yr
SFU - "All in Build Cost" (Equipment, Infrastructure, Labour)	$20,000	$280,000
Additional Revenue Sources	**Per Port/Yr**	**Total/Yr**
Scenario 1 Charge for Electricity Costs @ Additional $0.10/KWh (BC Hydro Charges +$0.16)	**$1,600**	**$22,400**
Scenario 2 Charge a $1 Premium for Parking Based on 10hrs/charging/day	**$3,650**	**$51,100**
Additional Options: Charge a penalty for overstaying time limits, charge a reservation fee, charge surge pricing, etc.	???	???
Payback Time (Hourly Premium Only)	5.5 yrs	5.5 yrs
Carbon Credit Revenue Sources	**Per Port/Yr**	**Total/Yr**
Carbon Credits BC - LCFS Premium of $0.40/KWh	**$6,400**	**$89,600**
Carbon Credits Canadian Federal Program (estimated from EAC)	**$2,500**	**$35,000**
Total Carbon Credit Revenue	**$8,900**	**$124,600**
Payback Time (Carbon Credit Revenue Only)	2.25 yrs	2.25 yrs

Note: Assumes usage continues at 2022 rates. These policies have yet to be implemented at SFU but a full pricing strategy is in final development.

Our survey and interviews have indicated that few institutions have begun to exploit carbon credits. Most institutions are not fully aware of the benefits of carbon credits for electric vehicle charging, how they work, and how they can be used. While several are taking advantage of carbon credits, the majority do not currently use them and require a better understanding of how to measure them and how to apply for them.

It is important to note that the more electricity that is dispensed, the more carbon credits can be received. Therefore the key element to maximizing revenue is to maximize utilization including overnight when parking lots are empty. The operational implication is that the Alliance will need to market these services to the public as they currently do for recreational facilities, for example. This would require a concerted marketing and customer acquisition plan. In the case of fleets above for example, it assumes that an electric delivery van would receive an overnight average charge of 90 kWh, which is the average battery size of the Ford Transit and GM Brightdrop electric vans currently on the road.

Revenue can be generated through parking fees and charging fees, in addition to carbon credits. However, carbon credits will constitute the majority of the revenues generated. It is important to note that, contrary to public opinion, charging fees do not constitute a significant source of revenue.

Procuring Canadian Technology

Canada has developed significant capability for charging technology infrastructure and know-how. Canadian companies such as Swtch, Flo, Evolution, or Hypercharge can supply technology for the initiative. A more thorough assessment of suppliers should be done as part of Phase II. This will also include an assessment of the capacity to develop microgrids—a self-sustained solution using solar technology and batteries for electricity generation for rural areas that lack the necessary voltage and electrical connections to support charging infrastructure. BCIT and Siemens Canada, for example, have done significant work in microgrids and could contribute significantly.

In light of current trade issues, the initiative could be a beacon project to showcase how Canada can meet multiple objectives of reducing carbon emissions using Canadian technology.

Open Data & Canadian Competitiveness

Data provided by EV chargers in BC and throughout Canada is extremely valuable. It can be used for various management and research purposes including:

Infrastructure Planning:

Analyzing data on charging demand helps identify optimal locations for new charging stations to maximize utilization and ensure sufficient capacity where needed.

User Experience Enhancement:

Data analysis can identify peak charging times, allowing users to plan their charging sessions to avoid congestion and wait times.

Grid Management:

By monitoring charging patterns, operators can better understand the impact on the electricity grid and implement strategies like smart charging to reduce peak demand.

Cost Efficiency:

By optimizing charging schedules and identifying inefficiencies, operators can reduce energy costs and maximize the return on investment.

Maintenance Optimization:

Real-time data from chargers can detect potential issues early, allowing for proactive maintenance and minimizing downtime.

Policy Development:

Aggregate data on EV charging usage can inform policy decisions regarding infrastructure development and incentives.

Existing data in BC and throughout Canada is highly fragmented and largely not open-source, and as a result, cannot currently be used. Strategically ensuring that data is open would enable researchers to build new artificial intelligence (AI) models and solutions, placing BC and Canada at the forefront of this new opportunity. Moreover it would leverage the information technology strengths available both in the academic and business sectors so new products and services can be built. Making open data an important future technology procurement criterion (which is currently not the case) is critical to meeting these objectives.

Summary

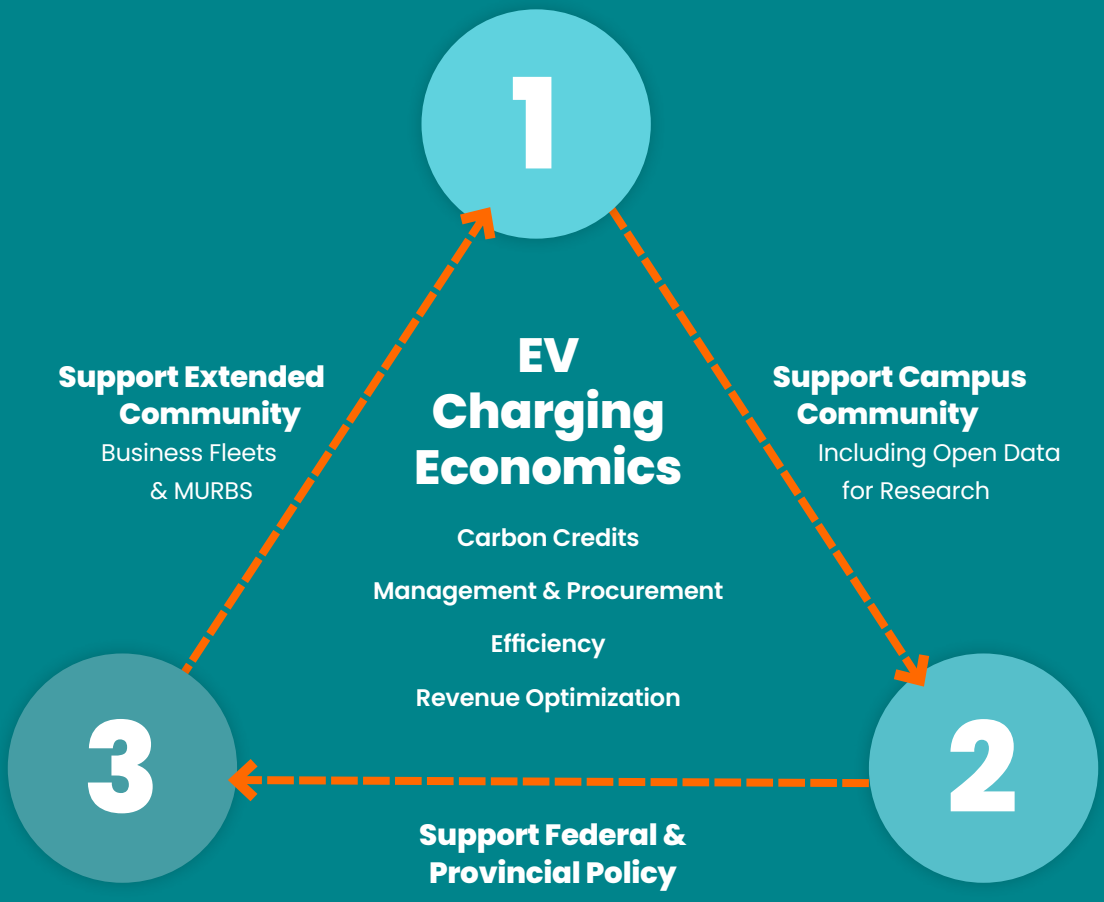
An Alliance can generate significant operational benefits. A summary of benefits is noted in Table 3:

Table 5:
Summary of benefits of an EV Charging Alliance

Key Problems & Challenges	EcoCharge Alliance Solution	Outcome
Lack of charging Infrastructure [1]	Install chargers at scale across the country, through colleges and universities	Support unmet market need
Lack of implementation expertise due to fragmentation of existing providers	Shared expertise and learning	Faster, cheaper, more consistent implementations
Lack of high-speed level 2 and 3 chargers	Colleges and universities have extensive real estate holdings	Potential for 1000+ units
Lack of sufficient charging voltage on existing sites (levels 2 and 3)	Colleges and universities already have high voltage on their campuses	Reduced cost of infrastructure
Inconsistent costs and pricing [4]	Predictable tiers of pricing	Standardized pricing (e.g., similar model to eduroam [5])
Lack of maintenance on EV charging sites	Utilize college and universities' existing maintenance facilities including onsite electricians	99.99 per cent uptime
Inconsistent charging speeds	Utilize high voltage infrastructure of colleges and universities	Predictable charging times
Multiple phone apps needed to get sufficient service	One app for all colleges and universities	Consistent experience for users
Major gaps in underserved areas	Colleges and universities have campuses in underserved areas including satellite campuses in rural areas [6]	Countrywide coverage
Lack of interoperability	Centralized management with decentralized service	Fully interoperable system
Carbon credits differ by province, difficult to manage	Carbon credit pooling for colleges and universities	Standardized and shared expertise
Reduced college and university budgets	Add a revenue generation opportunity for colleges and universities	New source of revenue

In the chart below, we summarize how "EV charging economics" through collective action can support service to the campus community and the extended public community of each campus. Significant savings can be generated through common procurement and management, as well as capitalizing on carbon credits with revenues. Moreover, the project supports federal and provincial policies directly in a scalable way that no other "made in Canada" project has done to date.

Figure 4:
EV charging economics



Kick Start Strategy

Operating Models

There are several potential organizational models for making an Alliance work. We lay out three possible pathways categorized as follows:

Table 6:
Organizational operating models

Type of Alliance	Characteristics	Advantages	Disadvantages
The University Network Research Model	→ One institution such as SFU leads the initiative → One institution applies and receives funding and is responsible for distributing it to others → One institution manages the alliance	→ Well-known model for academic research initiatives → Does not require a new legal structure	→ Not suited for operation customer offerings → Lacks the speed and rapid decision-making needed for commercial offerings → Not a legally recognized entity → Unclear levels of accountability → More suitable for research projects
The Outsourced Model	→ Utilize an existing entity to operate the alliance such as EVNet or BCNet → BC Net and EVNet for example already provide procurement services and operational services for charging	→ Does not require a new legal structure → Leverages existing staff and resources → Minimal investment → Lower financial risk → Leverages external expertise → Additional private sector funding	→ Less control → Additional third-party complexity in decision-making and operations
The Not For Profit Federated Model	→ Institutions collectively create a new non-profit entity or utilize existing land development trusts	→ Clear lines of accountability → Formal management structure → Clear structure and mandate → Fastest decision-making → Business-like in orientation	→ Additional costs to set up and operate → Needs staff on loan or new to operate

Project Cost

Costs associated with procuring, installing, and operating chargers can vary significantly. Key factors include:

Electrical Upgrades:

Adding a new panel or transformer increases costs.

Distance to Power Source:

Longer conduit runs and trenching add costs.

Networked vs. Non-Networked Chargers:

Smart chargers with network access and billing features cost more.

Brand and Features:

Higher-end brands (e.g., FLO, ChargePoint, ABB) cost more but offer better reliability.

We do not include in this cost structure the day-to-day data management, which we assumed is already performed by staff at individual institutions where applicable.

The following is a cost breakdown of a dual-port level 2 charger installation. This shows the types of costs typically incurred in an installation. The following chart shows costs based on 3 different scenarios.

Table 7: Installation cost breakdown

Cost Component	Estimated Cost (CAD)
Charger hardware (dual-port, 7-19 kW)	$5,000 – $12,000
Installation (labour & electrical work)	$5,000 – $15,000
Permitting and inspections	$500 – $2,000
Networking and software fees (annual)	$300 – $1,500/year
Routine maintenance (annual)	$200 – $1,000/year

Table 8: Total cost scenarios For 2 Port Chargers

Installation Scenario	Total Upfront Cost	Maintenance Costs
Basic Installation → Minimal electrical upgrades → Existing infrastructure	$10,000 – $15,000	$500 – $1,500
Standard Installation → Some electrical upgrades → Trenching → Panel work	$15,000 – $25,000	$500 – $2,000
Complex Installation → New electrical service → Extensive trenching → Higher power output including level 3	$25,000 – $40,000	$1,000 – $3,000

For an average Installation, we estimate that the all-in number of $20,000 per port experienced by SFU is a good indicator of total costs. A more detailed assessment would require a civil engineering study of each campus to determine which installation scenario is applicable in specific cases.

To derive the estimated total cost of the project as a whole, we consider the potential benefits of a large-scale procurement of technology, software, and civil works. Large-scale costs are significantly different from those for small ad hoc individual deployments.

Based on expected cost efficiencies and supplier discounts for volume purchases, we reduce the all-in cost to $12,000 per port or $24,000 per level 2 charger with 2 ports. We expect that a joint common procurement would significantly reduce the overall costs of such a project.

We then consider the availability of park and charge slots and availability noted in the survey by each respondent. We take an average of what has been reported by the 20 colleges and universities and extrapolate this to the remaining 16.

For network expansion, colleges and universities in BC as a whole could host and install over 1200 level 2 chargers or 2400 level 2 ports across all institutions without making significant civil works changes (i.e., developing new parking with related facilities). Due to real estate acreage available, a significant number of additional chargers could be deployed if new parking was developed.

The total cost of the project can range between $10-20M over 3 years depending on the number of chargers that are deployed and will be developed in the Business Plan in Phase II. If we assume that 50 percent of the project will be covered by funding agencies, the total cost is between $5-10 M. If all 36 colleges and universities in BC participate in the initiative an estimate of the cost on average for each institution would be in the order of $278,000-$550,0000 depending on the number of chargers for each institution.

College & University Budgets

As indicated in the survey most colleges and universities do not currently have existing budgets for charger installation and operation. It would be critical that internal budgets be established. The expectation of all government funding programs is that proponents partially fund projects. There are no funding programs that fund 100% of the cost. The rationale outlined in this report lays out why colleges and universities may wish to more strategically consider this budget item.

Provincial & Federal Funding

Various provincial and federal programs support EV charging infrastructure, offering funding for businesses, municipalities, and individuals. Examples include the Zero Emission Vehicle Infrastructure Program (ZEVIP), CleanBC Go Electric Program, and Quebec's Roulez Vert Program, which provide financial assistance for installing EV chargers in homes, workplaces, and public areas. Generally, these programs fund 50 percent or more of the total cost of charger installations, although there are some variances among them.

Preparing Funding Proposals

There is a continuous intake of proposals in the various public EV charging programs with some having targeted submission dates depending on the program. Phase II should develop a detailed proposal for funding partners. While funding programs typically have individual guidelines for preparation and submission, we have determined that funding agencies would be open to one proposal for multiple programs with "stackable" contributions. This would facilitate preparation costs, speed to resolution, and clarity of objectives for all involved.

Technology Partners

There is a long list of technology partners who can be invited to participate in the project in phase two, ranging from soliciting RFIs to having technology partners as strategic partners. These potential partners should be briefed about the project to determine what kind of support they can provide. A critical element of the project technology is developing integrated billing and service management, especially for business users.

Education & Awareness Partners

A key component of Phase II will be sharing success and insights with Canadian universities and colleges and across sectors with similar "campus" environments, such as hospitals, shopping centers, and community centers. To amplify the impact of this initiative, partners will be engaged to develop essential documentation, including business cases, contract templates for strata and light-duty fleet engagement, playbooks, instructional manuals, reports, presentations, and learning sessions—ensuring others can replicate its success.

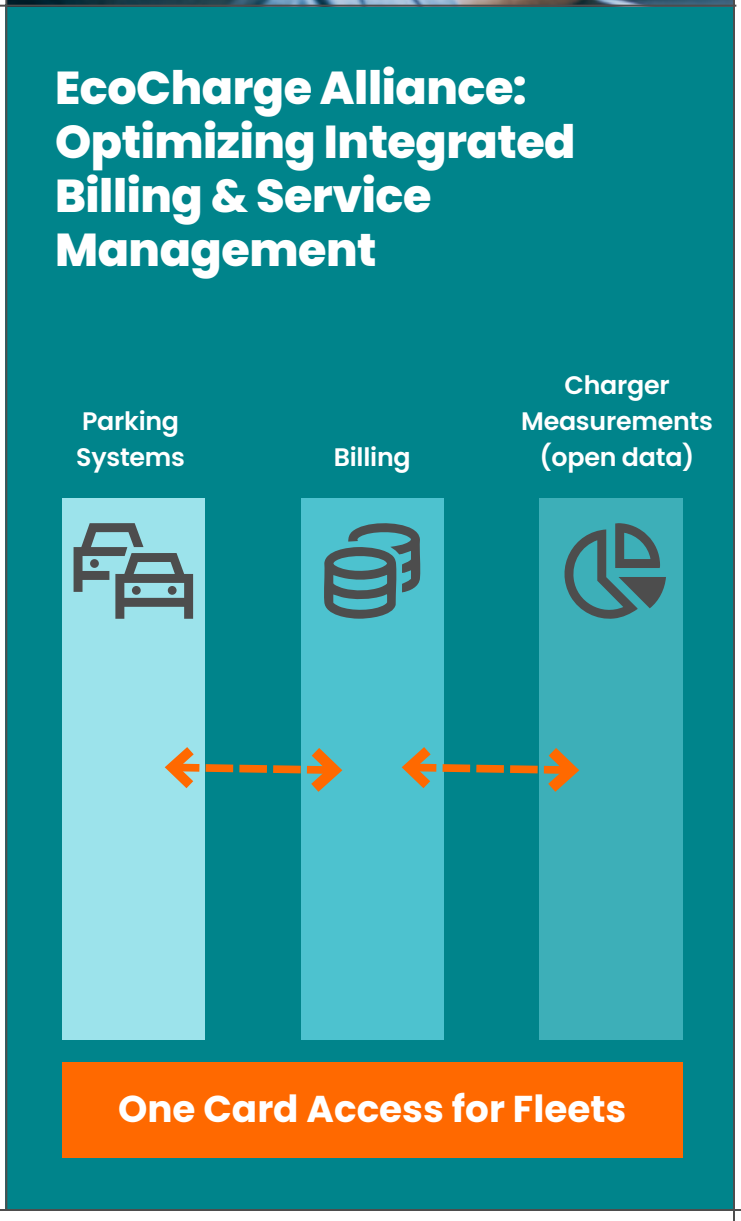
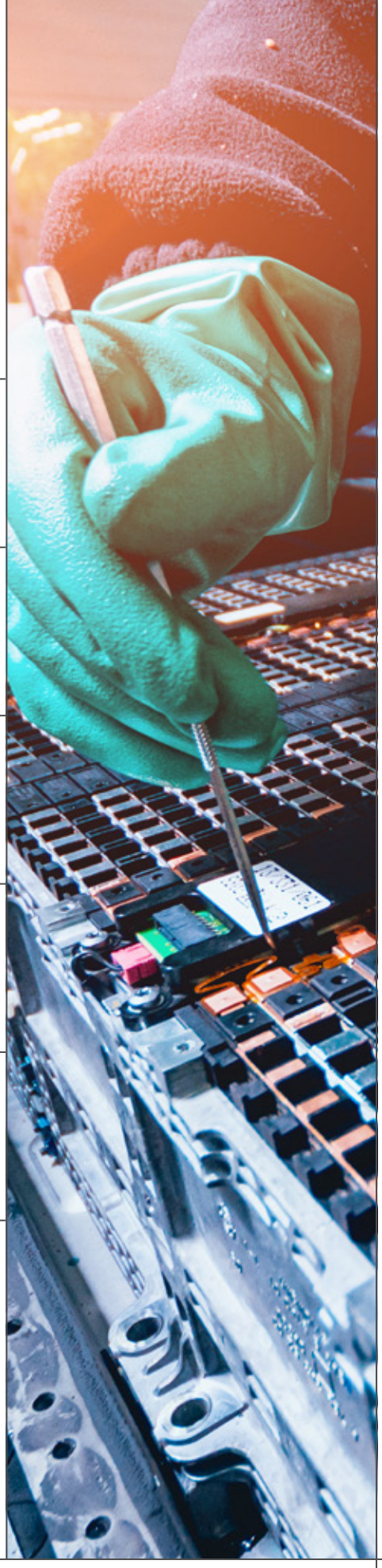


Figure 5:
EcoCharge Alliance billing and service management concept.

Making it Work

Regardless of which alliance model is selected, making an alliance work effectively is not easy. There are many alliances announced each year between companies and most do not work effectively as planned. [7]
A well-known HBS article on alliances suggests a number of ways to improve performance. These include:

1	Focusing less on defining the business plan and more on how you and your partner will work together.
2	Developing metrics pegged not only to alliance goals but also to performance in working toward them.
3	Instead of trying to eliminate differences, leverage them to create value.
4	Go beyond formal systems and structures to enable and encourage collaborative behaviour.
5	Be as diligent in managing your internal stakeholders as you are in managing the relationship with your partner.



Collaboration has been the key to the project's success to date. Alliance members' input, discussion, and ideas have been fundamental in moving the project forward, especially the leadership of SFU, who initiated the idea. This level of transparent information sharing and collaboration will need to continue and accelerate.

Next Steps

1

Agree on Governance Structure of Alliance:

Finalize optimal structure for the initiative including management structure

2

Accelerate Internal Discussions in Each Institution:

Sensitize key decision makers in finance and sustainability teams about the project and gain support for developing internal budgets for the initiative

3

Continue Fleet Client and MURB Meetings:

Build a pipeline of potential fleet and MURB clients

4

Build Online Portal:

Develop an online tool that identifies the characteristics of existing assets, including details on locations, types of offerings, quantities, availability, costs, reservations, etc.

5

Plan and Develop a Carbon Credit Workshop:

Bridge the awareness gap of the major revenue generator by providing a hands-on information session. Include speakers from both provincial and federal carbon credit programs

6

Convene Working Group:

Bring together a smaller group of 4-5 members for streamlined suggestions and decisions.

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