



BC Hydro 2020 Climate Change Accountability Report

May 2021

 **BC Hydro**
Power smart

This Climate Change Accountability Report for the period January 1, 2020 to December 31, 2020 summarizes our emissions profile, the total offsets to reach net-zero emissions, the actions we have taken in 2020 to reduce our greenhouse gas emissions and our plans to continue reducing emissions in 2020 and beyond.

By June 30, 2021 BC Hydro's final Climate Change Accountability Report will be posted to our website at **bchydro.com**.

Overview

BC Hydro's mission is to safely provide our customers with reliable, affordable and clean electricity throughout British Columbia. We operate an integrated system of generation, transmission and distribution infrastructure to safely deliver to our four million customers. We are proud of our partnership with the independent power sector in British Columbia which operates more than 120 projects across the province including biomass, hydro, wind and solar.

As a Crown Corporation we have a prominent place in both supporting and adopting the climate goals of government. BC Hydro consistently has among the lowest greenhouse gas emissions in the North American electricity industry and we have developed a legacy of stewardship by embedding environmental considerations in our business. We are building on our already strong conservation programs by introducing measures to help our customers reduce greenhouse gas emissions. We are mandated to provide leadership in advancing climate action strategies including fuel switching and electrification initiatives, low carbon fuel transportation initiatives and programs to increase building energy efficiency. We will continue to help customers make smart energy management choices by supporting them with low rates, and investments in tools and programs.

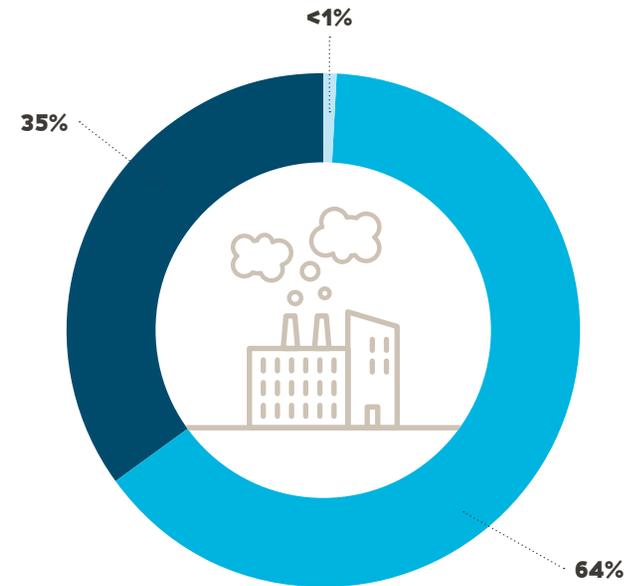
At BC Hydro, understanding and addressing Climate Change is a priority. Our Executive Team members have governance over important climate related risks and actions, and there is regular reporting and discussion with the Executive Team and BC Hydro Board about our responsibility, actions, and progress toward achieving a low carbon future. Adaptation and mitigation considerations are built into our planning, investment and operational decision making processes. In 2020, it was a priority, with Executive sponsorship, to develop a GHG Management plan that describes GHG sources from across our organization, and associated actions that will be taken to further reduce our emissions. Our GHG Management plan confirms that we will achieve significant reductions and meet our responsibility toward the provincial goal of achieving a 40% reduction in emissions by 2030 in line with CleanBC. In 2021, we will commence implementation of prioritized actions outlined in our plan, track, and report on progress.

In line with Carbon Neutral Action Reporting requirements, the scope of this report focuses on BC Hydro carbon neutral activities resulting from the operations of our buildings and fleet and our use of paper. It also identifies our continuing efforts to reduce carbon emissions, our ongoing work to understand climate change and its effects on our business and the communities we serve, our support for energy conservation in the public sector, and our new and upgraded energy projects which emphasize clean, renewable, and environmentally mitigated generation production.

2020 greenhouse gas emissions

In 2020, BC Hydro emitted 32,820 tonnes of carbon dioxide equivalent (CO₂e) from emission sources included in the Carbon Neutral Government Regulation. This is a decrease of 2% from 2019. In 2020, 67% of our emissions came from our vehicle fleet, 33% from buildings (which includes energy use for heating, cooling, lighting and IT equipment), and less than 1% from paper use. Building emissions increased by 8% as compared to 2019 with the increased use of Site C's worker accommodations and offices being a major contributor. This increase of emissions is balanced against the project's operating value as a source of clean, renewable and cost-effective electricity for more than 100 years, producing the lowest levels of life-cycle greenhouse gas emissions per GWh compared to alternative resources. The Fleet emissions decreased by 6% in 2020.

BC Hydro greenhouse gas emissions by source for the 2020 calendar year (t CO₂e*)



- Mobile fuel combustion (fleet and other mobile equipment)
- Stationary fuel combustion (building heating and generators) and electricity
- Supplies (paper)

Total emissions: 32,795 t CO₂e

Total offsets to be retired: 32,248 t CO₂e

Note:

2020 Greenhouse Gas (GHG) Emissions do not include emissions from stationary combustion in crew quarters at remote diesel generating stations, emissions from mobile combustion from boats, snowmobiles or all-terrain vehicles, and fugitive emissions from cooling of buildings or vehicles.

These sources are estimated to emit less than 1% of the BC Hydro total carbon neutral emissions. Efforts to collect or estimate emissions from these sources would be disproportionately onerous. For these reasons, the emissions were deemed to be out-of-scope and are not included in BC Hydro's GHG emissions profile or offset purchase, in accordance with the 2018 B.C. Best Practices Methodology for Quantifying Greenhouse Gas Emissions.

*Tonnes of carbon dioxide equivalent (t CO₂e) is a standard unit of measure in which all types of greenhouse gases are expressed based on their global warming potential relative to carbon dioxide. Due to rounding, numbers may not add up precisely to the totals provided.

Carbon neutral actions

Buildings

BC Hydro owns or leases approximately 250 buildings in more than 80 municipalities across British Columbia. As part of our design process, we incorporate greenhouse gas reduction opportunities, energy savings opportunities and sustainable design aspects into all our capital investments—resulting in enhancements to energy efficiency. This is executed through applying our design standards as well as life-cycle cost analysis where standards do not yet exist. There were many building assets that came into service in 2020—the following is a sample where energy efficiency was a core consideration in design.



At our Edmonds office building we upgraded the end-of-life chiller system including the installation of variable frequency drives to increase the overall efficiency of the system. The new chillers provide cooling to the building during the summer months and operate 50% more efficiently than the old chillers with an annual electricity savings of about 200,000 kWh.



We upgraded the three cold-water booster pumps that were at end-of-life at the Edmonds office building to a new more energy efficient system that can meet the demands of the building as the usage requirement increases and decreases throughout the day. This will save about 100,000 kWh of electricity per year.



At multiple sites, including our Surrey Campus, Edmonds Campus, and various field buildings throughout the province, we upgraded the existing light fixtures in truck bays, offices, and yards. The upgrade to LED (light emitting diode) fixtures provides improved efficiency by about 40% relative to the fluorescent lights replaced with an electricity savings of about 60,000 kWh per year, and the LEDs provide enhanced lighting levels.



At the Dunsmuir and Edmonds gym facilities, we upgraded the end-of-life assets including the installation of LED lighting fixtures, plumbing fixtures, as well as high wear finishes with a savings of about 20,000 kWh of electricity per year.



At our Edmonds office, we upgraded to new lighting fixtures and a new control system, which now allows for more options and lighting levels during events, with the fixture upgrade providing better efficiency and comfortable lighting temperature.

Vehicle fleet

In 2020, BC Hydro and Powertech Labs have jointly submitted a proposal to the British Columbia’s Low Carbon Fuel Standard to acquire a fleet of approximately 2–3 hydrogen fuel cell vehicles (FCEVs) initially, and expand this fleet to approximately 10 vehicles over the course of 3 years. Powertech proposes to support the fueling needs of this fleet of FCEVs by upgrading an existing hydrogen station located at Powertech’s Surrey facility. This hydrogen station will be upgraded for fueling light-duty vehicles and will include upgrades to support future fueling of medium/heavy-duty vehicles—the medium/heavy-duty option will be used by Powertech and their vehicle Original Equipment Manufacturer (OEM) customers in developing and testing medium/heavy-duty hydrogen fueling. In addition to the station upgrades, Powertech plans to develop a clean, sustainable local hydrogen supply system, via the installation of a new electrolyzer, which will be connected to the upgraded Powertech Labs hydrogen storage bank . This electrolyzer will be sized to meet current and future fueling needs for the BC Hydro/ Powertech FCEV fleet, and to provide a regular supply of hydrogen to other hydrogen fueling stations around BC via delivery trailers.

This project will achieve significant carbon intensity reductions in two ways:

- by supporting the BC Hydro/Powertech FCEV fleet of vehicles, which will offset the need for an equivalent set of gasoline vehicles, and
- by supplying “green” hydrogen (produced via electrolysis in B.C.) to four other B.C.–based hydrogen fueling stations, to fuel a growing number of privately owned FCEVs.

This project will produce a wide range of benefits:

- encouraging the FCEV industry in B.C. through the highly visible use and promotion of FCEVs by BC Hydro,
- significantly advancing the development of medium/heavy-duty FCEVs by providing a “test bed” for use in developing medium/heavy-duty hydrogen fueling, and
- supporting the ongoing expansion of hydrogen infrastructure in B.C. through the supply of hydrogen fuel via delivery trailer to commercial B.C.–based hydrogen stations.

This innovative project supports growth toward a low carbon economy directly related to the FCEV and hydrogen infrastructure industries.



Toyota Mirai

Paper

There was continued engagement in 2020 with consolidated customers (companies or groups with multiple service points across the province) to promote paperless billing and campaigns in the fourth quarter. That continued focus on consolidated account customers resulted in converting an additional 14,000 member accounts from the previous year. Combined with the campaign efforts, we surpassed our total paperless billing customers target of 60% by achieving 60.9% at the end of the year.

We continue to have one of the highest rates of paperless billing among those utilities surveyed by the Canadian Electricity Association. This adoption rate is facilitated by our efforts to make it easier for customers to pay their bills via the option of detailed email bill notifications including the amount owing, due date and electricity usage.

BC Hydro continues to promote the use of 100% recycled paper for copying purposes. About 80% of paper used in 2020 is 100% recycled paper. To keep our paper use low, all network printers and photocopiers are set to double-sided printing by default. BC Hydro continues to look for opportunities to mitigate GHG emissions from its operations. A number of enterprise document systems and mobile applications have been introduced to reduce our reliance on paper records. Some of the new applications that were introduced in 2020 include an online Legal Document Management System, Safe Work Observations and a SF6 tracking mobile application all of which have eliminated or reduced paper usage. Our GHG emissions from paper consumption in 2020 was 61.7 tonnes which is 55% lower than 2019.

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Service address
JOHN DOE
1234 ANYNAME ST
ANYTOWN BC V8B 5A1

Account number 5414 1451 234 Invoice number 114012312345 Billing date Dec 8, 2020 Page 1 of 2

Your bill highlights

Your bill for Oct 6, 2020 to Dec 4, 2020

- A rate decrease of 0.81% is reflected on bills as of January 1, 2021. For more information, visit [bchydro.com/updates](#).
- Thank you for your payment of \$247.52 on Oct 23, 2020.
- To track your electricity usage, visit [bchydro.com/login](#).

Total Due
\$166.76
Due by **Dec 10, 2020**

Turn for bill details →

Your electricity usage over time

24% decrease of 8 kWh per day in electricity used compared to the same period last year

\$2.64 average daily cost of electricity this bill period

Use our online tracking tools to view your detailed electricity use by the month, week, day or even hour – up to the previous day. Visit [bchydro.com/login](#).

Less clutter. Less waste.

Switch to paperless billing to get your bill faster with detailed notifications straight to your email. It's always to sign up. Get started at [bchydro.com/paperless](#).

We filed our Fiscal 2022 Revenue Requirements Application with the B.C. Utilities Commission requesting a rate change of 1.16% that would come into effect on April 1. For more information on the application or to get involved, visit [bcus.com/get-involved](#).

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Meter reading information

Energy
Meter number **5699999**

Starting Oct 6, 2020..... 17344
Ending Dec 4, 2020..... 18830
Difference..... 1486

1,486 kWh used over 80 days

You've charged the Step 1 rate for electricity up to a certain threshold in each billing period, and a higher Step 2 rate for all electricity use beyond that threshold. This billing period you reached the higher Step 2 rate. You were 154 kWh above your Step 1 threshold of 1,332 kWh this billing period. Your next meter reading is on or around Feb 4, 2021.

Go paperless
Get access to your account online. To get started, visit [bchydro.com/gopaperless](#).

Maintaining your account
If we notice your payment after the due date, you may be charged a late payment fee. To learn more about your account with BC Hydro, visit [bchydro.com/customerservice/updates](#).

Privacy
Protecting your personal information is an obligation we take seriously. For more information, visit [bchydro.com/privacy](#).

GST Registration # R121454151

Have a question?
Visit [bchydro.com/gethelp](#)
Call us at 1-800-BCHYDRO (1-800-224-9376).

Bill details

Oct 6, 2020 to Dec 4, 2020

PREVIOUS BILLING PERIOD

Previous bill..... \$247.52
Payment received Oct 23, 2020..... -\$247.52

BALANCE FORWARD \$0.00

ELECTRICITY CHARGES
Based on Residential Conservation Rate 1101
Oct 6, 2020 to Dec 4, 2020 (1,486 kWh used)

Basic Charge: 80 days @ \$0.2069 /day..... \$12.41*

ENERGY CHARGES

Step 1: 1,332 kWh @ \$0.0905 /kWh..... \$124.54*
Step 2: 154 kWh @ \$0.1403 /kWh..... \$21.61*
Customer Ombuds Fund charge: 80 days @ \$0.0043 /day..... \$0.26*

TAXES ON ELECTRICITY CHARGES
* GST 5% on \$158.82..... \$7.94

ELECTRICITY CHARGES SUBTOTAL \$166.76

TOTAL DUE \$166.76

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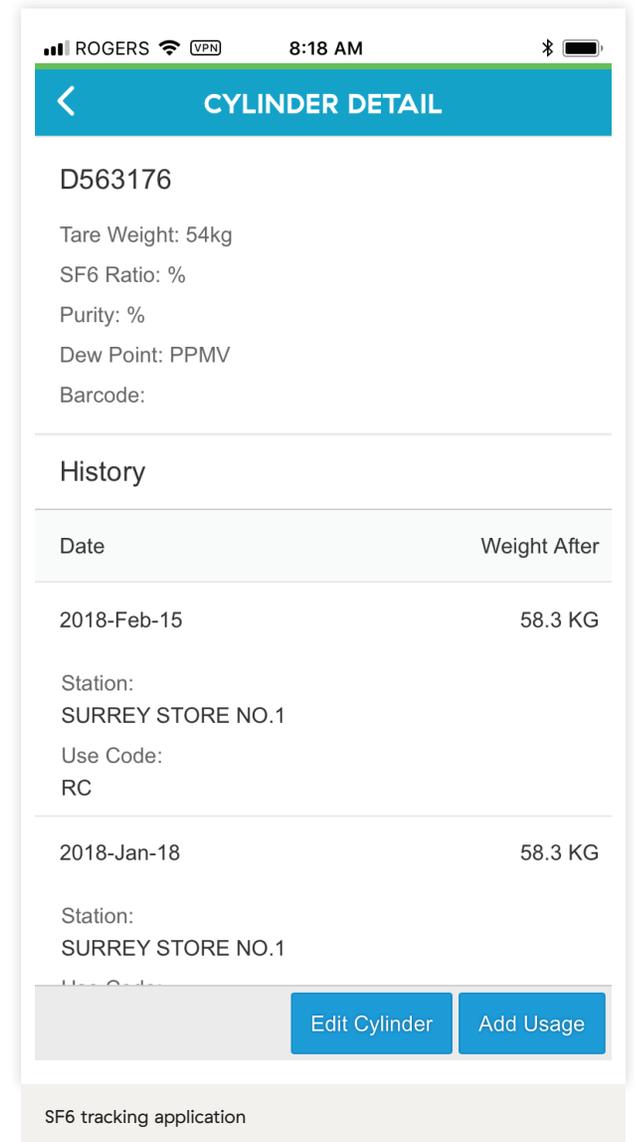
BC Hydro paperless bill

Other GHG reduction initiatives

BC Hydro is continuing to work on mitigating sources of greenhouse gas in our operating system. Sulphur hexafluoride (SF₆) and carbon tetrafluoride (CF₄) are potent greenhouse gases used in electrical equipment worldwide which can leak to the atmosphere. BC Hydro is continuing to manage SF₆ and CF₄ releases by prioritizing repairs or replacement of leaking equipment identified in the annual release report.

Since 2007, SF₆ and CF₄ releases have decreased by 83% through established maintenance programs and targeted equipment repair and replacements. Our practice is to seek environmentally friendly alternatives to SF₆ and CF₄ insulated equipment, and to minimize the amount of SF₆ and CF₄ added to the system by using more environmentally friendly solutions where these are viable. We have successfully piloted and are sourcing SF₆ free circuit breakers up to 69 KV and instrument transformers up to 230 KV.

We have developed the SF₆ and CF₄ tracking mobile application, which will help ensure accurate and timely accounting of gas releases in addition to decreasing our reliance on paper records. The app is presently being rolled out to field crews.



Adaptation to climate change

BC Hydro has a significant responsibility as it relates to climate change adaptation. The power we generate and deliver supports the quality of life and the safety of our customers. Our actions can also have economic, environmental and societal impacts. Our approach to understanding, and managing the risks, impacts, and opportunities associated with a changing climate matters. In 2020, we developed a report called *Climate Change: How BC Hydro is Adapting* that addresses the risks and actions we are taking.

Further understanding wildfire risks and potential impacts was an area of focus for us in 2020. Wildfire seasons in British Columbia are becoming longer and our forests are becoming increasingly flammable due to climate change. More people are choosing to live and work in fire-prone areas and mitigating wildfire risk is required to provide safe, reliable power.

In 2020, we updated and expanded BC Hydro's wildfire risk model. The original model provided risk information for the transmission system as it was in 2005. The new model is expanded and provides risk information for distribution, transmission, stations and generation assets.

The model is comprised of four individual assessments to be used in our Geographic Information System (GIS):

- Probability—Demonstrates the likelihood of wildfire occurring near BC Hydro infrastructure.
- Consequence—Demonstrates the consequence to public values of wildfire near BC Hydro infrastructure.
- Risk—Demonstrates overall risk as a function of probability and consequence.
- System Criticality—Demonstrates the consequence to BC Hydro infrastructure based on system criticality data.

This suite of models is being used to quantify and prioritize our wildfire mitigation efforts. The updated model has already been used to help prioritize 2021 efforts to reduce ignitions and improve system resiliency. For example, it has informed prioritizing cutout replacements and hazard tree removals on the distribution system and to help prioritize insulator replacements on the transmission system. We are observing how similar models have been used by other utilities to manage wildfire risk and are referring to documents like the Canadian Electricity Association (CEA) *Wildfire Mitigation Guide* to inform this effort. The wildfire risk model is a tool that can help BC Hydro adapt to climate change and continue to provide safe, reliable power.



Wildfire in B.C.

Support to CleanBC plan

CleanBC outlines a roadmap for a more prosperous, balanced, and sustainable future, using clean energy to power the British Columbia economy while driving down greenhouse gas emissions. BC Hydro is endowed with a unique hydroelectric resource that has provided substantial benefits over the decades through its provision of low-cost clean power. BC Hydro has a critical role to play in achieving the goals set out in CleanBC and will have a significant effect on GHG reductions in our province by supporting our customers to electrify. The policies and strategies in the CleanBC plan are expected to require additional electricity over and above currently projected demand growth to electrify key segments of our economy.

For the 2020 CCAR, we are highlighting our progress in three CleanBC targeted areas—Transportation sector (Direct Current Fast Charging Stations), Buildings (Better Homes and Buildings Program) and Industry (few examples having significant GHG reduction potential).

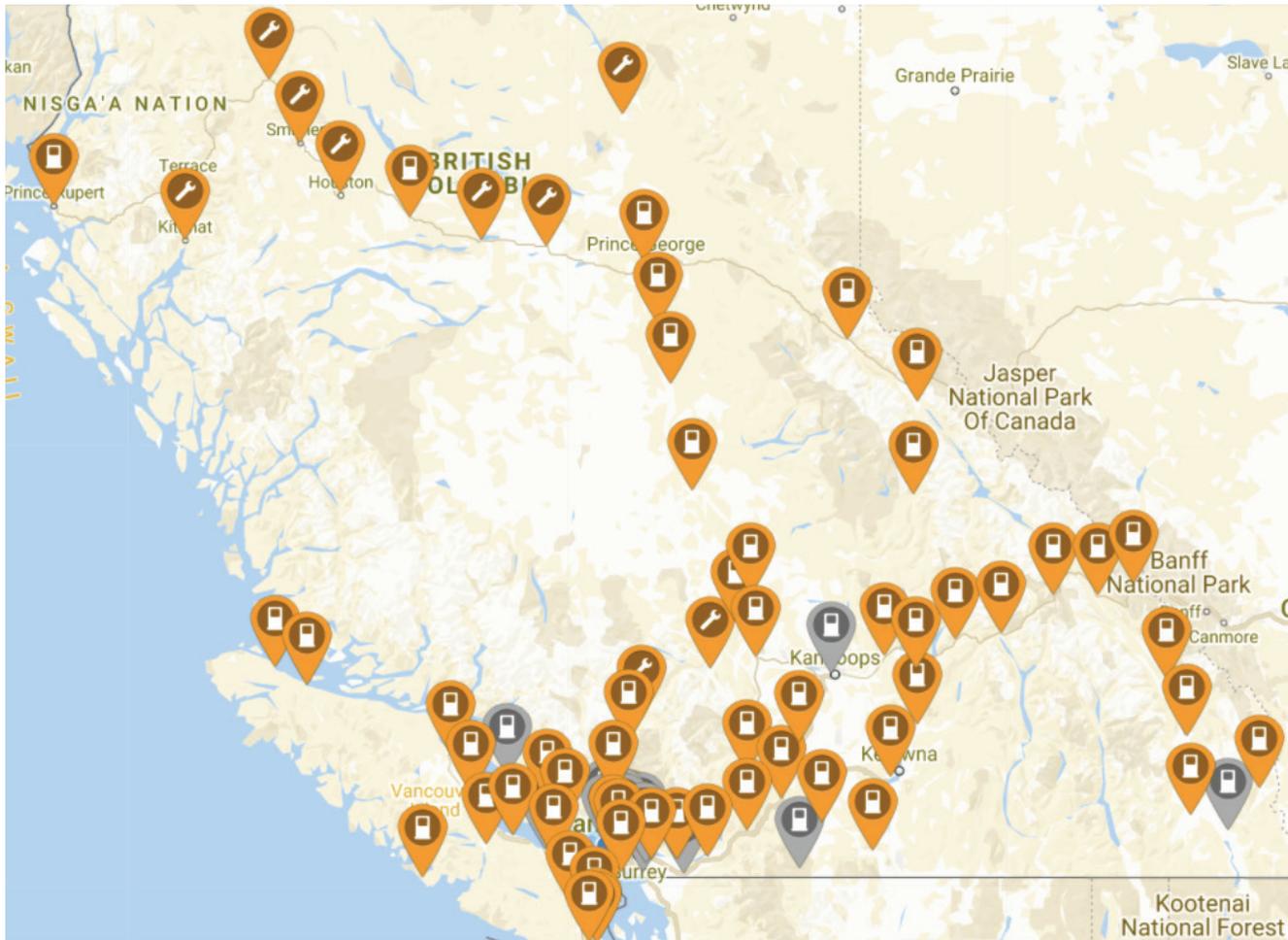
Direct current fast charging (DCFC) stations

The B.C. Electric Vehicle (EV) market had the highest reported uptake rate in North America, making the Province a leader in the industry.

Commercial success for EVs will require installing public charging infrastructure that is safe, accessible, and easy to use. As part of the effort to actively remove barriers and support the wider adoption of EVs, BC Hydro has focused on building out a network of public Direct Current Fast Charging (DCFC) stations, covering all major and minor highways, and major roads across British Columbia.

Currently, BC Hydro owns and operates 100 DCFC charging stations across province. The DCFC build-out has been implemented in phases and 21 new stations were installed in 2020. By completing the current active projects, BC Hydro anticipates having 128 DCFC chargers in service by the end of 2021.

A map of all BC Hydro stations, including stations under construction, is provided below.



CleanBC Better Homes and Better Buildings Program

BC Hydro in an agreement with the Ministry of Energy, Mines and Petroleum Resources participates in CleanBC Better Homes and Better Buildings Program targeted on residential and commercial measures with associated gas energy savings and greenhouse gas reductions. Some of the popular measures include switching from a fossil fuel to a heat pump for space heating, window and door upgrades, energy assessment rebates, providing insulation in homes heated by fossil fuels amongst others.

In particular, CleanBC's program participation for switching from a fossil fuel to a heat pump for space heating has been the most popular. The rebate value for fuel switching is attractive especially when combined with municipalities who are also offering rebates for switching from a fossil fuel to a heat pump in 2020, fuel switching to heat program has resulted in a GHG reduction of about 2200 t Co_{2e}/year which is equivalent to keeping 500 cars off the road. Three new offerings were launched in 2020 that target heat pump financing, group purchase rebates and residential new construction.

EV resources for industry

BC Hydro has developed a number of resources to assist our customers with their fleet electrification opportunities, available on the BC Hydro website on our EV Resources for Industry page. We have fleet electrification guidelines, they provide a high-level overview of the steps of fleet electrification planning. Our EV programs team has also published guidelines on the best practices to install fast charging stations and Level 2 stations. Our team in Key Account Management participates in many customer EV workgroups as well as engagement sessions and presentations at various symposiums, Energy Manager sessions, Association meetings, and conferences. In 2020 BC Hydro introduced Fleet Electrification Rates to help reduce costs associated with electrifying their fleets.

We work with our customers to find ways to help support them with their transportation electrification opportunities. A good example of this collaboration is our work with Teck Resources Limited (“Teck”), one of our largest Key Account customers. Teck has been using two Lion Electric EV buses in British Columbia’s Elk Valley region over the last year to transport the mine workforce from the town of Elkford to the Fording River and Greenhills mines. The pilot program has performed extremely well, and Teck employees are very happy with the results to-date, with the crews enjoying travelling to site in a quiet and clean EV bus. BC Hydro has worked with Teck to assist with load profiling and charging and is now collaborating on plans for future expansion of the program.



Lion Electric EV Bus



Fleet electrification

CleanBC support to mining

The Copper Mountain mine near Princeton aims to significantly reduce GHG emissions by using electricity to off-set the use of diesel fuel to power their 230 tonne mine haul trucks. Copper Mountain Mining Corporation is constructing the pilot Trolley Assist lane at it's 75% owned Copper Mountain mine located in southern British Columbia near the town of Princeton. The Trolley Lane transports the ore from the open pit to the Gyrotory Crusher from where after the ore is transported a further kilometer by way of an electric powered ore conveyor system.

BC Hydro has supported this industry leading trolley assist project through our Low Carbon Electrification program. Phase 1 of the trolley assist will be implemented by the end of 2021, which will initially add a 1 km trolley assist line at the mine site. It is estimated this will increase electricity use at the mine by almost 15 GWh/year, while reducing GHG emissions by 7,260 t CO₂e per year which is equivalent to removing 1600 cars off the road for a year. Copper Mountain plans to implement Phase 2 of Trolley Assist in 2023/2024 as they expand the mine, which will add an additional 3 kms of trolley assist line.

BC Hydro is continuing to electrify the oil & gas industry and lower the carbon intensity. In 2020, BC Hydro initiated a project with ARC Resources to help in achieving its target of reducing its GHG intensity by 20% by 2025. The Project Dawson Phase 3 and 4 will involved replacing natural gas turbines at the two sites by electrification for a total of 40 MW. Once electrified, the project will result in GHG reduction of 85,000 T CO₂e per year which is equivalent to taking 18,500 vehicles off the road for a year.



Electric trolley assist line

Emissions and offset summary table

BC Hydro GHG emissions and offset for 2020	
GHG emissions created in calendar year 2020	
Total emissions (t CO ₂ e)	32,795 t CO ₂ e
Total offsets (t CO ₂ e)	763 t CO ₂ e
Adjustments to offsets required GHG emissions reported in prior years	
Total offsets adjustment (t CO ₂ e)	216 t CO ₂ e
Grand total offsets for the 2020 reporting year	
Grand total offsets (t CO ₂ e) to be retired for 2020 reporting year	32,248 t CO ₂ e
Offset investment (\$25 per t CO ₂ e)	\$806,200

Retirement of offsets:

In accordance with the requirements of the Greenhouse Gas Reduction Targets Act and Carbon Neutral Government Regulation, BC Hydro (the Organization) is responsible for arranging for the retirement of the offsets obligation reported above for the 2020 calendar year, together with any adjustments reported for past calendar years. The Organization hereby agrees that, in exchange for the Ministry of Environment and Climate Change Strategy ensuring that these offsets are retired on the Organization's behalf, the Organization will pay within 30 days, the associated invoice to be issued by the Ministry in an amount equal to \$25 per tonne of offsets retired on its behalf plus GST.

Executive sign-off:

May 27, 2021



Chris O'Riley, President & CEO

