



2020 DELTA SCHOOL DISTRICT CLIMATE CHANGE ACCOUNTABILITY REPORT



EXECUTIVE SUMMARY

In early 2020, the world shifted as the COVID-19 pandemic took hold and as a result there were vast changes in the broad aspects of, not only, day to day life, but also massive impacts on the way business & educational operations are conducted. During 2020, the Delta School District produced a total of 2,971 tonnes of CO₂e, 2433 tonnes (81.9%) of that came from burning natural gas for heating. The Delta School District has paid \$78,275.00 plus GST, for 2,971 tonnes of CO₂e offsets, to claim carbon neutrality for 2020 CO₂e emissions and 160 tonnes of CO₂e offsets for prior year adjustments in 2019.

Carbon Emissions of 2,971 tonnes of CO₂e in 2020, resulted in a 31% reduction from the 4,061 tonnes of CO₂e produced in 2010.

Emissions reduction measures in 2020 included:

- Replacement of gas fired rooftop units with dual fuel electric air source heat pumps with auxiliary natural gas burners for use on the coldest days of the year when the temperature is below 0C⁰
- Replacement of fluorescent lamps and fixtures with LED technology to reduce electrical consumption
- The Energy Conservation Grant program supported schools in forming Green Teams that carried out energy conservation activities.
- Implementation of a fleet vehicle right sizing plan to make use of more fuel efficient vehicles.

Emissions Reduction Measures Planned for the Future:

- Continue LED lighting upgrades.
- Continue replacement of gas-fired Roof Top Units with dual fuel electric heat pump/ gas fired backup RTUs, to reduce natural gas consumption and cut CO₂e production.
- Replace domestic hot water heating systems with more energy efficient equipment.
- Continue to replace aging fleet vehicles with more environmentally friendly models.

We are pleased to present the following report outlining our continued pursuit to become carbon neutral.

Doug Sheppard,
Superintendent
of Schools

Darren Duff
Director of Facilities
& Planning

Maurice Bedard FMA, CEM, PMP
Energy Manager,
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ABOUT DELTA SCHOOL DISTRICT

"The Delta Board of Education, through the Delta Green Committee, is committed to instilling in it's students, staff, parents, and community an awareness of a commitment to *sustainability* by leading environmental stewardship and fostering a holistic approach towards climate change, energy optimization, waste reduction, and water conservation.

The board is committed to improving its performance in sustainability and will endeavor to conduct its operations and make decisions based upon five priorities: conservation, protection, education, regulation, and recognition.

Within the scope of Environmental Stewardship, the District will actively promote, model and advise decision making, professional learning and actions that will meet these five outcomes."

COMPARED TO 2010 BASELINE

In 2020, the Delta School District produced a total of 2971 tonnes of CO₂e from all sources reported. Sources included electricity, natural gas and propane used in buildings as well as fuel for fleet vehicles and office paper consumption. This is a 31% reduction in Carbon Emissions from the 4,061 tonnes of CO₂e produced in 2010.

OFFSETS APPLIED TO BECOME CARBON NEUTRAL IN 2020

Of the 2,981 tonnes of CO₂e emitted 10.2 tonnes of CO₂e are "Offset Exempt" meaning the total amount the district is required to offset for 2020 is 2,971 tonnes of CO₂e. Out-of-Scope Emissions include refrigerants estimated to be less than 1 percent of the District's emissions. The value was estimated from the refrigerant recharge amounts of R-134a and R-404a (HFCs). The emissions from refrigerants are deemed to be out-of-scope and have not been included in the total District greenhouse gas emissions profile.

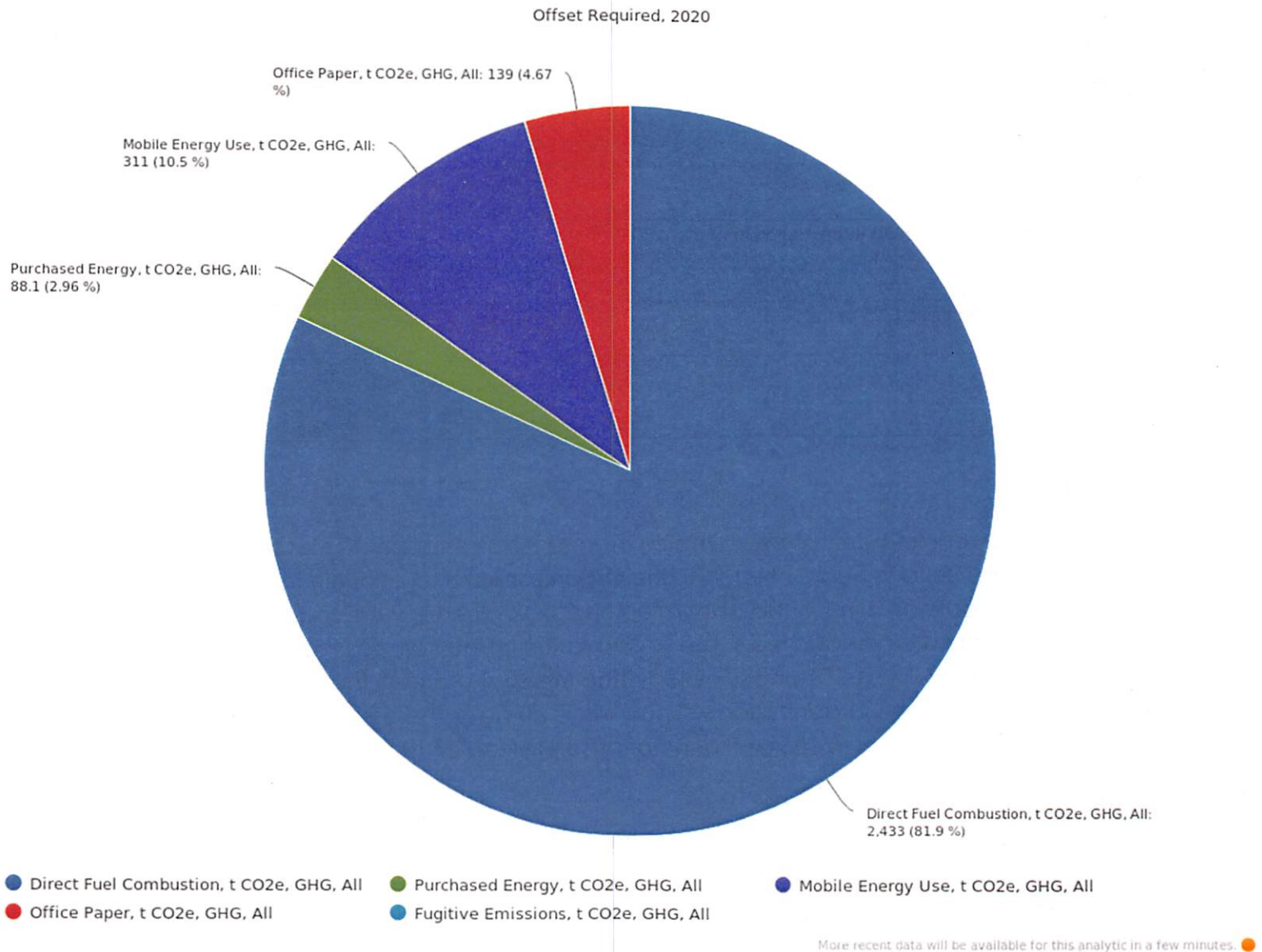
This Climate Change Accountability Report for the period January 1st, 2020 to December 31st, 2020 summarizes our emissions profile, the total offsets to reach net-zero emissions, the actions we have taken in 2020 to reduce our greenhouse gas emissions, and our plans to continue reducing emissions in 2021 and beyond.

The Delta School District has paid \$78,275.00 plus GST, for the offset of 3,131 tonnes of CO₂e to achieve carbon neutrality for 2020 and prior year adjustments for 2019.

The breakdown of the emissions source as illustrated in Figure 1, spotlights that the vast majority of the greenhouse gas emissions are created from the use of natural gas (81.9%) for the purpose of providing heat to our buildings. Fuel switching to the use of electricity to provide heating through the use of heat pumps, as well as resistive heating, is the most viable way to have a serious impact on reducing carbon

emissions. This will significantly increase electricity consumption, which comes at a higher monetary cost. Because of this, we must also explore the installation of photovoltaic electricity generating systems to offset the higher electricity consumption and explore an option to produce a credit, by feeding surplus electricity back into the BC Hydro grid during off periods, to offset consumption during both darker winter months and at other DSD sites.

Figure 1



Emissions and Offset Summary Table:

Delta School District #37 2020 GHG Emissions and Offsets	
GHG Emissions Created in Calendar Year 2020	
Total Emissions (tCO ₂ e)	2981
Total BioCO ₂	10.2
Total Offsets (tCO ₂ e)	2971
Adjustments to GHG Emissions Reported in Prior Years	
Total Offsets Adjustment (tCO ₂ e) 2019	160
Grand Total Offsets for the 2020 Reporting Year	
Grand Total Offsets Required (\$25 per tCO ₂ e)	3131
Offset Investment	\$78,275.00

Retirement of Offsets:

In accordance with the requirements of the Climate Change Accountability Act and Carbon Neutral Government Regulation, Delta School District #37 (**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 (**the Ministry**) 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:



Signature

Date

May 31, 2021

Doug Sheppard

Name (Please Print)

Title

Superintendent SD37

EMISSIONS REDUCTION PROGRAM

JOURNEY OF CARBON REDUCTION

Because of the urgency of Climate Change, investment in sustainable systems must be at the core of all renovations and new construction initiatives within the Delta School District.

For more than 20 years, the Delta School District has been striving to reduce our carbon footprint through countless projects ranging from fine-tuning equipment operation to replacing rooftop units and lighting fixtures with more energy efficient technology. In addition to hardwire replacement programs, and through our Energy Conservation Program Green Teams, the District has continued to encourage our stakeholders to practice resource conservation within schools as well as in the home.

RETROFIT PROJECTS

CHALMERS AND SOUTH PARK GYMNASIUM HVAC UPGRADES

At both Chalmers and South Park Elementary schools, two antiquated gas fired HVAC units serving each gymnasium were replaced with high efficiency gas fired units and greatly improved ducted distribution systems. The old HVAC systems were either off or 100% on, and only pushed treated air into the gym at one end, which made for inefficient, ineffective, noisy systems, that users found uncomfortable. By installing ducted distribution for the new HVAC units, treated air is more evenly distributed to improve efficiency and effectiveness in serving user needs. The new HVAC units also include variable speed drives on the fan motors, which allow them to run as low as 10%, if that is all that is needed to maintain a comfortable temperature in the gym.



GIBSON, HELLINGS, AND MCCLOSKEY ELEMENTARY HVAC UPGRADES

A total of 15 beyond end of useful life HVAC Roof Top Units were replaced with more energy efficient Trane RTUs. Gibson Elementary received 7 of the new Trane units, Hellings Elementary received 3 of the new Trane units, and McCloskey Elementary received 5 of the new Trane RTUs.

Energy efficiency of new equipment installations is a significant factor taken into consideration, when making selections for the replacement of beyond end of useful life equipment, to be replaced.

ROOFING RENEWALS AT BROOKE AND MCCLOSKEY ELEMENTARY SCHOOLS

Sections of roofing at Brooke and McCloskey Elementary schools were replaced to improve building envelope integrity and extend the useful life of each building. By improving building envelope integrity, heat loss is reduced, which results in a reduction in carbon emissions from building operation.

FLEET RENEWAL RIGHT SIZING PROGRAM

AGING FLEET VEHICLES REPLACED WITH ENERGY EFFICIENT MODELS

As Delta School District fleet vehicles reach end of useful life, they are replaced with more energy efficient models that are selected to better suit the purpose of the fleet vehicle user. In 2020 the Delta School District added 3 Nissan Kicks vehicles to the fleet, for use by Facilities Department Administrators to travel between sites while carrying out DSD business. In the past, these administrators were issued DSD fleet vans or pick-up trucks which are the standard vehicles used by Facilities Trades Personnel who need to transport tools and materials for DSD projects. By better matching the type of vehicle needed to the purpose, the DSD is reducing fuel consumption and the resulting GHG emissions.

SUSTAINABILITY ENGAGEMENT

ENERGY CONSERVATION GRANT

An Energy Conservation Grant is a program geared towards encouraging School Green Teams to focus on the energy aspect of sustainability. The grant was available to every school in the district. All the activities were geared towards energy conservation. This grant was funded from the Utility Budget. The program includes:



- Phase 1:
 - Create a Green Team, commit to the energy conservation pledge and present the school's commitment to staff and students. The pledges were posted on the wall near the entrance of the school to declare their commitment to conservation.
- Phase 2:
Choices Include:
 - Incorporate a BC Hydro Energy Saving Kiosk into a school program,
 - Run a "Sweater Day" Campaign,
 - Conduct "Energy Audits" that lead to action,
 - Remove all non-district issued (power consuming) equipment,
 - Create an "Innovative Activity"
- Phase 3: Present the team's completed activities to school staff and submit a sustainability plan for the following year.

Each activity has been assigned a grant dollar value and the schools were rewarded after photos of their activities were submitted for use in our ongoing District Social Media Campaign.

PLANS FOR 2021-2022

LIGHTING UPGRADES AND BUILDING SYSTEMS OPTIMIZATION

The Delta School District will continue to perform lighting upgrades to LED technology wherever feasible, and continue with building systems optimization wherever opportunities are available.

STAKEHOLDER ENGAGEMENT

The Delta School District will continue supporting the ongoing Energy Conservation Grant, Energywise Network, Green Mentorship Program, and Delta Green Committee initiatives to foster sustainable behavior.

PLANS FOR FUTURE

REPLACEMENT OF DIRECT FIRE NATURAL GAS, GYMNASIUM & ROOF TOP UNIT HEATERS

Antiquated gas fired rooftop heating units serving school gymnasiums, classroom blocks and office areas, will be replaced with newer technology to reduce carbon emissions, in the coming years, as funding becomes available.

REPLACEMENT OF DOMESTIC HOT WATER SYSTEMS

Mid-efficiency gas fired domestic hot water heaters and boiler plants will be replaced with high efficiency options including high efficiency heaters and boilers with smaller storage capacity and more rapid recovery capabilities. Decentralization will also be visited as an option to reduce heat loss through domestic hot water stored in piping throughout buildings.

STAKEHOLDER ENGAGEMENT

The Delta School District, in keeping with Administrative Procedure 544 **SUSTAINABILITY**, will continue to build on it's stakeholder engagement initiatives to foster sustainable behavior.

EXPLORING RENEWABLE ENERGY OPPORTUNITIES

The Delta School District is exploring opportunities for installing EV Charging Stations at DSD sites, to support stakeholders with electric vehicles, and building the infrastructure needed to support the conversion of portions of the existing fleet to electric vehicles.

The Delta School District is also exploring opportunities for installation of Photovoltaic Solar Panel Systems on our buildings, to generate renewable electricity and mitigate increasing electricity demand from fuel switching. By installing solar powered electricity generating systems on DSD sites, we can reduce electricity utilities costs, and contribute to the community by feeding surplus electricity back to BC Hydro for a credit.