Corporate Carbon Neutrality Plan 2023-2027

Sunshine Coast Regional District

January 2023

Image: Sechelt Aquatic Centre Solar Thermal System

Contents

1. Introduction

This Plan articulates the steps the Sunshine Coast Regional District (SCRD) will take to become carbon neutral and reduce greenhouse gas emissions.

> "In the face of a global climate emergency we must move swiftly to reduce GHG emissions and enhance our region's resiliency to the effects of a changing climate."
>
> – SCRD 2019-2023 Strategic Plan

Tackling greenhouse gas (GHG) emissions is of critical importance and must be done quickly. A certain magnitude of climate change has already been locked into the next decades. However, drastically reducing GHG emissions by 2030 and achieving net negative emissions by 2050 is seen as a potential path to avoiding unstoppable climate change and achieve the legally binding Paris Agreement target of keeping warming to 2°C and preferably 1.5°C.

Eliminating GHG emissions is a significant challenge that requires systemic change. The SCRD must undertake this challenge in the context of serving a growing community.

There are several questions that this plan does not answer. This plan is a process that will support integrated decision making at the multiple decision gates that lie ahead.

The Corporate Carbon Neutrality Plan (CCNP) includes measures organized in six categories.

1. Accountability Mechanisms and Carbon Neutrality
2. Buildings
3. Fleet & Equipment
4. Contractors
5. Supporting Each Other
6. Emissions beyond traditional services

The CCNP was developed in consultation with staff. It included a Leadership Session presentation, six open discussion spaces, targeted interviews, and an internal/technical LetsTalk.SCRD.ca engagement space with information videos and an idea board.

From this, an initial draft of actions was created and was used during further targeted engagement with affected stakeholders for greater action refinement and organizational congruence.

2. Benefits of carbon neutrality

The Paris Agreement has the goal of "holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change". The world can expect severe disruptions to socio-ecological systems that will require adaptation but it is believed that at 1.5°C, adaptive capacity of most societies will not be exceeded. The likelihood of exceeding threshold events that unlock positive feedback mechanisms and exacerbate unstoppable climate change rises significantly past 1.5°C.

A certain level of climate change has been locked-in over the next decades. The costs of inaction on climate will increase beyond what our community has already witnessed. The 2021

weather extremes of fire, heat dome, and atmospheric river are estimated to have cost the BC economy alone between $10.6 billion and $17.1 billion.[1] Reducing emissions quickly and leading by example will mitigate future climate adaptation costs and increase feasibility of adaptation measures.

Reducing emissions means many aspects of the organization will change. Change is an opportunity to foster something better. To do this, equity will be a primary lens through which actions are evaluated. Co-benefits can also be numerous. For example, the option for online meetings has increased productivity while reducing costly and emissions intensive travel.

3. Corporate carbon neutrality framework

At the October 28, 2021 Board meeting, Recommendation 10 was adopted stating:

> THAT the report titled Corporate Carbon Neutrality Framework be received for information;
>
> AND THAT the Corporate Carbon Neutrality Framework be endorsed;
>
> AND THAT a Corporate Carbon Neutrality Plan that includes a timeline for achieving corporate carbon neutrality be developed in 2022;
>
> AND FURTHER THAT existing policies and related documents be reviewed to identify alignment opportunities with Corporate Carbon Neutrality Framework.

The Corporate Carbon Neutrality Framework (Framework) can be viewed as part of the October 21, 2022 Planning & Community Development Committee agenda and includes the following:

3.1 Guiding principles

Climate Emergency: A certain magnitude of climate change has been locked in for the next decades and will cause significant socio-ecological disruptions. The only path to not exceeding the safety threshold set in the Paris Agreement is a deep reduction of greenhouse gas emissions achieving carbon neutrality by 2050. Net-negative emissions, where greenhouse gases are taken from the atmosphere and stored in artificial or natural systems, are also required for decades after that.

Differentiated Responsibility: Enshrined in the legal Paris Agreement, this principle states that developed nations have a greater responsibility to phase out emissions quickly as they have benefited from historical emissions. Developed nations also must support developing nations leapfrog carbon intensive development. Applying this principle has led many to conclude developed nations should eliminate most emissions by 2030.

Value-added: The SCRD policies and processes in place to enable its operations. Actions required to achieve carbon neutrality should integrate into existing elements as much as possible rather than adding new layers. The Sustainable Development Division strives to support ongoing operations and projects by increasing capacity and empowering others to act.

[1] A Climate Reckoning. The economic costs of BC's extreme weather in 2021. 2022. Canadian Centre for Policy Alternatives. Retrieved from: https://policyalternatives.ca/climate-reckoning

Balance and Impact: Choices on focus areas will be made to maximize impact for climate action and social equity. Actions with the highest leverage will be prioritized. Balance will be sought between long term planning and quick wins.

Change Management: Humans have evolved to be resistant to change because change brings risk. But the science is clear that change is happening and being pro-active will enable greater agency in what the change looks like. Change is as much about what we choose to stop doing as what we choose to do. The Sustainable Development Division will increase awareness of the need for change, a desire to support change, knowledge of how to change, ability to demonstrate skills and behaviors, and reinforce the changes required to achieve carbon neutrality. A change management plan will be used to measure progress.

3.2 Vision & mission statements

A vision statement describes what the Corporate Carbon Neutrality Framework will achieve. The vision is:

> *The SCRD leads by example on the climate emergency through carbon neutral corporate operations.*

A mission statement describes the purpose and intention of the Corporate Carbon Neutrality Framework. The mission statement is:

> *The Corporate Carbon Neutrality Plan outlines the steps the SCRD will take to integrate the objective of achieving carbon neutrality into all aspects of the SCRD's operations. The policies, plans, capabilities, and support mechanisms needed are in place to facilitate the transition to corporate carbon neutrality.*

4. Current GHG emissions

The Regional District emits approximately 1,200 tonnes of carbon dioxide equivalent (CO_2e) a year. A yearly breakdown can be seen in Figure 1.

The Regional District's goal is to become carbon neutral in its corporate activities as defined by the Traditional Services Inventory. Using Traditional Services that local governments generally deliver in the Province of British Columbia enables comparisons and a focus on areas of control. There are other areas where actions can be taken within the scope of the Corporate Carbon Neutrality Plan (see category 6), however, these will be beyond the GHG emissions accounting scope.

Table 1: Traditional Services Accounting Boundary

What's in the GHG Accounting Boundary	What's out but still under SCRD's direct influence

Administration and governance	Staff commuting
Drinking and wastewater	Landfill (Federal reporting)
Solid waste and organics collection	Recycling (Recycle BC)
Arts, recreation and cultural services	Transit (BC Transit)
Fire protection	Wastewater process emissions
Contractors	Sport Field Fertilizers
	Embedded carbon
	Other Scope 3 emissions

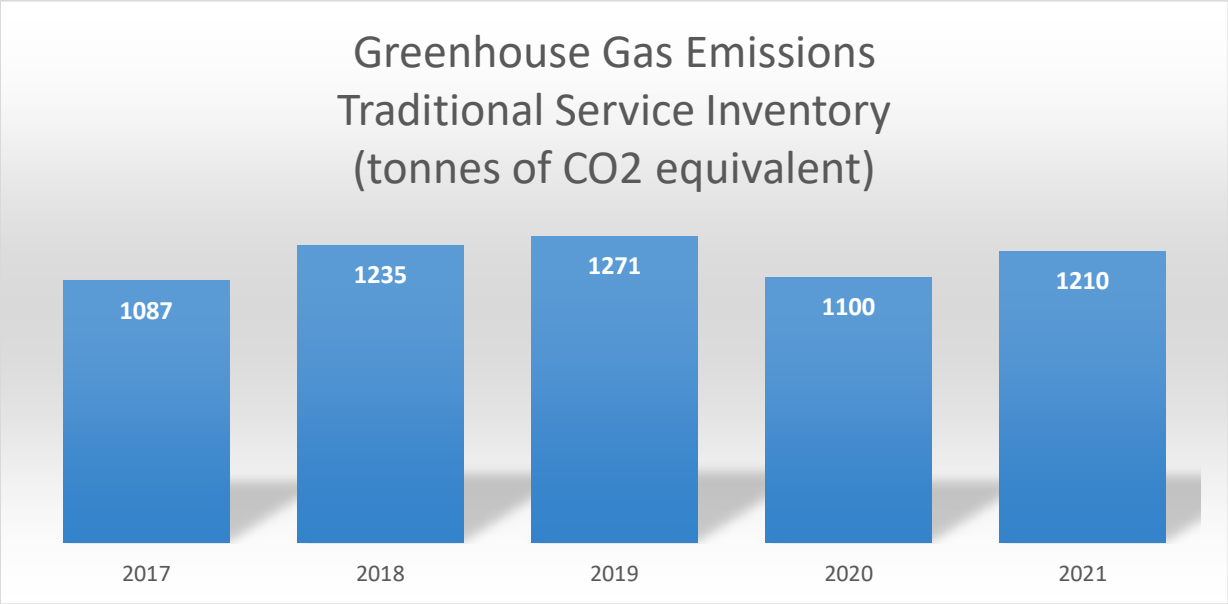


Figure 1: SCRD Corporate GHG Emissions

The drop in 2020 emissions is associated with the pandemic-related closure of the recreation centres and a drop in vehicle usage. Emissions are rebounding as pandemic restrictions are phased out.

Figure 2 outlines emissions by energy type. The spike in March comes from Fortis BC estimating natural gas consumption at the Sunshine Coast Arena following pandemic closures. When Fortis BC read their meter, a material increase was needed to capture all the natural gas used when the facility reopened several months earlier.

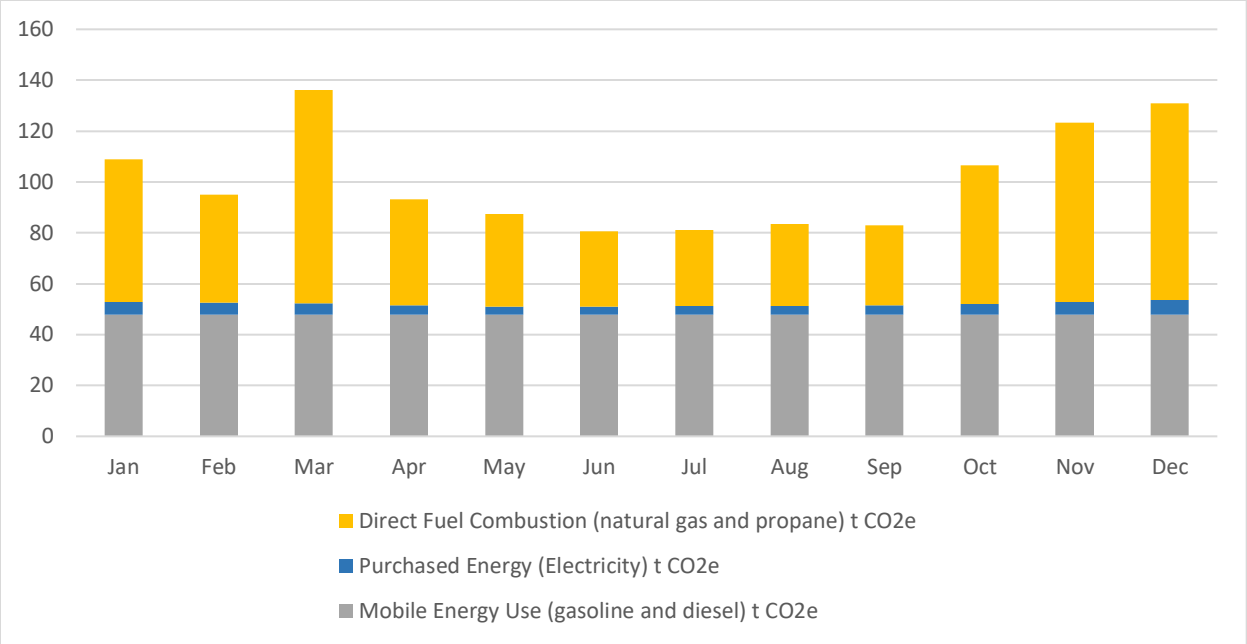


Figure 2. Greenhouse gas emissions by energy type – 2021 emissions data

5. Plan relationship to other divisions

The Corporate Carbon Neutrality Plan links to every other division in the organization. Some divisions, such as Utilities which own several vehicles or Recreation with the recreation centres, are more impacted than others. Some key elements of the SCRD that relate to the CCNP are outlined in figure 3.

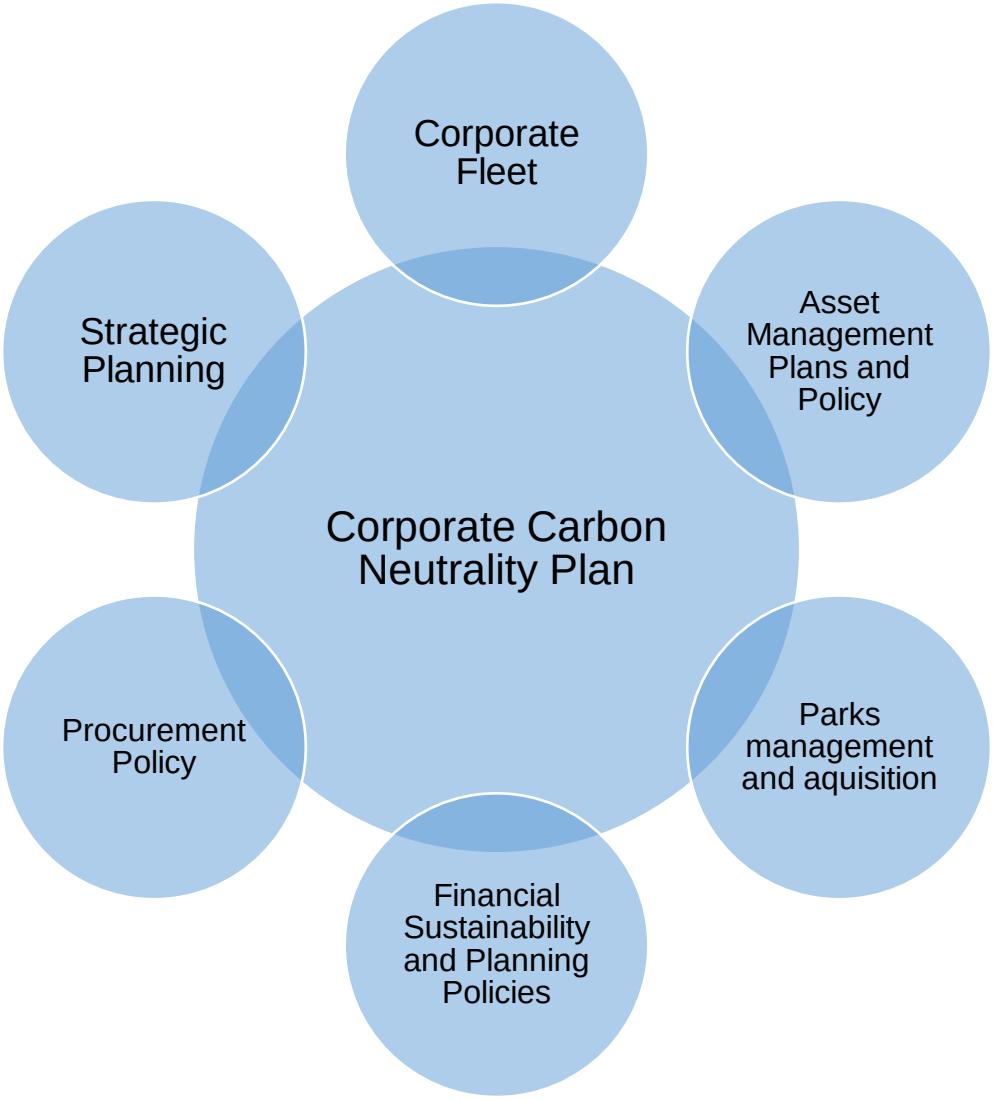


Figure 2. CCNP links to organization

6. Measures

The CCNP includes 19 actions organized in the six following categories.

1. Accountability Mechanisms and Carbon Neutrality
2. Buildings
3. Fleet & Equipment
4. Contractors
5. Supporting Each Other
6. Out of Boundary Emissions

7. Accountability mechanisms and carbon neutrality

Achieving carbon neutrality has many implications and drivers. It requires a variety of mechanisms to help direct SCRD planning and operations in this direction. The primary actions

recommended to assist the SCRD in progressing towards Carbon Neutrality are described in detail in this section.

7.1 Quantify SCRD generated carbon offsets to offset sticky GHG emissions

The Regional District has opportunities to quantify carbon offsets for ongoing projects as well as generate new carbon offsets. Some of these offset projects have been implemented, such as the curbside organics collection and the green waste depots. Others are opportunities that may present themselves in operations and development, such as landfill gas oxidation or avoided deforestation in new park dedications. When sufficiently large, carbon offsets can be quantified using provincially approved methodologies.

Upon preliminary analysis, it appears that the curbside organics collection and green waste depots create sufficient GHG carbon offsets to offset all SCRD corporate emissions. These offsets will be quantified defensibly with the support of a specialized consultant. They will be used to offset SCRD emissions to achieve carbon neutrality.

Offsets that are not used one year can be carried forward to the next year. These will be needed for the emissions that the SCRD cannot easily eliminate. While many of the SCRD's emissions can be eliminated by fuel switching from fossil fuels to electricity, BC Hydro electricity is not entirely renewable and does emit some GHG emissions. Additionally, some more specialized or newer pieces of equipment may be harder to electrify (such as firetrucks, barbeques or natural gas radiant heating tubes). Therefore, the SCRD will require the use of carbon offsets to achieve carbon neutrality in the medium term.

It is also possible to purchase carbon offsets but staff have opted to recommend focusing resources on reducing emissions at the SCRD.

7.2 Set greenhouse gas emissions targets

A target outlining when corporate carbon neutrality will be achieved guides several of the following actions and informs work plans. It is best practice to set targets based on the best science available as well as set several targets at different year intervals so that progress can be tracked and corrective actions implemented if required.

In 2009, the SCRD passed a resolution that: "the Board adopts a greenhouse gas emissions reduction target of 27 percent relative to 2008 base year emissions by 2018 with respect to its corporate operations." A few years later with the Corporate Energy and Emissions Plan, the SCRD set a target of 7% emission reductions from 2007 level by 2031. Emissions have continued to increase since both targets were set.

Federal[2,3] and Provincial[4] targets are approximately a 45% reduction by 2030 and reaching net-zero emissions by 2050 from 2007 levels. However, those targets do not address the principle of differentiated responsibility enshrined in the Paris Agreement where developed nations have a greater historical burden to reduce emissions more quickly than developing nations. A 45%

[2] 2030 Emission Reduction Plan aims for 45% reduction by 2030 from 2005 levels. https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/climate-plan-overview/emissions-reduction-2030.html

[3] *Canadian Net-Zero Emissions Accountability Act* calls for net zero by 2050 with a revised interim target set every five years. *https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/net-zero-emissions-2050.html*

[4] BC's *Climate Change Accountability Act* (2007) calls for a 40% reduction by 2030 from 2007 levels. https://www2.gov.bc.ca/gov/content/environment/climate-change/planning-and-action/legislation

reduction by 2030 also appears to lack the ambition necessary to limit chances of exceeding 1.5°C outlined in the Intergovernmental Panel on Climate Change Sixth Assessment Report[5] on Mitigation of Climate Change (2022).

As such, many local governments are setting more ambitious targets. Many British Columbian local governments have already achieved corporate carbon neutrality with the help of carbon offsets.

Analysis of target options will be prepared for Board consideration and decision.

7.3 Formalizing targets

Targets can be adopted as formal policy. The SCRD already speaks to reducing GHG emissions in various policies such as the Financial Planning Policy and the Asset Management Policy.

It is recommended that a policy framework be developed to formalize a statement of commitment, adopted targets, and ensure congruence with other existing policies.
Operationalizing targets

It is clear a more concerted effort is required given the failed track record to achieve targets. There are several ways of operationalizing GHG targets. At its most simple, it involves including GHG emissions reporting in annual report and budget planning reports.

- Reporting: The SCRD measures corporate GHG emissions from the Traditional Service Inventory as part of the Local Government Climate Action Program (LGCAP)[6]. Annual corporate emissions will be calculated and included in the Annual Report along with total corporate energy costs and total energy use.

  Annual corporate-wide reporting provides helpful information but greater granularity is required to inform decision making. Greater division level emissions data will be generated as part of annual reporting.

  Reporting will also include brief implementation updates on the actions listed in this plan.

- Climate Lens in project development forms and asset management plans: A climate lens is now being used by federal and provincial granting agencies to review the potential risks and contributions of proposals to emission reduction and resilience. At the SCRD, a climate lens is being integrated into various project gating tools. Departments will continue the integration of a climate lens in budget, project, capital plans, and development approvals.

  The climate lens will help answer the questions:

  - How can this project maximize the reduction of GHG emissions?
  - How can this project increase resilience to climate change impacts?

[5] The Working Group III report on Mitigation of Climate Change outlines a carbon budget of 500 gigatonnes for a 50% chance of stabilizing climate change to 1.5ºC of warming and avoiding unstoppable climate change impacts. This carbon budget was being used at a rate of 59 gigatonnes per year in 2019 and increasing at 1.3% per year. (items B1.1 and B1.3). https://www.ipcc.ch/report/ar6/wg3/

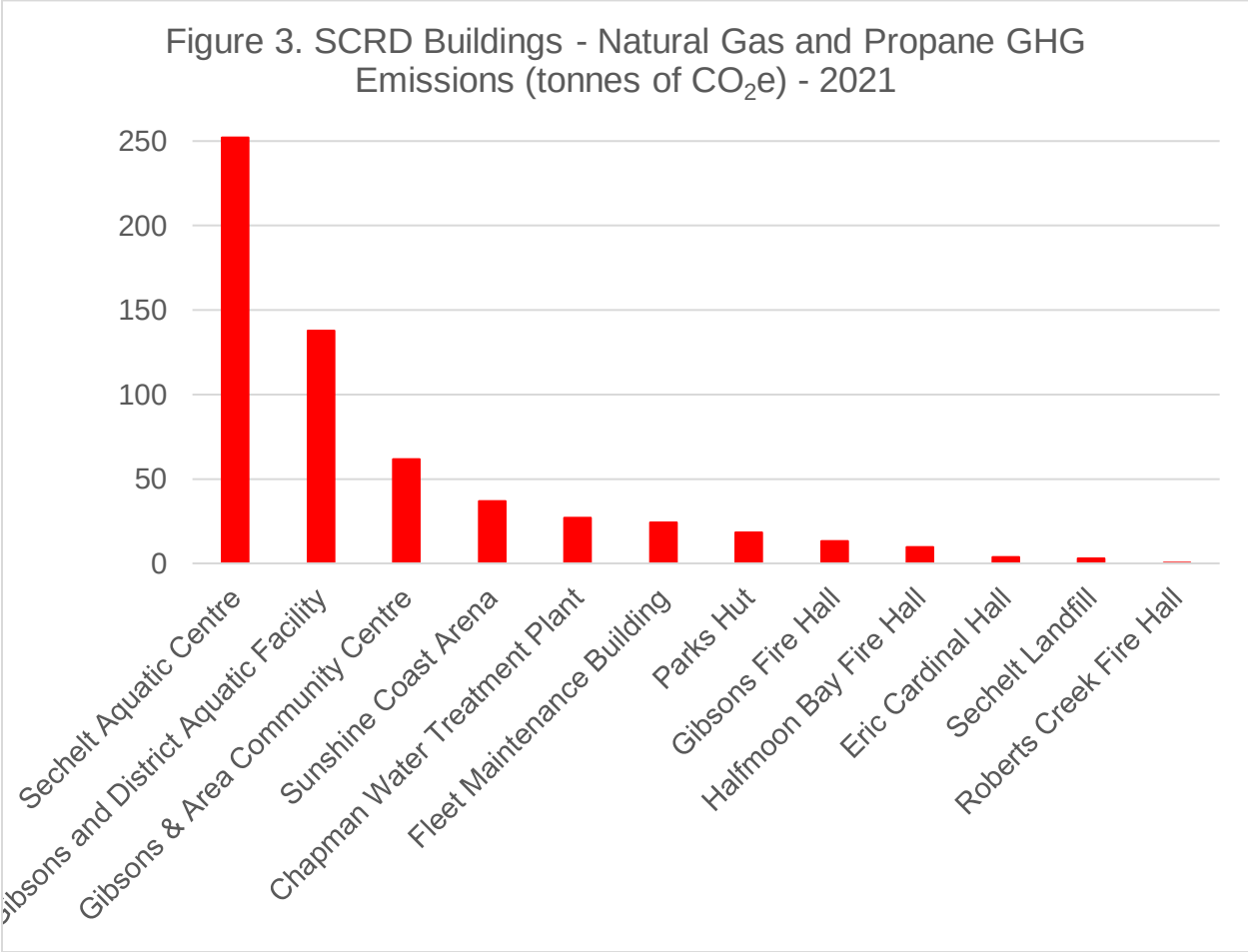
[6] Previously emissions were calculated under the Climate Action Revenue Incentive Program (CARIP).

- Climate Budgeting: As the climate lens matures and the SCRD becomes more versed in its use, staff's ability to have more precise GHG quantification will expand.

  Some local governments in the world are using climate budgets to inform decision making. Climate budgets calculate the amount of GHG emissions left until targets are reached and quantifies the emissions impacts of budget proposals. Should Board direction be received, learning opportunities will be explored for staff, Board as well as Town of Gibsons, District of Sechelt, and shíshálh Nation Government District.

8. Buildings

Buildings account for 54% of the SCRD's corporate GHG emissions. These predominantly come from 12 facilities that rely on natural gas and propane. Of these, the four recreation centers account for approximately two thirds of building emissions. This section addresses how these emissions will be reduced.



All facilities have capital plans and asset management plans at various levels of sophistication. By integrating decarbonization plans into these asset management plans, the appropriate steps

for feasibility, engineering design, grant funding, and financial planning can be taken. Each of these steps will involve decision points as implications become clearer.

The decarbonization steps will involve a multipronged approach that includes:

- Minimize waste
- Improve maintenance and optimization of systems
- Improve efficiency
- Fuel switching from fossil fuels to electricity
- On-site renewable energy generation

8.1 Fuels switching at recreation centres

Engineering consultants are completing feasibilities studies to electrify all fossil fuel equipment at the Sechelt Aquatic Centre, Gibsons and Area Community Centre, and the Sunshine Coast Arena. A majority of this equipment is scheduled for replacement prior to 2031 as seen in Appendix A. Results from these studies will be presented to the Board in 2023 for direction on next steps, which would include detailed engineering design and integration into capital plans and asset management planning.

Both the Sunshine Coast Arena and the Gibsons and District Aquatic Facility are older facilities that require higher level decisions on the expected end of life to justify on-site retrofits.

It should be noted that with current energy prices, operating costs of electrical equipment will be higher than operating costs of natural gas equipment.

8.2 Fuels switching other facilities

The other facilities have fossil fuel using assets at various lifecycle stages. The work of integrating decarbonization steps into capital plans has already begun. Adoption of this plan will help formalize integration of GHG emissions into considerations. In most cases, this can be done by integrating feasibility studies and engineering design work into workplans for the years prior to expected asset end of life.

In a limited number of cases, low-carbon electrification will prove more technically difficult or early retirement of assets may be considered. In these cases, proactive planning and staying abreast of technological best practices in the sector can support the analysis and feasibility studies required to support integrated decision making.

8.3 Energy efficiency

Implementing energy conservation measures is critical to managing costs and reducing the Regional District's ecological footprint. Building owners will develop lists of energy efficiency projects and ideal times for implementation. Review of capital plans will be conducted to identify high energy efficiency opportunities and the need and timing for feasibility studies or detailed engineering design.

Some of these projects may also include nature-based solutions. For example, deciduous trees on southern aspects of buildings have a cooling effect in the summer thanks to their foliage and promote solar gain in the winter when leaves fall. On northern aspects of buildings, coniferous trees can benefit building efficiency.

Some of this work has been undertaken in energy audits of various facilities and recommendations are being incorporated into facility capital plans.

BC Hydro meets the energy needs of British Columbians with mostly renewable energy. However, BC Hydro electricity is not carbon neutral and new generation capacity, which will be needed to meet increasing demand, also carries noteworthy costs. Therefore, conservation and efficiency are important elements of building a sustainable future.

Energy Source	Emissions factor (kg eCO_2 / GJ)
BC Hydro electricity	3
Propane	61.15
Natural Gas	49.87
Renewable Natural Gas	0.29

Table 2 (Emission Factors of

Net Metering:

BC Hydro net metering program is designed to support on-site generation of renewable energy. When excess energy is generated, electricity is fed back into the grid and the site banks those kWh for later use. When demand exceeds on-site generation, grid electricity meets the need and those banked kWh are used. The site bank is reset yearly in the spring, which means excess generation from the summer can be used up in the dark winter months. Solar systems cannot be sized beyond the expected load of a site.

8.4 Renewable energy

BC Hydro's predominantly hydro-electric generation base is vulnerable to longer and dryer summers caused by climate change.[7] Decentralized renewable energy can support resilience of the electrical system. In some cases, on-site renewable energy can also provide appealing paybacks and energy cost stability. As prices of renewables continue to decrease, the number of SCRD facilities where positive financial impact can be realized increases. This is particularly true for solar photovoltaic, heat pumps, and micro-hydro.

A list of possible renewable energy projects has been developed. It will be regularly updated as part of this plan and proposed timeframes will be evaluated. Many heat pump recommendations are included in historical

[7] Ministry of Environment and Climate Change Strategy, Preliminary Strategic Climate Risk Assessment for British Columbia, July 2019, https://www.bcsla.org/sites/default/files/resources/files/climate-change/downloads/Preliminary%20Strategic%20Climate%20Risk%20Assessment%20for%20BC%20-%202019.pdf

energy audits. Micro-hydro projects are also at varying stages of engineering design for various sites. Finally, the Sunshine Coast Community Solar Association completed a high level solar assessment of several SCRD sites. A partial summary of these potential projects can be found in Appendix B.

8.5 Minimize carbon footprint of new buildings

The SCRD is contemplating a few new buildings. At this time, they include the Halfmoon Bay Community Hall, Halfmoon Bay Fire Hall, and future work at the Mason Rd Works Yard, which could include a new Parks Building or other reconfiguration. In accordance with the Sustainable Social Procurement section of the Procurement Policy, every opportunity will be taken to minimize the footprint of both the construction, and operation of buildings while avoiding the purchase of fossil fuel using assets.

Formalizing and detailing a consistent approach will be integrated into the proposed Policy Framework. Options for the Board's consideration will include adding elements such as:

- Require new SCRD facilities to be built to the highest Step Code;
- Require facility energy does not come from fossil fuels;
- Require facilities achieve LEED Gold (but certification not necessary);
- quantify GHG emissions of construction and deconstruction to better manage them;
- Consider net positive design principles such as those of nature based solutions, regenerative buildings, and the Architecture 2030 challenge.

9. Fleet & equipment

Fleet and equipment, excluding transit, accounts for 29% of the SCRD's corporate emissions. There are approximately 129 vehicles and generators in the Regional District's fleet as well as small equipment that mostly uses fossil fuels. This section addresses how these emissions will be reduced, primarily through an integrated fleet strategy.

9.1 Fleet management strategy

A corporate fleet management system review is proposed for 2023 Budget and workplan. It will assist the SCRD in eliminating fleet emissions and meet corporate mobility and fleet needs.

Some questions that the fleet review can answer include:

- Fleet Utilization
    - Develop and provide analytics / tools that can be used for ongoing evaluation and decision making
    - Analyze current utilization and make recommendations for better optimization of fleet
- Outline of shifting regulatory and technological landscape in the mobility sector
- Transportation Demand Management Recommendations
    - Make Transportation Demand Management recommendations for improvements
- Fleet Sharing Strategy
    - Analyze and make recommendations for moving towards a shared corporate fleet
    - Analyze options and make recommendations for sharing some or all of the corporate fleet with community car sharing.
    - Outline implementation steps and resourcing needs for migrating to a shared fleet
- Vehicle plan with consideration of the following:

    - Right sizing
    - Replacement schedule
    - Best location for vehicles storage and support infrastructure needed
    - Fleet electrification schedule and costed support systems with Class C electrical drawings (chargers and electrical system improvements).
    - Fuel Refueling infrastructure plan (including review of asset replacement schedule and opportunities for increased renewable fuel content, noting that B5 biodiesel contract is signed in conjunction with BC Transit and valid until 2025)
- Greenhouse Gas Emissions Analysis
    - Implementation scenarios are outlined to a 15 year horizon and GHG emissions are calculated for the different scenarios.
- Projected Mobility Needs
    - Describe corporate mobility needs for next 10 years
    - Analyze and make recommendations for non-private vehicle mobility options (e.g. e-bikes, transit, micro-mobility)
    - Outline implementation steps and resourcing needs for recommendations
- Management
    - Structure of Fleet service and associated support services (i.e. IT, Purchasing and Risk Management), including, amongst other things, staffing and software recommendations

9.2 Monitor state of battery backup systems

Generators are a frequently used and critical element of service delivery at the SCRD. There are no economical alternatives at this time however the state of battery technology is evolving quickly. Evaluating the viability of battery / diesel generator hybrid systems as well as battery / solar systems will become part of future backup energy needs projects.

10. Contractors

The SCRD uses contractors to perform many services that are included in the Traditional Services boundary for GHG emissions. These contractors' emissions are estimated yearly and represent approximately 17% of emissions. It is assumed most of these emissions are related to gasoline and diesel. This section outlines how the SCRD plans to engage contractors and their GHG emissions.

10.1 Expand contractors' consideration of GHG emissions

Encouraging contractors to measure their fuel usage and consider their GHG emissions enables better management and a reflection of the SCRD values within the Corporate Carbon Neutrality Framework and this plan.

The SCRD Procurement Policy's Policy Statement speaks to reducing greenhouse gas emissions. The Procurement Policy also includes a Sustainable Social Procurement section that enables the consideration of environmental values in the review of proposals.

Currently, only the Regional District garbage and organics collection contractors quantify fuel use and associated GHG emissions. This is the largest contractor and simplest to quantify. Other contractors are evaluated for inclusion in the emissions inventory and emissions are estimated by Sustainable Development according to a provincially approved methodology.

When a request for proposals process is triggered, then Sustainable Social Procurement evaluation criteria are incorporated into the scoring rubric.

The SCRD will collaborate with larger contractors to explore how contractors can quantify fuel used for SCRD goods and services. Thresholds for applicability will be analyzed and defined in future iterations of the Sustainable Social Procurement section of the Procurement Policy. Thresholds for applicability will consider a wide range of criteria, including market readiness and limiting the burden on hard-to-acquire goods and services. Additionally, mechanisms for fuel use data tracking and sharing will be developed to minimize the burden on staff and contractors.

11. Supporting each other

The way we live, play, and work will drastically change in the coming decade. Being proactive with our efforts to address change gives us a choice in what that change looks like. A reactive approach will strain resources while diminishing service levels and quality of life.

This section looks at supporting each other achieve our goals while helping staff overcome the challenges and seize the opportunities that come from change.

11.1 Develop a communication plan

A communication plan will be created to foster an informed and supported staff. Weaving a proactive narrative around initiatives and developments will help celebrate successes and build momentum. The communication plan will include regular communication on climate impacts and

organizational leadership relating to climate action. It will also include resources and training opportunities on climate grief, specific technologies, or skills, and working with change.

The communication plan will also reach the broader community to inform citizens of the rational for the CCNP and the thoughtful approach being taken. This will celebrate the role the SCRD is taking within the community to encourage greater action from other organizations. Communications will, to the extent possible, incorporate considerations for the costs of inaction.

11.2 Develop training resources

Training resources to support staff in integrating climate considerations into their responsibilities will be identified and offered. These could be technical in nature as well as other types of skills such as change management.

12. Out of boundary emissions

There are several sources of GHG emissions that lie beyond the Traditional Services Boundary but within the scope of influence of the Regional District. Although these emissions lie beyond the scope of the GHG emissions accounting, they remain important and can also support community emission reductions.

12.1 Commute to work

The way staff commute to and from work is an unquantified source of travel emissions. However, given travel emissions comprise a large proportion of community emissions, it is likely that these emissions are material. Reducing commute emissions can be done by reducing the need, modal shift, and fuel switch.

Reducing the need to commute to work has been accelerated for many through the Alternative Workspace Strategy. The opportunity to work remotely is being supported.

Modal shift can be achieved by promoting active transportation, public transit, and carpooling. The SCRD will explore future opportunities on how these models can be expanded and leveraged to reduce GHG's. Some examples include:

- Guaranteed ride home policy and budget: One barrier to modal shift is the fear that a situation may arise that will require the convenience of a personal vehicle. For example, this could be an unexpected need to pick up a sick child at school. A guaranteed ride home policy covers the expenses of a taxi should a need arise. Some studies in larger centres have found this policy to cost $5/employee/year or less. Studies have found this policy to be impactful in supporting increased adoption of active transportation, transit, and carpooling.
- Flexible work scheduling allows work schedules to work with public transit schedules. This flexibility is being supported at the Regional District and will eliminate a barrier to using public transit.
- Bicycle parking facilities are helpful for cycling to work. Commuter bike parking is different from short visit bike parking. It can be located further away from an entrance but should be fully enclosed, monitored, and locked. This grade of bicycle parking is available at some facilities such as the great facility at Field Rd.
- Showers: many facilities already have showers that can be used by staff if desired.

12.2 Corporate solid waste

Corporate solid waste is another source of emissions. Organics in particular release methane when landfilled. Most SCRD facilities now have paper towel and food waste composting services. With the approval and adoption of the Solid Waste Bylaw 405 to ban organics in the landfill, all SCRD services, such as Community Parks are working to be compliant in 2023. This change will further reduce corporate emissions.

12.3 Landfill methane gas capture

In the 2010 Community Energy and Emissions Inventory, solid waste emissions accounted for 11% of community emissions. These are mostly associated with landfill methane gas, a potent greenhouse gas. The SCRD Board has committed in 2023 to undertake Phase 2 of a feasibility study for a biocover to oxidize the methane from Sechelt Landfill. This would create significant emissions reductions and other potential co-benefits. Should the project move forward, the SCRD could claim the carbon offsets.

Moving forward, the organics ban from the landfill will eliminate most decomposable material in the landfill and limit the amount of methane generated at the landfill in the future.

12.4 Sports fields

The SCRD manages approximately 525,000 square feet of sports fields. These are fertilized with approximately 2,200lbs of nitrogen annually. Synthetic nitrogen fertilizer has a significant embodied carbon footprint from its manufacturing and there is some greenhouse gas in the form of nitrogen dioxide (NO_2) that volatilizes during application. The SCRD conducted a pilot study using organic fertilizers with positive turf performance results. Further analysis on the business case for switching to organic fertilizer and potential emissions savings will be completed.

Another action sports fields are already undertaking is inter-seeding more drought tolerant turfs. These turfs also require less fertilizer.

An area for further study is the rapid evolution of autonomous mowers. Autonomous mowing is more efficient and can dramatically reduce CO_2e when combined with electrification. This also saves on labor, which is the largest cost of mowing turfs.

Finally, there is growing scientific study of carbon sinks. Sports field management approaches could maximize the carbon sink potential. Should it be deemed large enough, quantifying this carbon sink will be pursued.

12.5 Align SCRD Investment Policies to Climate Targets

The SCRD has a variety of investment holdings for reserve funds and cash flow needs. Many local governments in their effort to align climate action targets with investments portfolios are incorporating guidelines in Investment Policies. This is typically referred to as Environmental, Social and Governance targets (ESG). The SCRD currently has an operational Investment Policy (2012) with socially responsible objectives. It is proposed that the Chief Financial Officer bring forward future investment policy for the Board's consideration. This would be in consideration of this Plan, Board Strategic Plan and education on implications of adopting ESG targets.

13. Appendix A: Partial list of natural gas and propane assets in buildings

Item	Building	Asset	Expected end-of-life	Replacement cost in $2023*
1	**Sunshine Coast Arena**	Boiler 1	2021	$6,471.49
2	**Gibsons and Area Community Centre**	Gas fired desiccant dehumidification system	2022	$174,482
3	**Sechelt Aquatic Centre**	Gas Rooftop HVAC unit	2022	$76,632
4	**Halfmoon Bay Fire Hall**	Radiant tube heaters (2)	2022	$2,575
5	**Sechelt Aquatic Centre**	Boilers supporting assets	2023 onward	$94,317
6	**Gibsons and Area Community Centre**	Boiler (Boiler supporting assets)	2038 (2023 onward)	$290,699 ($229,260)
7	**Gibsons Aquatic Centre**	Boiler (Tot pool)	2023	$8,200
8	**Fleet maintenance building**	Radiant tube heater-2	2026	$4,210
9	**Chapman Water Treatment Plant**	HVAC	2026	X
10	**Parks Hut**	Radiant heater	2027	$4,244
11	**Halfmoon Bay Fire Hall**	Propane supporting equipment	2027 onward	$24,843
12	**Sechelt Aquatic Centre**	Four Small condensing boilers (B1-B4)	2028	$98,769
13	**Sunshine Coast Arena**	Boiler supporting assets	2029 onward	$67,913
14	**Gibsons Aquatic Centre**	Boilers (B1-B4)	2029	$84,335
15	**Sunshine Coast Arena**	Gas fired desiccant dehumidification system	2030	X
16	**Fleet Maintenance Building**	Radiant tube heater-1 (2021)	2031	$4,244
17	**Sechelt Aquatic Centre**	Boiler (Domestic hot water)	2031	$38,523

18	**Fleet Maintenance Building**	Furnace (2008, 90% efficiency)	~2033	X
19	**Gibsons Fire Hall**	Heater with blowers (supporting equipment)	2035 (2033)	$8,066 ($13,691)
20	**Sunshine Coast Arena**	Boiler 2	2034	$14,665
21	**Eric Cardinal Hall**	Boiler	2035	$23,917
22	**Sechelt Aquatic Centre**	Boiler (B5)	2038	$61,747
23	**Halfmoon Bay Fire Hall**	Propane Furnace	2042	$6,102
24	**Gibsons Fire Hall**	Firefighting equipment gear dryer (2)	X	X
25	**Gibsons Fire Hall**	Gas fire place	X	X
26	**Gibsons and Area Community Centre**	On-demand heaters	X	X
27	**Fleet Maintenance Building**	Wash bay unit heater	X	X
28	**Chapman Water Treatment Plant**	Heaters	X	X
29	**Roberts Creek Fire Hall**	Gas BBQ	X	X

X: information not available

*Figures should be considered order-of-magnitude estimates.

14. Appendix B. Partial list of potential SCRD renewable energy projects

Solar PV Potential Projects

	SCRD Building	Max # of 385W Panels	Array AC Rating kW	Historical Consumed kWh/y	Potential % from Solar	2022 Hydro cost $/kWh	Installed cost @$2.20/W ($2022)	Simple Payback Years
1	Parks Maintenance Quonset Hut	24	6.6	8,144	126%	0.1247	$ 20,328	15.9
2	Gibsons Fire Hall 1	124	40.8	46,640	107%	0.1247	$ 105,028	16.9
3	Frank West Hall & Gibsons Fire Hall 2	41	9.9	36,617	45%	0.1247	$ 34,727	16.9
4	Eric Cardinal Hall	109	29.1	11,159	388%	0.1247	$ 92,323	17.1
5	Egmont Fire Hall	51	12.8	26,145	67%	0.1247	$ 43,197	19.8
6	Roberts Creek Fire Hall	52	8.5	52,166	34%	0.1247	$ 44,044	20.1
7	Halfmoon Bay Fire Hall	78	17.0	34,510	76%	0.1247	$ 66,066	20.2
8	Field Road Offices	341	112.1	287,280	52%	0.0602	$ 288,827	32.1
9	Gibsons and Area Community Centre	341 (room for 600+)	112.1	871,440	17%	0.0602	$ 288,827	32.1
10	Gibsons and District Aquatic Facility	84	27.4	308,356	11%	0.0602	$ 71,148	34.2
11	Sechelt Aquatic Centre	283	89.7	933,120	12%	0.0602	$ 239,701	34.5
12	Sechelt Arena	353	97.7	323,820	44%	0.0602	$ 298,991	35.1
13	Chaster House	N/A				0.1247		
14	Cliff Gilker	N/A				0.1247		
15	Granthams Hall	N/A				0.1247		
16	Kathryn Lake	N/A				0.1247		
17	Transit Maintenance Building	structural study needed						
18	Utilities Building	structural study needed						

Hydro Potential Projects

Site	Capacity	Level of planning completed
Selma 1 inline Pump as Turbine	174,500kWh/yr	Engineering Drawings (2015)
McNeill Lake old chlorination station	TBD	Concept
Raw Water Reservoir new diversion dam	Up to 2MW	Detailed concept
Chapman Creek using existing diversion license volumes and diversion weir	TBD	Concept