

# 2021 Carbon Neutral Government Year in Review: Summary

**EACH YEAR SINCE 2010**, B.C. has achieved carbon neutral operations, maintaining a net impact of zero greenhouse gas (GHG) emissions across provincial public sector organizations (PSOs), including health authorities, school districts, post-secondary institutions, Crown corporations and provincial government.

B.C.'s legislated Carbon Neutral Government (CNG) commitment, the first in North America, is reducing emissions, saving energy costs, and spurring the development of clean technology and new jobs. The 2021 reporting year marked the twelfth consecutive year of public sector carbon neutrality in B.C. Under the CNG program, PSOs:

- Measure greenhouse gas (GHG) emissions from their operations;
- Plan and take action to reduce those emissions;
- Purchase offsets to achieve net zero emissions; and
- Report publicly through annual individualized Climate Change Accountability Reports.

The total emissions reported in this summary meet the reporting requirements set out in the Carbon Neutral Government Regulation under the *Climate Change Accountability Act*.

## Key Facts for 2021:

- While the B.C. public sector is making some progress in reducing emissions, significant action is needed to achieve the CleanBC 2030 targets of 50 percent reduction in emissions from public buildings and 40 percent reduction in public sector fleet emissions compared to 2010 levels.
- For the 2021 reporting year<sup>1</sup>, B.C.'s 130 PSOs generated 737,017 tonnes of GHG emissions from their operations representing a reduction of 46,114 tonnes as compared to 2020 - the equivalent to taking approximately 10,025 cars off the road for a year.<sup>2</sup> Refer to Appendix A - Tables 1 and 2 for a breakdown of 2021 emissions by source and by PSO, respectively.
- Over the past 12 years, public sector emissions decreased by 109,307 tonnes or almost 13 percent compared to the baseline year of 2010. In 2021:

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<sup>1</sup> The 2021 reporting year is equivalent to the 2021 calendar year.

<sup>2</sup> Based on 4.6 tonnes per car per year. Source:

<https://www.epa.gov/greenvehicles/greenhouse-gas-emissions-typical-passenger-vehicle>

- Emissions from **buildings** decreased by 14 percent compared to 2010 levels normalized for weather conditions, building emissions decreased 20 percent. See **Figure 1** for annual emission trends from public sector buildings since 2010.<sup>3</sup>
- Emissions from **fleet** remained approximately the same compared to 2010 levels. See **Figure 2** for annual emission trends from fleet vehicles since 2010.
- Emissions from **paper** decreased by 35% compared to 2010 levels.
- For the 2021 reporting year, carbon offsets were sourced from projects involving sequestration, fuel switching, GHG destruction, and energy efficiency (refer to Appendix A - Table 3 for details).
- B.C.'s emission offset portfolio has resulted in total offset retirements of approximately 8.1 million tonnes of carbon dioxide equivalent between 2010 and 2021.
- Highlights across the B.C. public sector include:

#### **Buildings**

- 2021 emissions from Provincial Government buildings were 44 percent less than 2010 levels, putting Provincial Government (ministries and independent offices) on the path to achieving the targets established for the CleanBC Government Buildings program.
- Provincial Government's major projects capital planning and approval process has been updated to address government's strategic priorities, including climate change. The Environmental, Social and Governance Framework for Capital will ensure that all major capital projects are built to align with CleanBC GHG reduction and climate resilience standards going forward.
- In 2021, the Carbon Neutral Capital Program funded \$56 million in energy saving activities and technologies at PSO buildings, such as improved heating, ventilation and air-conditioning systems, solar panels, and electric vehicle charging stations in health care facilities, post-secondary institutions, and K-12 schools.

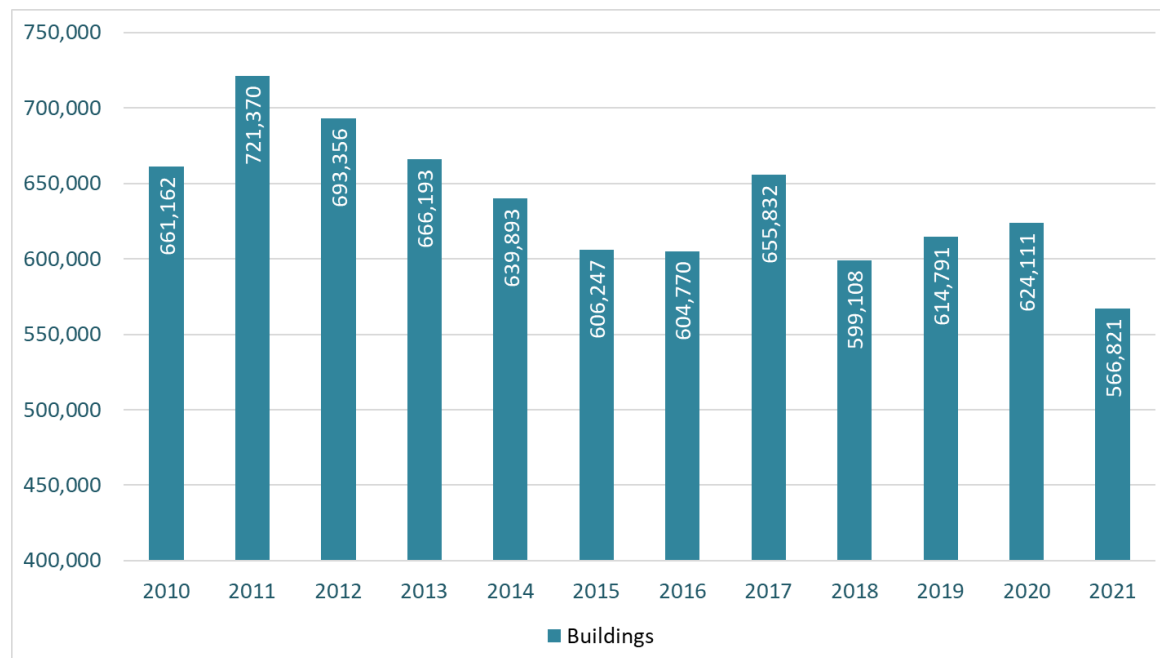
#### **Fleet**

- The push to electrify school buses continued as school districts ordered a total of 51 electric school buses.
- In fall 2021, B.C. signed onto a pledge with the Under2 Coalition committing to converting all public sector owned and leased fleets to zero emission vehicles (ZEVs) by 2035 (for light duty) and 2040 (for medium and heavy-duty).
- In 2021, 8 percent of applicable Provincial Government light duty vehicle purchases were ZEVs, falling short of the CleanBC annual 10% ZEV purchase target that started in 2020. Supply chain issues significantly limited the availability of ZEVs. To date, 2.2 percent of the government light duty fleet are ZEVs.

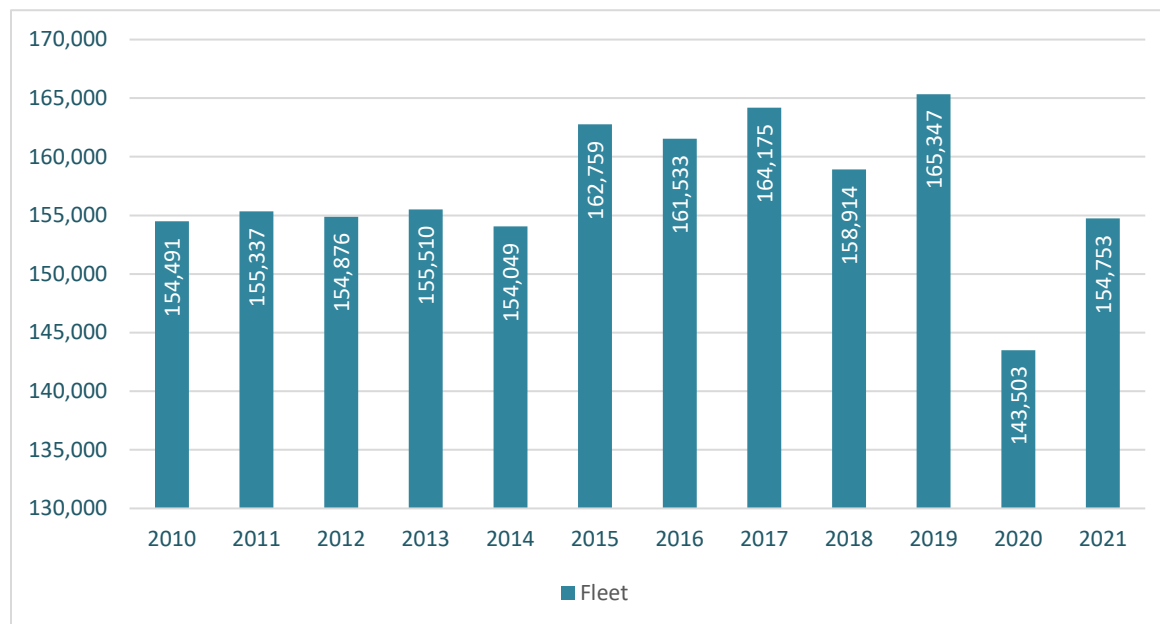
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<sup>3</sup> Updates to align electricity emissions factors with CleanBC's industry program approach, made in June 2021 to update 2010-2020 emissions data, mean historic emissions were updated and do not match what had been reported in previous years.

**Figure 1. Building Emissions (tonnes CO<sub>2</sub>e) Across the Public Sector 2010-2021**



**Figure 2. Fleet Emissions (tonnes CO<sub>2</sub>e) Across the Public Sector 2010-2021**



To weather normalize building emissions, the average temperature profile for a 30-year period is used to calculate the number of days buildings use energy to heat or cool (based on temperatures above or below 15°C).

## Weather Normalization

Buildings have been the source of over 75 percent of B.C.'s total provincial public sector emissions every year since the beginning of the Carbon Neutral Government Program. Year-to-year differences in weather affect the heating and cooling requirements in buildings. To enable year-to-year comparison of building-related emissions, figures are adjusted to remove weather effects – a practice known as weather normalization. An improved understanding of building emissions trends, net of weather-related impacts, helps PSOs determine the level of progress being made towards reducing GHG emissions.

## 2021 Weather Impact

Climate change is being felt across B.C. as average temperatures are trending upwards, and extreme weather is becoming more frequent year-over-year. B.C. had a cooler winter and much hotter summer in 2021 compared to 2020, increasing heating and cooling demand from the previous year's results. Cooling degree days were at their highest in the history of the program<sup>4</sup>.

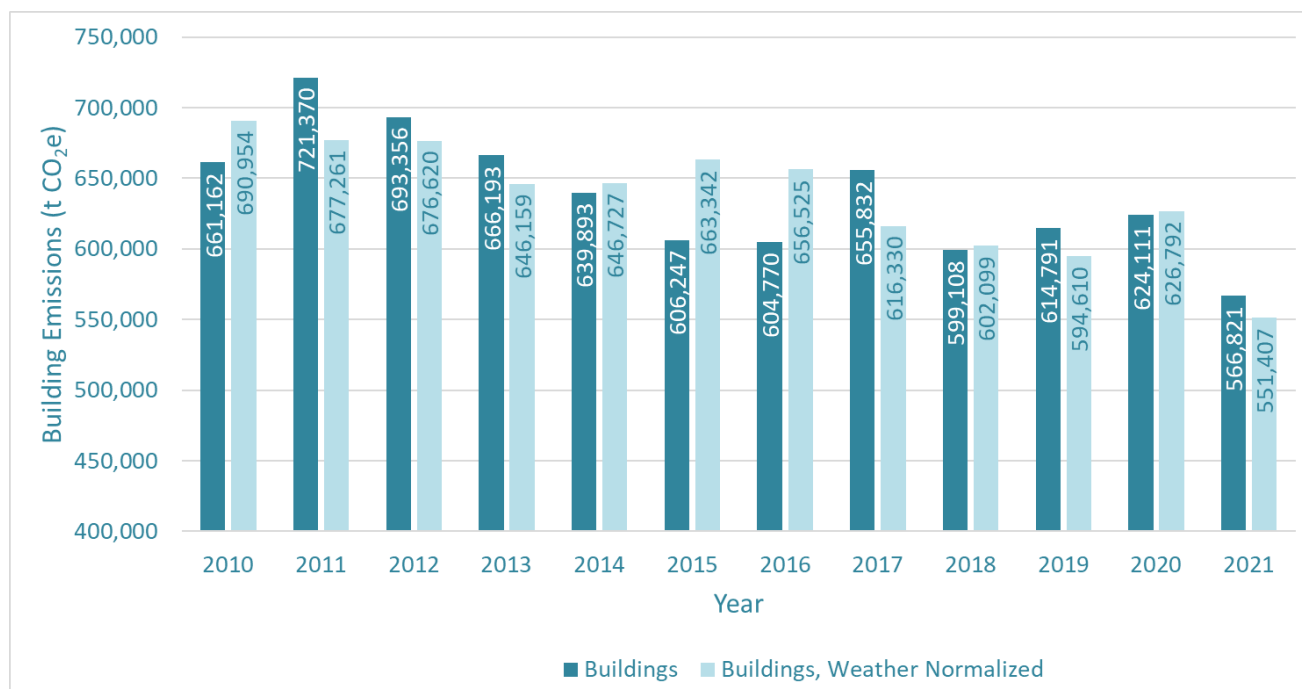
Since 2010, B.C.'s public sector has seen energy demand for heating drop slightly due to warmer winters. While energy demands for cooling are still much smaller than for heating, cooling degree days were greater in 2021 than the weather normalized baseline (1981-2010).

All sectors saw decreases in weather normalized emissions in 2021, with an overall decrease of 12 percent between 2020 and 2021, and 20 percent between 2010 and 2021. Public sector building energy consumption declined 8 percent between 2010 and 2021, and only 1 percent between 2020 and 2021. Core Government, Post-Secondary Institutions and Health Authorities buildings saw, in their weather normalized data, increases in electricity use and decreases in non-electricity energy consumption, indicating that the sectors are moving towards the electrification of their buildings. Weather normalized energy consumption increased in School Districts and decreased in Crown Corporations.

Figure 3 below shows that under average climate conditions in the baseline period used (1981 to 2010), emissions would have been slightly lower in 2021 than actual emissions reported.

<sup>4</sup> Energy requirements for heating and cooling buildings are measured in Heating Degree Days (HDD) and Cooling Degree Days (CDD), the difference between the average daily outdoor temperature and 15°C, the outdoor temperature at which the building would neither need heating or cooling. A day with an average outdoor temperature of 10°C contributes 5 HDD while a 20°C day contributes 5 CDD.

**Figure 3. Weather-Normalized Building Emissions (tonnes CO<sub>2</sub>e) 2010-2021**



## Appendix A - Summary of Emissions and Offsets

**Table 1. 2021 Public Sector Emissions by GHG and by Source (tonnes CO<sub>2</sub>e)**

	Bio CO <sub>2</sub> e Emissions	Non-Bio CO <sub>2</sub> e Emissions	Total CO <sub>2</sub> e Emissions
<b>Scope 1</b>			
Buildings (Direct Fuel Combustion)	11,091	514,106	525,197
Fleet (Mobile Energy Use)	7,766	146,986	154,753
Fugitive Emissions		600	600
<b>Scope 2</b>			
Buildings (Purchased Energy)		41,624	41,624
<b>Scope 3</b>			
Paper		13,264	13,264
Travel	21	1,559	1,580
<b>TOTAL</b>	<b>18,879</b>	<b>718,139</b>	<b>737,017</b>

**Table 1 Notes:**

- (1) Table 1 reports Scope 1, 2, and 3 emissions in accordance with international protocols.
  - a. Scope 1 emissions represent those produced from the combustion of fossil fuels (e.g., natural gas for heating, gasoline for vehicle fuels) and fugitive emissions (e.g., hydrofluorocarbons from air conditioning equipment).
  - b. Scope 2 emissions represent those produced by third parties in the production of energy purchased by B.C.'s PSOs (e.g., electricity).
  - c. Scope 3 emissions represent those produced by third parties in the production of goods and services purchased by B.C.'s PSOs (e.g., office paper, business travel<sup>5</sup>).
- (2) International protocols call for the separate reporting of biogenic emissions (Bio CO<sub>2</sub>e) produced from the combustion of biogenic fuels (e.g., wood waste for heating, renewable vehicle fuels).
- (3) For more information on how the B.C. public sector measures emissions, please refer to the [\*2021 Methodology for Quantifying Greenhouse Gas Emissions\*](#).
- (4) Non-bio CO<sub>2</sub>e emissions in Table 1 include 75,778 tonnes CO<sub>2</sub>e emissions from public transit and school buses, which are offset exempt.
- (5) Due to rounding, numbers presented above may not add up precisely to the totals reported.

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<sup>5</sup> Only core government is required to measure, report and offset emissions from business travel.

Table 2. 2021 Emissions by Public Sector Organization (t CO<sub>2</sub>e)

Public Sector Organization	Emissions	Offsettable Emissions	Bio-CO <sub>2</sub> e Emissions
BC PUBLIC SECTOR TOTAL	737,016	642,360	18,876
Provincial Government Total	51,584	50,791	793
Crown Corporations Total	151,421	88,168	5,231
BC Family Maintenance Agency	54	54	0
BC Financial Services Authority	71	71	0
BC Infrastructure Benefits	2	2	0
BC Assessment Authority	341	338	3
BC Council for International Education	5	5	0
BC Games Society	2	2	0
BC Housing Management Commission	29,362	29,348	14
BC Hydro	32,833	32,016	818
BC Liquor Distribution Branch	3,500	3,461	19
BC Lottery Corporation	820	810	10
BC Pavilion Corporation	3,364	3,326	38
BC Transit	63,873	1,564	4,313
British Columbia Securities Commission	231	231	0
Columbia Basin Trust	272	268	0
Columbia Power Corporation	2	2	0
Community Living British Columbia	347	346	1
Destination BC	46	46	0
First People's Cultural Council	1	1	0
Forest Enhancement Society of BC	6	6	0
Forestry Innovation Investment	139	139	0
Industry Training Authority	53	53	0
Innovate BC	16	16	0
Insurance Corporation of BC	15,340	15,332	8
Knowledge Network Corporation	99	99	0
Legal Services Society	125	121	0
Oil and Gas Commission	371	365	7
Partnerships BC-Infrastructure BC Inc.	16	16	0
Real Estate Council of BC	47	47	0
Real Estate Foundation	1	1	0
Royal BC Museum	77	77	0
Transportation Investment Corporation	5	5	0
Health Authorities Total	226,889	225,123	1,766
BC Emergency Health Services	16,907	16,417	490
Fraser Health Authority	41,228	41,203	25
Interior Health Authority	41,732	40,632	1,100
Louis Brier Home & Hospital	936	936	0
Menno Hospital	500	500	0
Mount St. Mary Hospital	421	421	0
Nisga'a Valley Health Authority	183	180	3
Northern Health Authority	21,985	21,956	29
Providence Health Care	11,842	11,838	4
Provincial Health Services Authority	19,592	19,563	29
St. Joseph's General Hospital	0	0	0
St. Michael's Centre	357	357	0
Vancouver Coastal Health Authority	41,743	41,707	36
Vancouver Island Health Authority	29,463	29,413	50
School Districts Total	182,973	163,906	1,317
School District 05 - Southeast Kootenay	3,017	2,695	13
School District 06 - Rocky Mountain	1,963	1,520	20
School District 08 - Kootenay Lake	3,346	2,604	38
School District 10 - Arrow Lakes (Nakusp)	396	197	8
School District 19 - Revelstoke	323	274	2
School District 20 - Kootenay-Columbia	1,956	1,678	12
School District 22 - Vernon	1,982	1,625	23
School District 23 - Central Okanagan (Kelowna)	6,035	5,107	27
School District 27 - Cariboo-Chilcoltin	3,655	2,373	59
School District 28 - Quesnel School	1,854	1,179	29
School District 33 - Chilliwack	4,452	3,581	40
School District 34 - Abbotsford	4,393	3,649	45
School District 35 - Langley	5,548	5,231	20
School District 36 - Surrey	18,387	18,109	41
School District 37 - Delta	2,729	2,720	9
School District 38 - Richmond	7,024	6,822	17
School District 39 - Vancouver	16,366	16,160	206
School District 40 - New Westminster	1,807	1,449	2
School District 41 - Burnaby	6,189	6,175	14
School District 42 - Maple Ridge	4,100	4,093	5
School District 43 - Coquitlam	7,842	7,831	11

Public Sector Organization	Emissions	Offsettable Emissions	Bio-CO <sub>2</sub> e Emissions
School Districts (Cont'd)			
School District 44 - North Vancouver	4,410	4,367	5
School District 45 - West Vancouver	1,919	1,917	2
School District 46 - Sunshine Coast	908	905	4
School District 47 - Powell River	1,083	860	13
School District 48 - Sea to Sky	2,041	1,630	57
School District 49 - Central Coast	317	256	11
School District 50 - Haida Gwaii	868	804	7
School District 51 - Boundary	954	725	10
School District 52 - Prince Rupert	767	765	2
School District 53 - Okanagan Similkameen	1,234	951	13
School District 54 - Bulkley Valley	1,430	1,411	19
School District 57 - Prince George	5,519	5,506	13
School District 58 - Nicola-Similkameen	1,146	956	7
School District 59 - Peace River South (Dawson Creek)	2,840	2,344	27
School District 60 - Peace River North (Fort St.John)	4,395	3,332	47
School District 61 - Greater Victoria	5,558	5,544	14
School District 62 - Sooke	2,244	1,754	29
School District 63 - Saanich	2,116	1,720	21
School District 64 - Gulf Islands	399	243	8
School District 67 - Okanagan Skaha (Penticton)	1,696	1,459	15
School District 68 - Nanaimo-Ladysmith	3,936	3,507	38
School District 69 - Qualicum	2,086	1,609	20
School District 70 - Alberni	960	881	9
School District 71 - Comox Valley	2,250	2,243	6
School District 72 - Campbell River	2,288	1,926	21
School District 73 - Kamloops / Thompson	7,255	5,974	68
School District 74 - Gold Trail	963	615	17
School District 75 - Mission	2,119	1,799	15
School District 78 - Fraser - Cascade	796	620	10
School District 79 - Cowichan Valley	2,405	1,617	35
School District 81 - Fort Nelson	1,147	1,139	1
School District 82 - Coast Mountain	3,144	3,105	19
School District 83 - North Okanagan-Shuswap	3,216	2,103	44
School District 84 - Vancouver Island West	138	111	4
School District 85 - Vancouver Island North	868	736	8
School District 87 - Stikine	339	338	1
School District 91 - Nechako Lakes	2,670	1,882	33
School District 92 - Nisga'a	147	143	3
School District 93 - Conseil Francophone	1,038	1,037	0
Universities & Colleges Total	124,149	114,373	9,769
British Columbia Institute of Technology	7,480	7,472	8
Camosun College	2,209	2,207	2
Capilano University	1,309	1,308	1
Coast Mountain College	1,006	1,004	2
College of New Caledonia	2,011	2,010	1
College of the Rockies	989	988	1
Douglas College	1,701	1,701	0
Emily Carr University of Art and Design	130	130	0
Justice Institute of BC	573	571	2
Kwantlen Polytechnic University	2,436	2,434	2
Langara College	1,527	1,527	0
Nicola Valley Institute of Technology	179	179	0
Northern Lights College	2,058	2,055	3
North Island College	848	848	0
Okanagan College	1,283	1,282	1
Royal Roads University	966	964	2
Selkirk College	1,058	1,057	1
Simon Fraser University	9,465	9,445	20
Thompson Rivers University	3,507	3,341	166
University of British Columbia	59,825	54,816	5,009
University of Northern British Columbia	7,182	2,654	4,528
University of The Fraser Valley	2,210	2,209	1
University of Victoria	10,029	10,020	9
Vancouver Community College	1,131	1,131	0
Vancouver Island University	3,037	3,020	10

Notes:

- Due to rounding, numbers presented in Table 2 for each organization may not add up precisely to the totals reported.
- B.C.'s Crown Corporations, schools, universities, colleges and health facilities purchase offsets from the Ministry of Environment and Climate Change Strategy at \$25 per tonne of CO<sub>2</sub>e to become carbon neutral.
- Emissions from public transit and school buses are offset exempt.
- Bio CO<sub>2</sub>e emissions are produced from the combustion of biogenic fuels (e.g., wood waste for heating, renewable vehicle fuels) and are also offset exempt.
- In addition to the 642,360 offsets required for 2021, an additional 588 offsets were retired to reflect adjustments to previously reported years to ensure all regulated emissions were accounted for.

Table 3. Portfolio of Offset Projects for the 2021 Carbon Neutral Government Commitment

	Portfolio of Offset Projects for the 2021 Carbon Neutral Government Commitment				
Project	Sector	Project Type	Price / Tonne	Tonnes CO <sub>2</sub> e	\$ Value
<b>Low Emissions Facility</b> ARC Resources, Dawson Creek	Oil and Gas	Fuel Switching	\$8.00	91,801	\$734,408.00
<b>Electrification of Gas Production Plant (Noel)</b> Blue Source, Dawson Creek	Oil and Gas	Fuel Switching	\$8.00	12,325	\$98,600.00
<b>Electrification of Gas Processing Plant (Septimus)</b> Blue Source, Taylor	Oil and Gas	Fuel Switching	\$8.00	34,182	\$273,456.00
<b>Engine Fuel Gas Management (REMVue)</b> Blue Source, Northeastern BC	Oil and Gas	Energy Efficiency	\$11.00	500	\$5,500.00
<b>Natural Gas to Biomass Fuel Switch</b> Canfor B.C. Sawmills – Elko, Prince George, Fort St. John, Chetwynd, Mackenzie	Forest – Industry	Fuel Switching	\$8.50	26,159	\$222,351.50
<b>Cheakamus Community Forest</b> Cheakamus Community Forest Society, Whistler	Forestry – Land Use	Sequestration	\$14.00	7,712	\$107,968.00
<b>Forest Conservation/Improved Forest Management</b> Great Bear Rainforest, Haida Gwaii	Forestry – Land Use	Sequestration	\$12.00	195,882	\$2,350,584.00
<b>Forest Conservation/Improved Forest Management</b> Great Bear Rainforest, North and Central Mid-Coast	Forestry – Land Use	Sequestration	\$12.00	187,849	\$2,254,188.00
<b>Forest Conservation/Improved Forest Management</b> Great Bear Rainforest, South Central Coast	Forestry – Land Use	Sequestration	\$10.56	75,037	\$792,444.00
<b>Clean Tech Biomass Gasification</b> Kruger Products, New Westminster	Forest – Industry	Fuel Switching	\$15.00	6,000	\$90,000.00
<b>Landfill Gas Collection</b> Columbia Shuswap Regional District, Salmon Arm	Waste – Landfill	GHG Destruction	\$13.00	3,500	\$45,500.00
<b>Switching to Biomass/Installing Energy Curtains</b> Sun Select Delta, Delta	Agriculture	Fuel Switching	\$11.00	500	\$5,500.00
<b>Bus Fuel Efficiency Project</b> Translink, Metro Vancouver	Transportation	Energy Efficiency	\$13.00	1,500	\$19,500.00
GRAND TOTAL				642,947	\$6,999,999.50