



Peaks to Prairies Electric Vehicle Charging Network

A project summary





Acknowledgments

The Community Energy Association (CEA) graciously thanks the following for their leadership and contribution to Peaks to Prairies:

To the Regional Economic Development Associations - Alberta Southwest Regional Alliance and Southgrow Regional Initiative - and The City of Calgary who initiated the project and envisioned the value it would bring to the communities of Southern Alberta and the region as a whole:



To the founding partners who supported the innovative vision and contributed to the design and guidance of the project:



To the project funding partners whose contribution allowed for the full deployment of the charging network:



To the owner operator partner for supporting the vision to enable EV travel throughout the region:



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About Community Energy Association

The Community Energy Association is a charitable organization that supports local governments with climate action in their community and own corporate operations. CEA helps to accelerate building energy efficiency, renewable energy projects and sustainable transportation through community energy planning and project implementation. To download a copy of our guide or additional resources for local governments, please visit: www.communityenergy.bc.ca.

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Summary

Peaks to Prairies is a community-driven initiative supporting EV travel to and within Southern Alberta. The project installed 20 fast charging/Level 2 stations throughout the region as well as engaged in a broad outreach and education campaign.

In addition, Peaks to Prairies supports the renewable energy sector in the region by powering 19 of the 20 stations with 100% renewable energy through renewable energy certificates sourced from southern Alberta projects (solar, wind or hydro).

The project:

- C Successfully demonstrated how diverse stakeholders in a large rural region can collaborate to deploy a charging network through:
 - Strategic partnerships
 - Strategic station siting
 - Regional-appropriate technology & outreach
- C Accelerated the adoption of EVs in a rural context:
 - Increased traffic at charging stations
- C Contributed to reduced GHG emissions in the transportation sector
- C Demonstrated innovative partnerships to leverage investment
- C Prioritized local priorities to bolster support

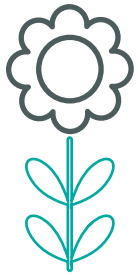
What started as an opportunity to bolster economic development opportunities for local businesses in rural communities evolved to reflect a regional priority to highlight renewable energy and emissions reductions.

The project has catalyzed interest by communities in Northern Alberta to support EV charging, and is recognized for its unique partnerships and customized approach.

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By The Numbers



\$2.16 Million

Total cash investment



>1,400kms

Highway connected for EV travel.



27%

Increase in uses from Q4 2019 to Q1 2020



12,025 kWh

Total energy consumed
(June-Dec. 2019)



4,999 Litres

Gasoline avoided



>1,000

Number of people engaged at 16 events throughout the region



137

Number of unique users of the Canmore station in the first 3 months of operation



11,500 kg CO²e

GHG emissions avoided
(June-Dec. 2019)



Opening of the Bears paw First Nation
Charging Stations

Approach

Southern Alberta is a largely rural region with the exception of the city centres of Calgary, Medicine Hat and Lethbridge. Because these communities, large and small, are inter-dependent it was a foundational principle of the project that a regional, community-led approach was used. To that end, local values, context and expertise were prioritized to ensure the charging stations functioned as a complete network, supporting EV travel to and throughout the region, as well as to the borders of the USA and British Columbia.

Additionally, founding partners understood that the strength of the network depended on the availability of charging even in remote parts of the region; in order to support the adoption of electric vehicles potential drivers had to see they could travel and charge where they wanted, rather than where they must.

With funding confirmed for implementation of the full network, the Peaks to Prairies partners sought to identify a partner to install, own and operate the charging equipment at all twenty of the stations. Such a partnership would lift the burden and liability from small communities to own and maintain the charging equipment while allowing them to gain maximum co-benefits from the investment.

A competitive RFP process was developed and managed by project partners, and ultimately ATCO was selected as the successful proponent. ATCO would become the long term owner and operator of the equipment, and Quebec-based FLO the network operator.

“ATCO is excited to bring our expertise and enthusiasm to this project as we continue to support electric travel to and throughout the region.”



Clockwise from top left: Jeff Davidson, The City of Calgary Councilor, plugs in an EV to the West Hills fast charger, alongside ATCO representatives and local media; A local Tesla drops by the opening of the Pincher Creek charging stations; the charging station in Canmore shows the installation set up of all stations, with interpretive signage alongside the DCFC and L2 units.

Partnerships

Funding Partners

After initial seed funding was committed by Alberta Southwest Regional Alliance, Southgrow Regional Initiative and The City of Calgary, the cities of Lethbridge and Medicine Hat and Medicine Hat College joined as founding partners. All founding partners committed funds and expertise to ensure the network achieved its goals. The implementing organization, Community Energy Association, subsequently secured over \$2 Million dollars in project funding from an additional two partners - the Federation of Canadian Municipalities and the Government of Alberta. This unprecedented collaboration ensured the entire planned network could be installed.



Implementing Partners

In all sites, communities were engaged during the site selection phase to ensure local needs and expertise were incorporated. And given the expansive project area, significant collaboration was needed to facilitate the installation of all stations. As the facilitating organization, Community Energy Association collaborated with ATCO to engage community representatives and assess site locations that met community and project goals.



DCFC Owner/Operator

A competitive RFP process was developed in 2017 to identify a qualified organization, or a collaboration of qualified organizations, to facilitate the deployment, ownership, operations and maintenance of the entire network. The procurement process was informed and managed by project partners. With a number of submissions to evaluate, ATCO was ultimately identified as the long term owner and operator of the equipment, and FLO as the chosen network operator.

ATCO

The partnership with ATCO alleviates small communities from the burden and liability of owning and maintaining the fast charging equipment while allowing them to gain maximum co-benefits from the investment.

"ATCO is excited to bring our expertise and enthusiasm to this project as we continue to support electric travel to and throughout the region."





Site Selection

From the outset, the Peaks to Prairies partners understood that with EV ownership growing in Alberta and in surrounding areas, their communities had much to gain from facilitating travel to their region.

Therefore, the initiative prioritized strategic siting of the charging stations to support network connectivity, but also to maximize potential economic benefits to the region. Charging stations are sited so drivers can easily access local amenities like shopping, restaurants and cafes, as well as parks, museums and other local attractions.

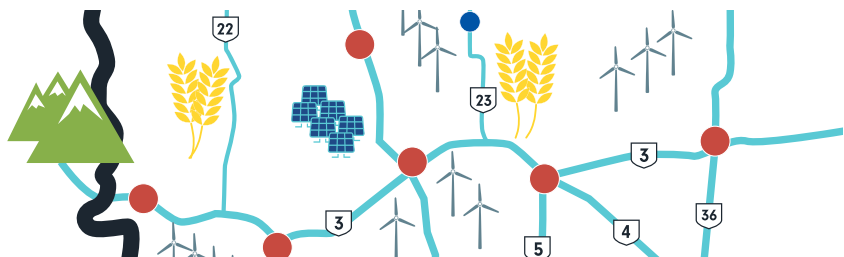
Phase 1: Mapping

A mapping tool development by the BC Institute of Technology was used for the initial analysis to ensure general station placement would support travel in even the coldest of Alberta winters.

The model was customized to take into account different vehicle types, climate, number of passengers and terrain. As a result, a reliable network layout was developed early on to inform the number and general location of stations.

Phase 2: Map Refinement

Once a preliminary map of sites was established, project partners refined the charging station locations, considering travel patterns and availability of services as well as cost implications of fast chargers. Local knowledge was key at this stage, allowing locations to be adjusted to balance driver convenience while maximizing benefits for communities and the region as a whole.



Phase 3: Site Criteria

It was through the technical analysis of some sites that adjustments had to be made to the preliminary mapping. The proposed Chain Lakes Provincial Park location, for example, lacked 3-phase power, a requirement for fast charging infrastructure. Alternative locations were considered amongst partners, and Brooks was identified as an alternative host community.



Walkability to local amenities



Available power source



Visibility



Accessible from all directions



Dedicated parking available



Government-owned land



Contributes to overall network



Opportunity for cultural branding

The objectives of the project were clear from the outset:

- support tourism and economic development in southern Alberta
- address GHG emissions related to the transportation sector; and
- facilitate regional travel by electric vehicle.

Environmental

Project partners understood that the abundance of renewable energy in Southern Alberta is a natural compliment to electric vehicle technology. The implementation phase of the project saw immediate environmental benefits through reduction in gasoline consumption and reduction of greenhouse gas emissions.

ATCO, as the owner/operator of the stations is required to power the stations¹ with 100% renewable energy through renewable energy certificates sourced from southern Alberta projects (solar, wind or hydro).

This has allowed for the displacement of electricity grid with renewable sources. By supporting travelers to use their EVs, the Peaks to Prairies network has had the following impacts (July 2019 through to Q2 2020):



Total Energy Consumed

12,025 kWh

Amount of energy dispensed by the network. The typical EV uses 10kWh of electricity to travel 50km.



Gasoline Avoided

4,999 Litres

Amount of gasoline required for internal combustion engine vehicles to travel the same distance.



GHG Emissions Avoided

11,500 kg CO₂e

The difference in GHGs emitted by driving an EV rather than a gas powered vehicle the distance that the kWh exported by the network would enable the EV to travel.

“ This comment from a Tesla driver on the Electric Vehicle Association of Alberta’s Facebook page summarizes the impact of well-sited charging stations, and the potential to bolster local economies: “I know there’s [Tesla] Superchargers in Canmore, but they’re not as central and convenient as these chargers.” ”



¹Data from Medicine Hat stations not included



I plan to top up in Fort Macleod before heading to Lethbridge. But will stay there for a couple days and will use the [Peaks to Prairies] charger if my IIO mobile adapter doesn't give me enough for my daily use.



Support Regional Travel

While some stations in the Peaks to Prairies network will experience higher usage than others, it is understood that in order to increase adoption of EVs in Alberta, potential EV owners must perceive the ability to travel where they want rather than where they must. Therefore, while certain stations will see less usage, their presence as a charging option contributes to increased use at other stations.

The figure to the right shows the cumulation of unique users across the network. While the number of users dropped over the winter months, the increase in users in Q1 of 2020 can likely be attributed to two factors:

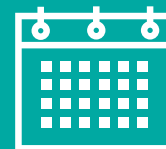
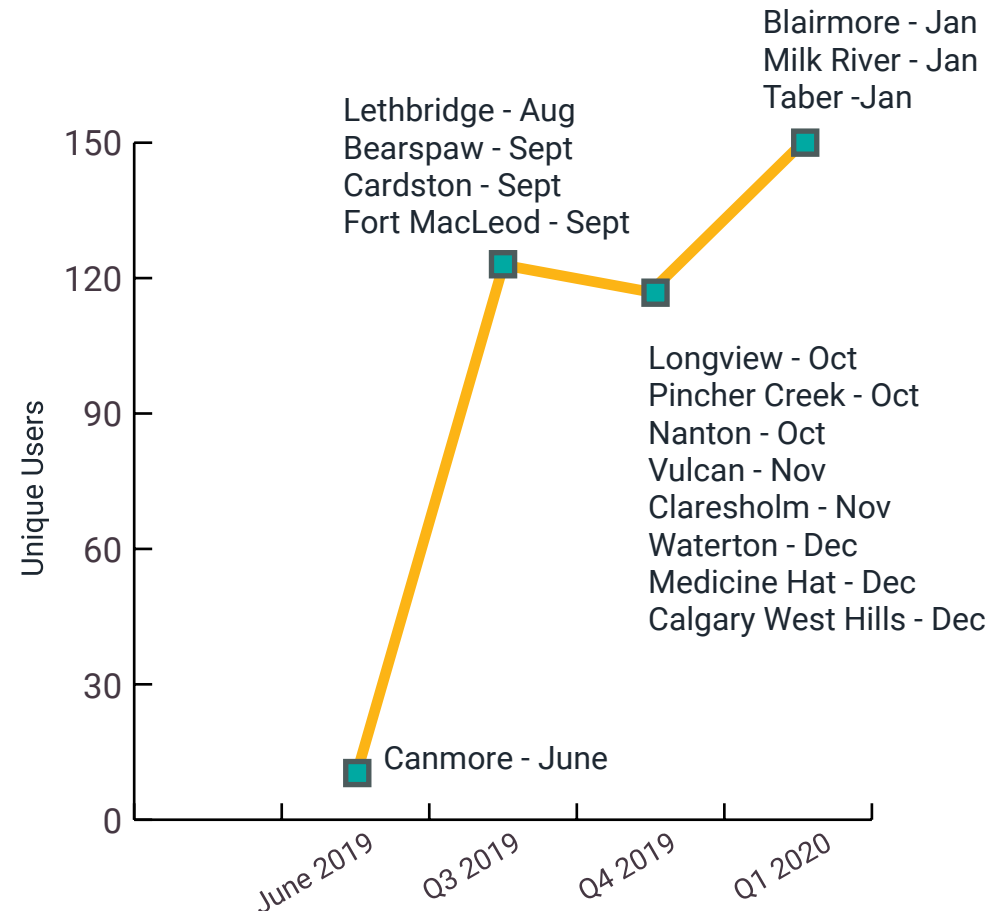
1. Spring weather enables more regional travel. We expect to see the drop in usage in Q4 when tourism and travel naturally subside. But with the onset of spring, highway travel returns.
2. The activation of the Milk River and Blairmore stations. These stations are located at the southern borders of Alberta and connect Albertans to the EV charging networks in Montana and British Columbia. During colder months these are key stations to allow Albertans to travel further.

Tourism/Economic Development

With adoption of electric vehicles growing in Alberta as well as in surrounding jurisdictions like British Columbia and Montana, the Peaks to Prairies charging network ensures that anyone who wants to travel to and within the region is able to do so.

Further, since local representatives helped select charging station sites, the potential to connect to a community's culture was enhanced. Other measures to bolster local impact includes:

- Interpretive signage at each station to highlight local amenities and attractions
- Outreach to local tourism organizations and operators and Travel Alberta



On the Horizon

Local impacts are only expected to increase as more EV models become available and EV adoption continues to increase significantly in Canada. The continued growth of EV sales and the investment in charging infrastructure in the jurisdictions surrounding Alberta presents an opportunity for small communities to capture visits from a new audience. Powering tourism with local, renewable energy positions the region to be a leader in sustainable tourism.


Peaks to Prairies



**ELECTRIFYING
SOUTHERN ALBERTA**

A collaborative initiative proudly supported by





Community Response

The legacy of Peaks to Prairies will continue to be realized post-implementation as more local residents learn about the opportunities presented by EVs. The charging stations installed as part of the project create a base network intended to catalyze the transition to clean transportation in the region.

In an area known as “truck country”, the project has ignited interest in this emerging technology especially in more rural communities where opportunities like outside investment and tourism growth are welcomed.

“There is momentum from Bears paw Leadership as well as community members to support projects that can contribute to economic development, especially if that project links also to our efforts in renewable energy generation.”

~Bears paw First Nation Chief, Darcy Dixon

“The downtown core of Pincher Creek is off the main highway, so we are thrilled that this infrastructure will encourage EV travelers to explore the many great eateries, cafes, shops and cultural landmarks the community has to offer. We are pleased to be part of this collaborative project, which promotes tourism, local renewable energy and economic co-benefits.”

~Pincher Creek Mayor, Don Anderberg

“Nice, now I can head down to Great Falls Montana without any worries.”

~ via Facebook, regarding new Milk River station

“This [project] is awesome for EV travelers and tourists.”

~EV driver via Facebook



“After embarking on this roadtrip I discovered the Peaks to Prairies EV rapid charging network. This Electric Vehicle infrastructure has come online across Southern Alberta just this year which was perfect timing...”

~Chris Istace, Mindful Explorer

“We are proud to be a part of this beautiful region, and this EV charging network helps us continue to connect with our neighbours in Southern Alberta, and ensures anyone who wants to visit, can do so”

~ Fort Macleod Mayor, Brent Feyter

“Great locations, right next to main stretch and to Chef’s Studio Japan - our favourite restaurant in Canmore!”

~ via PlugShare.com

Marketing & Outreach

In early summer 2019, in anticipation of the imminent installation of charging infrastructure, Peaks to Prairies commenced a broad marketing and outreach program. A local Outreach Coordinator was hired, and a partnership with Platinum Mitsubishi in Calgary allowed for travel throughout the region to engage with communities about the network and EV technology in general.

The Outreach Coordinator traveled to festivals and events and set up a booth to inform various publics about the growing charging options and answer questions about EV. Through the summer of 2019 the program successfully reached over 1,000 people from a broad demographic spectrum and attended a variety of events- classic car shows, farmers markets, community climate conversations, EV shows, pop-up events at big-box stores and small community gatherings.

During 16 events in 8 different municipalities of Southern Alberta people were engaged, common questions about EVs were answered, and as usual quite a few persistent myths dispelled. Reception was overall positive and consensus was that more charging fast charging options will address the long-distance travel concerns that were the only missing link for wide spread EV adoption.

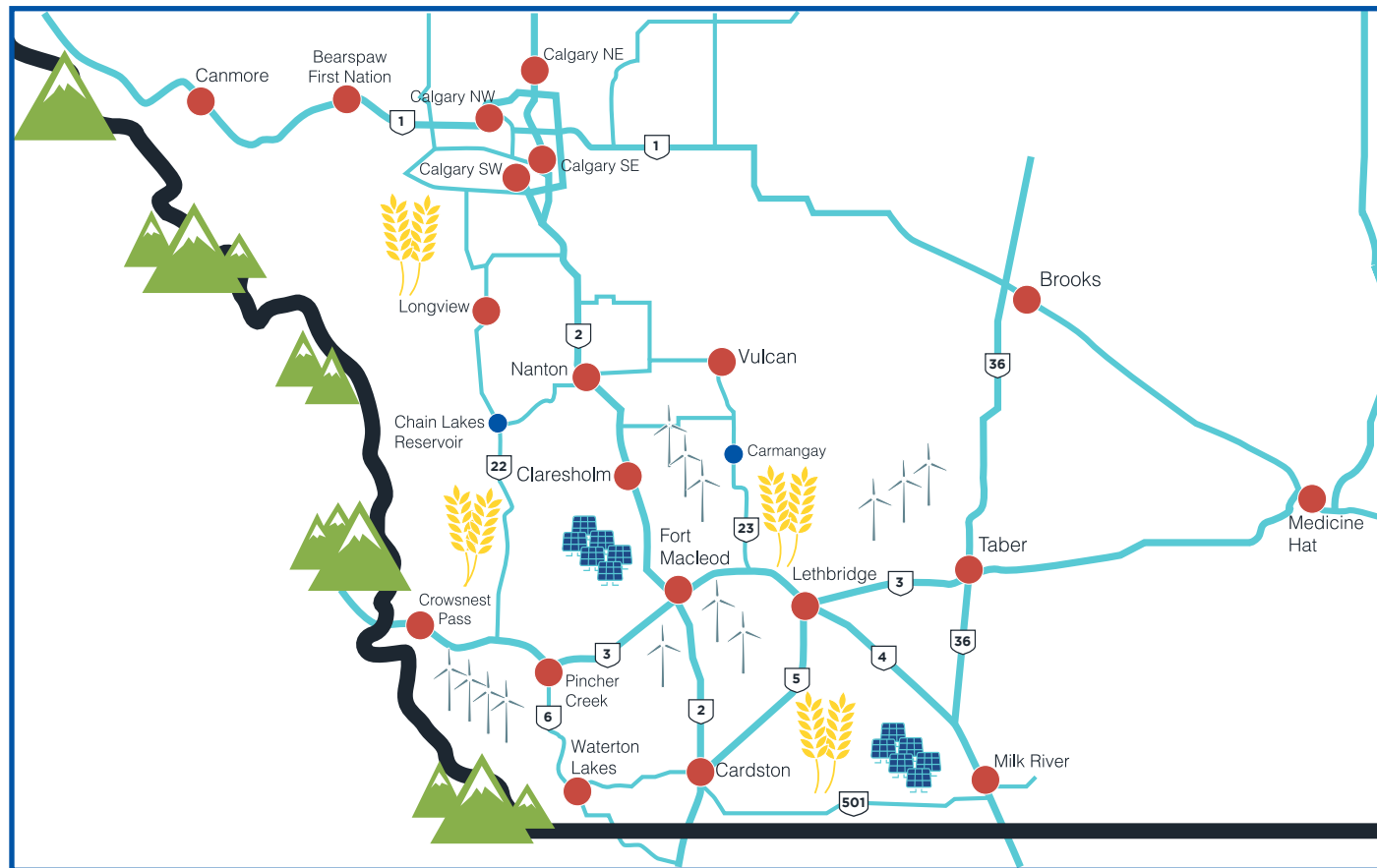
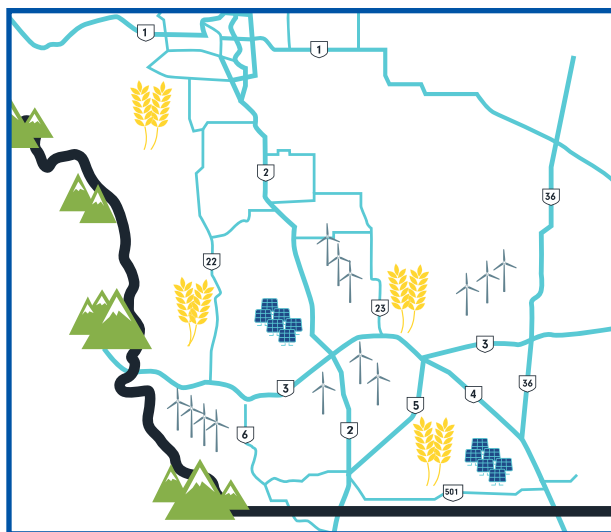
In addition to in-person outreach a short preview video was created in early spring to build momentum and garner awareness of the Peaks to Prairies project. The short video was shared across social media sites and was broadly used during presentations to showcase the guiding principle of using local context and local values and help Albertans see themselves in an EV.



Clockwise from top left: Outreach Coordinator talking EVs with the public; EV booth display at a farmers market in Southern Alberta; Screenshot from the preview video; pop-up test drive event at IKEA Calgary; Climate Conversation gathering in Calgary.

2017

2020



- Existing DCFC
- Peaks to Prairies DCFC & Level 2
- Peaks to Prairies Destination Level 2



Addendum: Covid-19 Impact

As noted in various sections of this document it was expected that station data would show the exponential increase in usage one would expect with the onset of spring and the natural increase in highway travel the tourism industry generally experiences. However, this pattern coincided with the federal and provincial mandates limiting travel by Canadians in response to the COVID-19 pandemic.

The graph below shows that just over 70 unique users accessed charging stations across the Peaks to Prairies network in March 2020. The Canmore station alone saw about 45 users a month during the summer of 2019.

We would therefore expect usage to at least remain consistent in March, if not increase slightly. However, it is notable that usage plummeted alongside announcements to avoid travel.

The reduction of usage reflects compliance with the 'stay home' messaging as a result of COVID-19. Monitoring of station usage will continue for the duration of the 10-year commitment by ATCO to the ownership and operation of the stations, and we do anticipate that as travel restrictions relax, station usage will return to baseline and grow.

