Whistler Energy Consumption and Greenhouse Gas Inventory Report

2020 Annual Report

Resort Municipality of Whistler
whistler.ca

WHISTLER

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EXECUTIVE SUMMARY

Community Performance

Community GHG emissions for 2020 are estimated to total 108,643 tCO_2e, which is a 21% decrease compared to 2019 and 18% lower than 2007 (133,019 tCO_2e). Passenger vehicle emissions account for 40% of Whistler's community-wide GHG emissions, followed by natural gas (39%) primarily used for space and water heating.

The community of Whistler has committed to community level GHG reductions of 33% by 2020, 80% by 2050, and 90% by 2060 relative to a base year of 2007. 2020 emissions are currently only 18% below 2007, and the 2020 target was missed by 22%. In 2020, Whistler adopted the Climate Action Big Moves Strategy which sets a new target for the near term of 50% reduction below 2007 levels by 2030 to motivate action and increase accountability.

Community energy consumption for 2020 totaled 2.9 M GJ, which was a 13% decrease compared to 2019. Electricity is the most prevalent type of energy consumed in Whistler at 44% of the total consumption, followed by natural gas (29%) and vehicle fuels (27%).

The COVID-19 pandemic had significant impacts on the community of Whistler, all residents, visitors, and the commuter workforce. Most changes in the community energy use and GHG emissions compared to 2019 are a result of pandemic related restrictions. It is therefore important to note that this 2020 annual inventory is likely to be a significant outlier in data and won't be used to inform changes in the current and future climate action strategy.

Corporate Performance

Total corporate GHG emissions in 2020 were 2,641 tCO_2e. Direct corporate GHG emissions were 2,160 tCO_2e, which represents a 34% increase from 2019 and contracted emissions were 481 tCO_2e, which is a 36% decrease from 2019. On a division-by-division basis, the relative emissions footprint of directly delivered corporate operations is as follows: (54%) Infrastructure Services, (19%) Corporate and Community Services, and (27%) Resort Experience. GHG emissions across directly delivered and contracted out corporate operations are produced primarily from use of mobile fuels (gasoline and diesels) at 47%, followed by combustion of natural gas at 34%, and electricity at 19%. The increase in 2020 corporate emissions was primarily driven by an increase of natural gas use at the sewer utilities compared to 2019 due to lower plant efficiencies in the wastewater treatment plant as a result of the COVID-19 pandemic and related changes in liquid flow rates. The decrease in contracted corporate emissions may be a result of COVID-19 related changes in operations.

Direct corporate energy consumption increased in 2020 by 3% to 80,612 GJ/year due to a 45% increase of mobile fuel use and a 19% increase of natural gas consumption. Electricity consumption decreased by 12% compared to 2019 but still makes up the greatest portion of total energy consumed across municipal operations at 55% of the total consumption, followed by natural gas (23%), and mobile fuels (17%).

Community Energy & Climate Action Plan (CECAP) Update

The Q1/Q2 2021 CECAP updates demonstrate that a wide range of activities has been undertaken, but it is also clear that the strategic emphasis for mitigation initiatives continues to be transportation-sector initiatives, and for adaptation initiatives, wildfire protection. As of the end of the Q1/Q2 2021 reporting period (June 30, 2021), 6 initiatives are completed and 84 of these initiatives are in progress/ongoing. In comparison 72 were in progress/ongoing and 6 were complete by the second quarter of 2020. The need to accelerate Whistler's climate

action is clear, and the Climate Action Big Moves Strategy adopted in 2020 prioritizes what needs to be done in our community. The Strategy provides the guiding framework to prioritize CECAP actions, incorporate new opportunities, and align the community-wide efforts needed to achieve significant emissions reductions.

1.0 INTRODUCTION

Whistler's vision is to be a place where our community thrives, nature is protected, and guests are inspired[1]. Our community has a special dependence on weather patterns that deliver sufficient snowfall throughout the winter season and on summers that are free of wildfire smoke. This intrinsic relationship to the weather has heightened awareness about Whistler's shared responsibility to manage our GHG emissions—and the potential impacts if we do not. Throughout our community, both private and public organizations understand that the integrity of functional natural systems is fundamental to the wellbeing of our community, and the viability of our economic engines.

The primary purpose of this Annual Report is to provide an annual summary of Whistler's community-wide energy use and greenhouse gas emissions performance over the past year (Section 3). The report includes detailed performance data, highlights key trends and insights, and benchmarks our performance against our adopted Official Community Plan (OCP) targets and the newly adopted Climate Action Big Moves target. It is the intent of this report to support and inform strategic energy management and climate action across our community.

The second part of this report (Section 4) includes a summary of the energy and emissions performance of the RMOW's corporate operations. Although corporate emissions represent less than 2% of the total community GHG emissions, RMOW staff and Council have the greatest ability to make data driven decisions in work practices to reduce these corporate emissions, and as such have the opportunity and responsibility to both lead by example and demonstrate success.

Finally, this report includes a brief update on CECAP implementation initiatives that are led by the organization (Section 5). Section 5 includes a detailed update on key RMOW- initiatives recommended within the CECAP for the first and second quarter of 2021. The update provides separate detail on mitigation (or energy and emission reduction) initiatives as well as subsection on key initiatives related to climate adaptation initiatives. Details include 2022 priorities where possible, and reflect the progress as of Q2, 2021.

[1] The Resort Municipality of Whistler. (2020). *Official Community Plan Bylaw No. 2199, 2018*. Retrieved from https://www.whistler.ca/ocp

2.0 BACKGROUND

Whistler has a long history of both setting emissions reductions targets and annually monitoring its corporate and community-wide GHG emissions. Whistler's commitment to climate action is evident in the dedication to long term planning, measurement, and reporting of energy consumption and GHG emissions performance, the integration of energy and emission reduction goals into broader municipal policies and practices, as well as continued participation on provincial and national advisory committees.

2.1 Whistler's Community Energy Planning

Enacted in 2008, Bill 27, the *Green Communities Act*, required local governments to include greenhouse gas emission targets, policies and actions in their Official Community Plans and Regional Growth Strategies. In response to the *Green Communities Act*, the RMOW integrated specific targets, policies, and actions within its Official Community Plan (OCP) and developed a Carbon Neutral Operations Plan. In 2018 the RMOW began the process of updating the OCP and on June 23, 2020 the *Official Community Plan Bylaw No. 2199, 2018* was adopted by Council.

2.1.1 Whistler Community Greenhouse Gas Reduction Targets

As per the Whistler OCP, the community of Whistler has targeted community-level greenhouse gas reductions of 33% by 2020, 80% by 2050; and 90% by 2060, all compared to 2007 GHG emission levels. On December 15, 2020 the RMOW Council adopted the Climate Action Big Move strategy and new target of reducing Whistler's GHG by 50 % below 2007 levels. Figure 2.1 highlights these targets along with Whistler's reported community emissions since 2000. Unfortunately, since 2014, Whistler has not been on trend towards these targets and the level of GHG reduction required to meet the 2020 GHG emission reduction target has not been achieved. Total GHG emissions for the 2020 reporting year were approximately 18% above target levels.

Note, that the COVID-19 pandemic had significant impacts on the community of Whistler, its residents, visitors, and commuter workforce. Most changes in the community wide energy use and GHG emissions inventory compared to 2019 are a result of pandemic related restrictions such as social distancing, travel restrictions, and work from home policies. It is therefore important to acknowledge that this 2020 annual inventory is likely to a significant outlier in data and cannot be used to inform the climate strategy going forward.

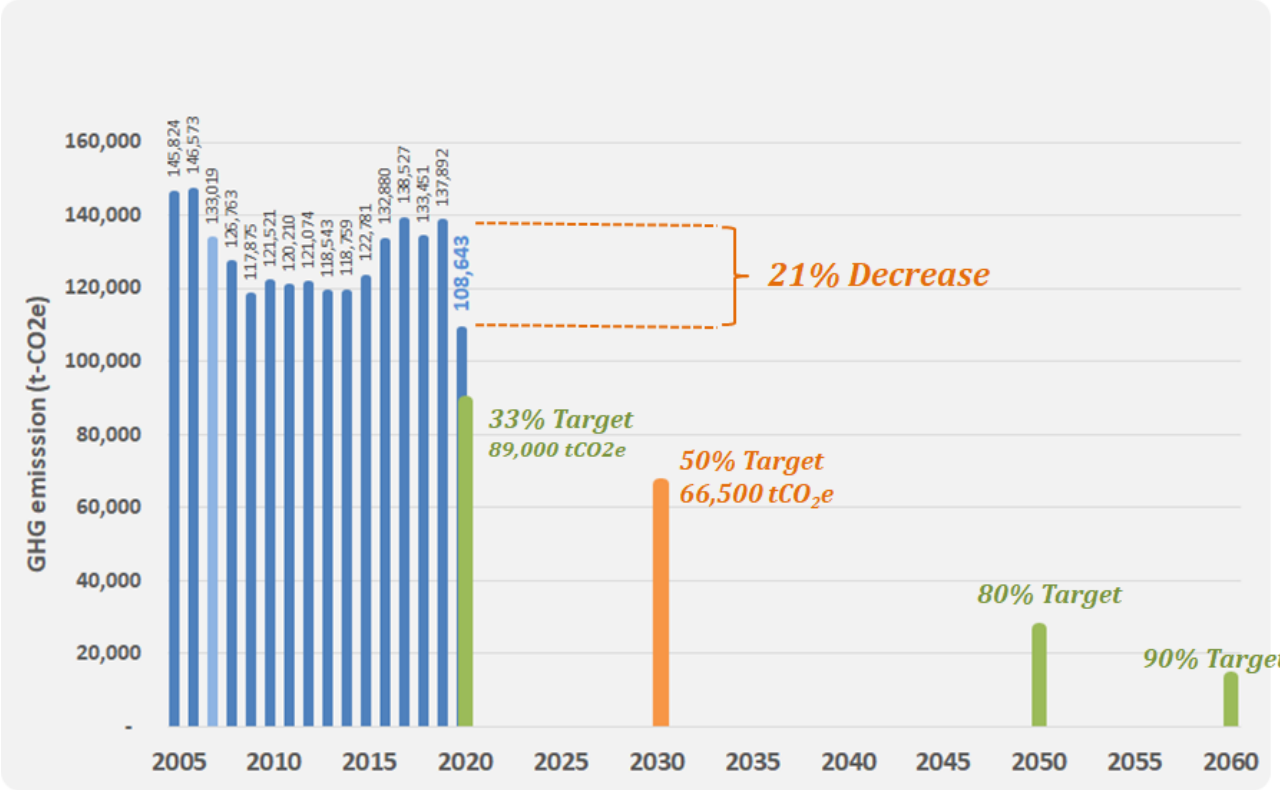

Figure 2.1 Whistler's total estimated community-wide GHG emissions (2000-present, with future targets indicated)

2.1.2 Whistler Community Energy Reduction Target

The OCP Amendment Bylaw No. 1938, adopted in 2010, includes a community-scale energy reduction target: "*The municipality will lead a community-wide effort to reduce total energy consumption to a level 10% lower than 2007 by 2020".* If the energy reduction target was to be achieved at a consistent pace over that decade, the target translated into a 0.75% annual energy consumption reduction over the target period (2011 – 2020). A visual presentation of this rate of reduction along with Whistler's actual energy consumption is included in Figure 2.2 for clarity. As is shown, Whistler and the RMOW fell substantially short of the target until 2019 and is 18% above target in 2020.

Note, that the COVID-19 pandemic had significant impacts on the community of Whistler, its residents, visitors, and commuter workforce and as mentioned above, most changes in the community wide energy use compared to 2019 are a result of pandemic related restrictions.

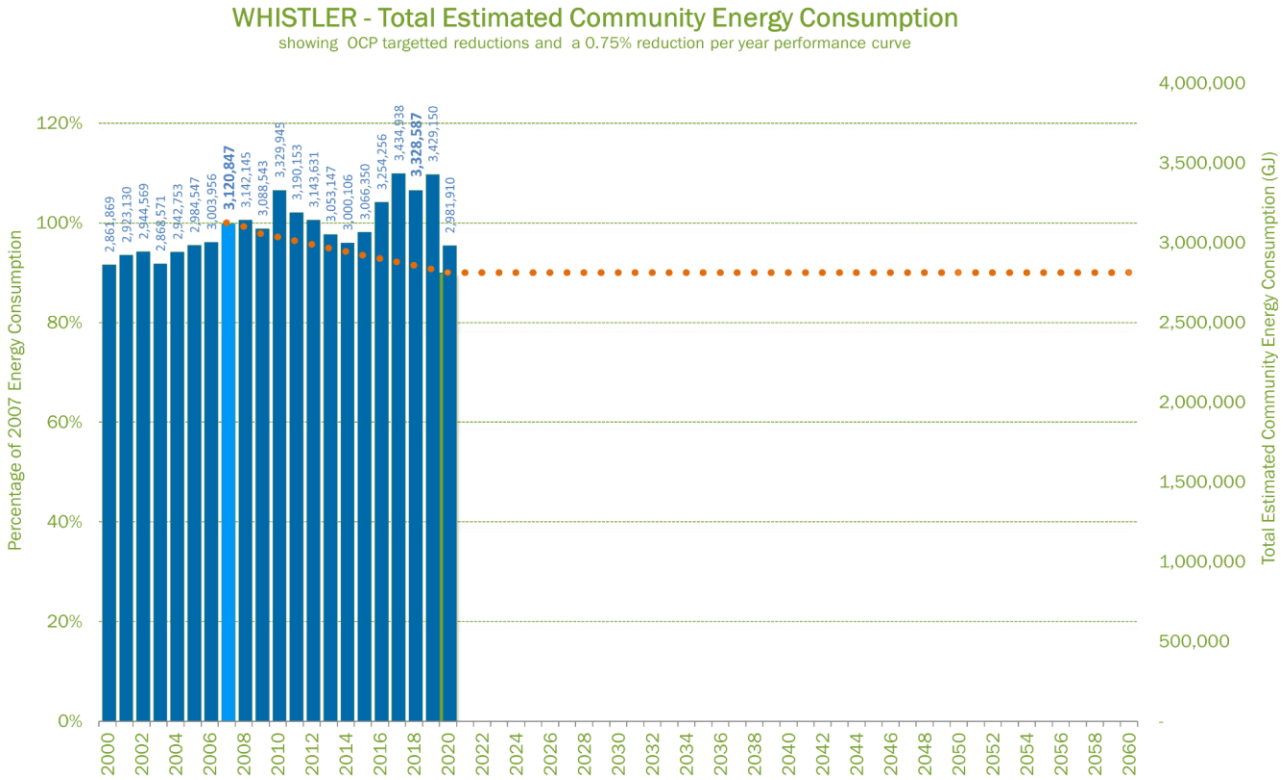

Figure 2.2 Whistler's total estimated community energy consumption (2000-present) with 2020 target line indicated in orange

2.1.3 Climate Action Big Moves Strategy

The Climate Action Big Moves Strategy was adopted by RMOW Council on December 15, 2020. The strategy builds on the work of the 2016 CECAP and supports the OCP. The strategy provides the guiding framework to prioritize CECAP actions, incorporate new opportunities, and align the community-wide efforts needed to achieve significant emissions reductions.

The Climate Action Big Moves Strategy sets a new target for the nearer term of 50% reduction below 2007 levels by 2030 to motivate action and increase accountability. This 2030 target is in line with the Intergovernmental Panel on Climate Change recommendations of achieving a 45 per cent reduction below 2010 levels and is even more proactive than the target set by the Province of British Columbia of a 40 per cent reduction below 2007 levels.

2.2 Corporate Carbon Neutrality

By signing on to the B.C. Climate Action Charter, the RMOW committed to take action and develop strategies to achieve the following three goals:

- Work toward becoming carbon neutral in their local government corporate operations

- Measure and report on their community GHG emissions profile
- Create complete, compact, energy-efficient rural and urban communities

The RMOW purchased and retired Verified Emission Reduction credits from third party sources starting in 2010 and the Cheakamus Community Forest since 2013 equal to its entire corporate carbon footprint for every year between 2010 and 2020 inclusive. More details can be found in Appendix A.

2.3 GHG Emissions Inventory Methodology and Boundaries

The RMOW has two types of local-level GHG inventories: the corporate and the community-wide inventory. The RMOW quantifies its emissions on an annual basis and compares them to the baseline year of 2007. Annual reports dating back to 2010 can be found on the RMOW tracking performance webpage[2]. The annual quantification of Whistler's community wide GHG emissions follows national and international inventory guidelines[3][4]. The quantification methodology and emissions factors selected for the purposes of quantifying the RMOW's corporate and community emissions are those specified in the *2020 B.C. Methodological Guidance for Quantifying Greenhouse Gas Emissions*[5].

2.3.1 **Corporate Methodology and Boundaries**

Corporate emissions are GHG emissions from RMOW's direct operations. The scope boundaries for RMOW's corporate GHG inventory include emissions related to the operation and maintenance of traditional services (as defined by the *Becoming Carbon Neutral Guidebook* in the BC Climate Action Toolkit)[6]. These services include those directly delivered by the RMOW and those contracted out. The corporate inventory includes stationary energy and transportation emissions. Stationary energy consists of natural gas and electricity for RMOW owned and operated buildings and facilities. Data for stationary energy consumption was obtained from utility records. Transportation includes mobile fuel purchases for all RMOW owned and operated fleet vehicles as well as staff mobile fuel purchases. Transportation data was compiled from internal fleet and staff fuel consumption accounts. The corporate inventory is contained within the sphere of the community inventory.

2.3.2 **Community Methodology and Boundaries**

Community-wide GHG emissions are attributed to activities within the community of Whistler. The scope boundary for RMOW's community-wide GHG inventory includes all emissions from stationary energy use, mobile fuel use and landfill emissions related to residents, visitors, businesses, public sector and non-for-profit organizations, and other industries within the jurisdictional boundaries of the RMOW.

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[2] The Resort Municipality of Whistler. (2020). *Tracking performance: energy use and GHG emissions.* Retrieved from https://www.whistler.ca/services/climate-action-and-energy/tracking-performace-energy-use-and-ghg-emissions

[3] International Organization for Standardization. (2018). *ISO 14064-1:2018 Greenhouse gases — Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals.* Retrieved from https://www.iso.org/standard/66453.html

[4] World Resources Institute. (2014). *Global Protocol for Community-Scale Greenhouse Gas Emission Inventories.* Retrieved from https://ghgprotocol.org/greenhouse-gas-protocol-accounting-reporting-standard-cities

[5] Ministry of Environment and Climate Change Strategy. (2018). *2018 B.C. Methodological Guidance for Quantifying Greenhouse Gas Emissions.* Retrieved from https://www2.gov.bc.ca/assets/gov/environment/climate-change/cng/methodology/2020-pso-methodology.pdf

[6] Province of British Columbia. (2014). *Becoming Carbon Neutral: A Guidebook for Local Governments in British Columbia*. Retrieved from http://www.toolkit.bc.ca/sites/default/files/BecomingCarbonNeutralGuideV3.pdf

Stationary Energy Use:

Stationary energy use comprises residential, commercial, and industrial natural gas, propane and electricity consumption. Utility records provided by Fortis BC, Sabre Propane, and BC Hydro were used to quantify stationary energy consumption for the community.

To quantify the GHG emissions related to the community-wide natural gas and propane use, emission factors as specified in the *2020 B.C. Methodological Guidance for Quantifying Greenhouse Gas Emissions*[7] were used. These factors have not changed since 2018.

To quantify GHG emissions related to the community-wide electricity use, updated emission factors have been chosen, with a detailed explanation as follows:

Electricity emission factors have undergone changes in the last few years. Up until 2017, the Climate Action Secretariat (CAS) used a consistent approach for all reporting entities to quantify emissions from purchased electricity that only considered domestic production and emissions. Most of the electricity generated in B.C. is from renewable sources, and some of it is exported to other provinces and the US to help meet demand for clean energy. Sometimes B.C. imports higher emitting electricity from other provinces and/or the US if there is not enough local supply to serve all customers, such as in low water reserve years. In 2017, industry reporting under the Greenhouse Gas Industrial Reporting and Control Act (GGIRCA) was updated to include emissions from imported electricity to facilitate greater accuracy and allow the Province of BC to better understand the progress it is making toward its emissions reduction goals through emission reduction measures such as energy efficiency and fuel switching[8].

The CAS has derived a set of 'hind-casted' electricity emission factor (EEF) values, dating back to the 2007 baseline year, so that year-on-year changes in emissions from electricity can be accurately compared (Table 2.1). For the 2020 reporting year inventory, the updated EEF values were used. The hind-casted EEF values were applied to the existing data for previous years. This has resulted in an increase in reported electricity emissions with the purpose of accurately describing electricity emission trends in recent years. Additionally, aligning the methodologies to calculating EEF values for reporting obligations under both the Carbon Neutral Government Regulation and GGIRCA will provide a single, consistent approach to reporting electricity emissions across the province. This will allow for comparability in emissions data for different sectors and ensure that the government is held to the same standard of reporting for its corporate emissions as industry.

[7] Ministry of Environment and Climate Change Strategy. (2018). *2018 B.C. Methodological Guidance for Quantifying Greenhouse Gas Emissions.* Retrieved from https://www2.gov.bc.ca/assets/gov/environment/climate-change/cng/methodology/2020-pso-methodology.pdf

[8] Frequently Asked Questions – EEF Methodology Update for CNG

Table 2.1: hind-casted electricity emission factor (EEF) values[9] compared to those used in previous inventories[10]

EEF (tCO2e/GWh):		
Year:	Previous EEF:	Updated EEF:
2010	25	35.7
2011	25	41.6
2012	25	40.1
2013	14	35
2014	10	31.6
2015	10	34.2
2016	10.67	32.8
2017	10.67	31.7
2018	10.67	25.3
2019	10.67	29.9
2020	10.67	40.1

Mobile Energy Use:

Transportation related energy use comprises mobile fuel consumption for fleet vehicles (Whistler Blackcomb, RCMP and School District #48), BC Transit, and passenger vehicle emissions.

Fleet vehicle and BC Transit fuel consumption data was compiled from internal fuel consumption accounts or obtained from the relevant entity. Emission factors as specified in the *2020 B.C. Methodological Guidance for Quantifying Greenhouse Gas Emissions*[11] were applied to these fuel consumption figures to calculate emission quantities.

Passenger vehicles consistently account for the majority of Whistler's community-wide energy use and GHG emissions. Whistler's approach to personal transport as stated in the transportation chapter of the Official Community Plan is to prioritize walking, cycling, transit and other preferred modes over the single occupant vehicle and private automobile (OCP goal 11.4). Therefore, many climate action initiatives aim to reduce emissions from passenger vehicles by supporting the Big Moves goal 1 and 2 that 50% of trips in Whistler will be by transit and active transportation and 50% of kilometers driven in Whistler will be by zero emission vehicles by 2030. To inform the strategic climate action planning related to passenger vehicles it is fundamental to understand the source of passenger vehicle emissions in as much detail as practical. This report will therefore explore the methodology approach of quantifying passenger vehicle emissions in more detail.

There are two possible approaches to quantify passenger vehicle fuel use and related GHG emissions in Whistler. The first approach is based on traffic counter data on Highway 99 within Whistler and is hereafter called the *Traffic Counter Vehicle Model.* The second approach is based on vehicle registration data and fuel use averages in Whistler and is hereafter called the *Residents Only Vehicle Model*.

[9] https://www2.gov.bc.ca/gov/content/environment/climate-change/industry/reporting/quantify/electricity

[10] https://www2.gov.bc.ca/assets/gov/environment/climate-change/cng/methodology/2020-pso-methodology.pdf

[11] Ministry of Environment and Climate Change Strategy. (2018). *2018 B.C. Methodological Guidance for Quantifying Greenhouse Gas Emissions.* Retrieved from https://www2.gov.bc.ca/assets/gov/environment/climate-change/cng/methodology/2020-pso-methodology.pdf

The *Traffic Counter Vehicle Model* accounts for all kilometers driven on Highway 99 within the jurisdictional boundaries of Whistler by residents, commuters, or visitors. Traffic counter data is used in this approach to calculate the total vehicle kilometers traveled (vkm) within the municipal boundaries. The total vkms travelled are then converted to liters of fuel using vehicle type data from Statistics Canada (RMOW 2019) and fuel efficiency data. Liters of fuel are then converted to energy and GHG emissions using applicable emissions factors. This approach has historically been used for Whistler's annual community-wide energy and emissions inventory. The advantage of the *Traffic Counter Vehicle Model* is that it captures GHG emissions from all intra-community travel, including visitors as opposed to GHG emissions from travel by Whistler registered vehicles only. Including all passenger travel within Whistler is important as visitor traffic accounts for more than 50% of all traffic in Whistler and because the increased traffic overall leads to a further increase in GHG emissions due to congestion and reduced speed on the highway. On the other hand, this methodology only includes travel within the municipal boundaries of Whistler and does not account for inter-community travel.

The *Residents Only Vehicle Model* accounts for all kilometers driven by vehicles that are registered in Whistler and follows the methodology used in most BC municipalities. This methodology relies on fuel sales averages for Vancouver, Squamish and Whistler[12], as well as vehicle registration data provided by ICBC. The localized vehicle population data allows to determine emissions specifically from vehicles registered in Whistler. The use of fuel sales data for the wider region reflects the fact that many vehicles registered in Whistler refuel in other municipalities. The advantage of the *Residents Only Vehicle Model* is that it accounts for emissions from vehicles registered in the municipality (in line with provincial guidelines[13]). The disadvantage is that visitors nor the commuter workforce coming into Whistler are accounted for in this methodology. While inventory guidelines only require the emissions from the *Residents Only Vehicle Model* be reported, Whistler is highly dependent on vehicle travel from other municipalities (for delivery of essential goods and services as well as tourism). As such, the RMOW will continue to report the traffic counter methodology figure as part of the annual community-wide inventory report. Additionally, since the traffic counter methodology has already been used for several reports, continuing to use these results in the community-wide inventory will ensure continuity with previous years reports, allowing to more accurately observe trends in vehicle emissions.

In order to gain a better understanding of Whistler's passenger vehicle emissions and to better inform climate action moving forward, both the results of methodologies are reported on in the 2020 GHG emissions inventory report. These emission figures are compared to the results from the *Residents Only Vehicle Model* in section 3.2.1. Note that only the results of the *Traffic Counter Vehicle Model* are included in the total community-wide GHG inventory to avoid double counting.

Landfill:

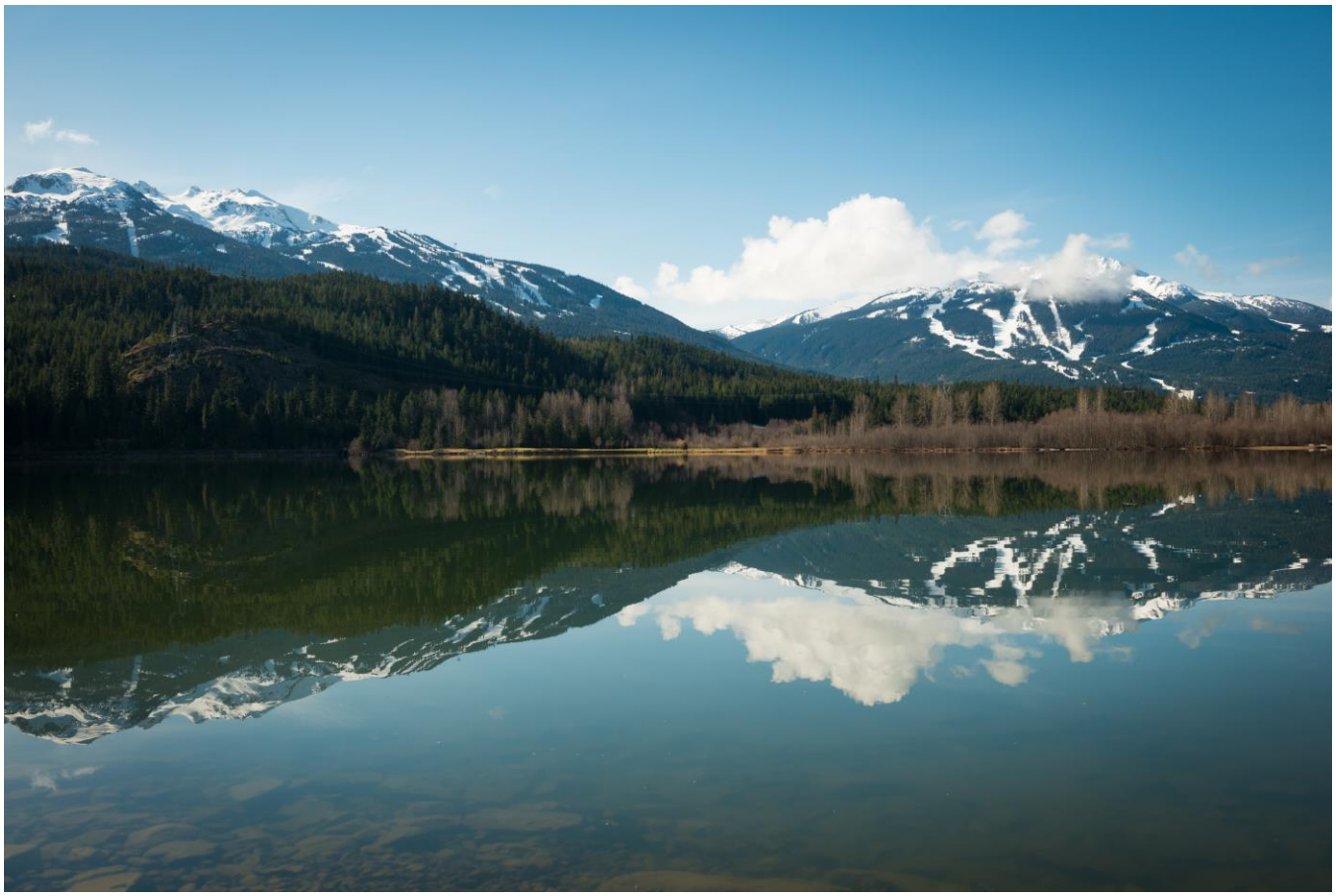
The RMOW landfill emissions include all GHG emissions related to Whistler's solid waste at Rabanco Landfill in Washington. These include emissions from the closed Whistler Landfill, shipping emissions to Rabanco and RMOW's solid waste emissions from Rabanco. In November of 2020, the RMOW stopped shipping landfill to Rabanco and began using Belkorp Transport Services and Supplies to ship landfill to Cache Creek.

For the shipments to Rabanco, fuel use data was used to calculate landfill transport emissions. For the Cache Creek shipments, vehicle efficiencies, trip distances and number of trips were used to calculate landfill transport

[12] Kent Group Data 2021 Total Industry Report: Metro Vancouver, Squamish, and Whistler

[13] PCP (Partners for Climate Protection) 2014 *PCP Protocol: Canadian Supplement to the International Emissions Analysis Protocol* https://fcm.ca/sites/default/files/documents/resources/report/protocol-canadian-supplement-pcp.pdf

emissions for 2020. Landfill site emissions were estimated using the existing landfill emissions model employed by the RMOW in previous year's inventories. The emission factors used were taken from the latest provincial guidelines[14].



[14] 2020 BC Best Practices Methodology for Quantifying Greenhouse Gas Emissions

3.0 COMMUNITY PERFORMANCE

This section highlights key trends in Whistler's community energy consumption and GHG emissions for the 2020 reporting year. It also compares these trends to the Council-adopted OCP and Climate Action Big Moves GHG reduction targets.

3.1.1 Community Energy Consumption

The total community energy consumption in Whistler in 2020 was 2.98 M GJ. This was a 13% decrease compared to 2019. Electricity is the most prevalent type of energy consumed in Whistler at 41% of the total consumption followed by natural gas (27%) and vehicle fuels at 24% of total consumption. Figure 3.1 shows the breakdown of community energy consumption for the 2020 reporting year.

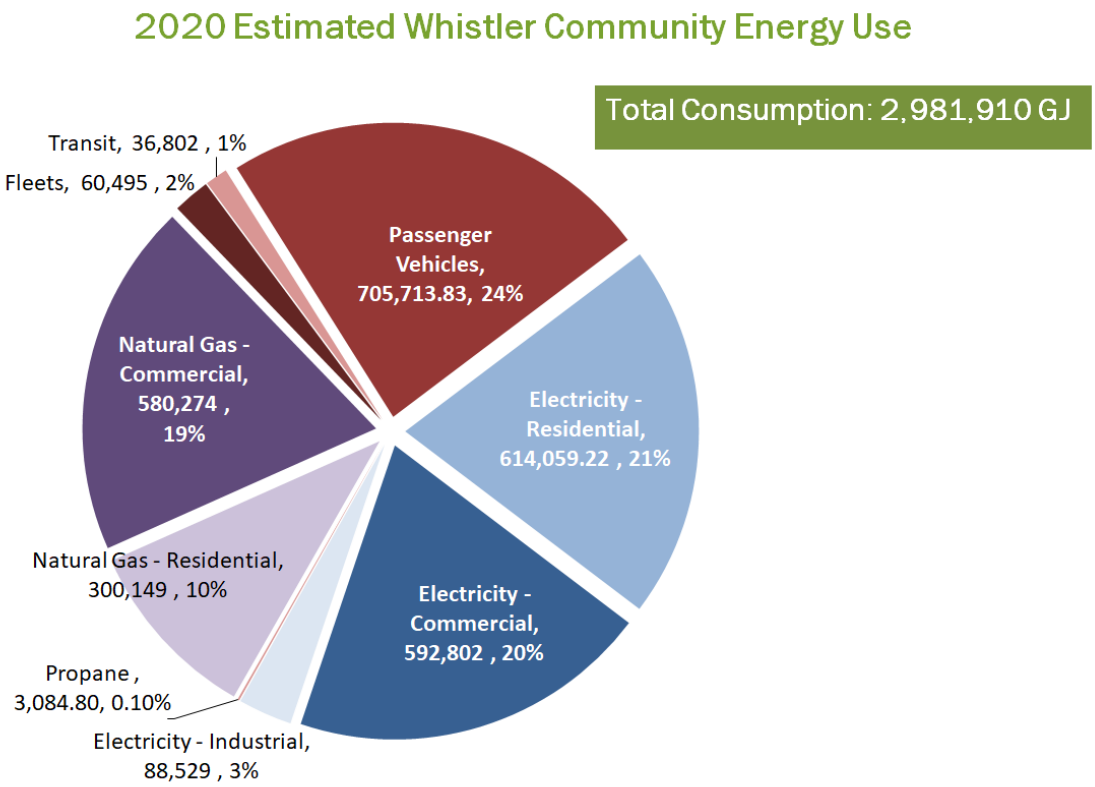


Figure 3.1 Whistler's estimated community energy consumption for the 2020 reporting year

Figure 3.2 illustrates the changes in Whistler's community wide energy consumption from 2000-2020. Stationary energy consumption decreased by 3.4% compared to 2019. Over the last few years there has been a substantive increase in the consumption of natural gas (natural gas consumption in 2019 was 24% higher than 2007). However, 2020 saw a change in this trend with natural gas consumption decreasing by 7.3% compared to 2019 (15% higher than 2007 consumption). Mobile energy consumption decreased 31.5% of which fleet consumption decreased by 17%, electricity consumption decreased by around 2%, and passenger vehicle energy consumption decreased by 33% compared to 2019. The decrease in mobile energy consumption is an outlier in mobile energy

use patterns in Whistler as a results of Covid-19 related travel restrictions, lower commuter numbers, and increased work from home.

Despite the overall energy use decrease, Whistler's Energy consumption per population equivalent (GJ/PE) increased by 8% in 2020 due to a significant decrease in the population equivalent figure**.** Whistler's population equivalent includes permanent residents, seasonal residents and the average number of visitors in Whistler on any given day which was significantly lower due to the Covid-19 related restrictions.

Note that the decrease in total energy consumption in 2020 also stems from the COVID-19 pandemic and the reduced visitor numbers throughout 2020.

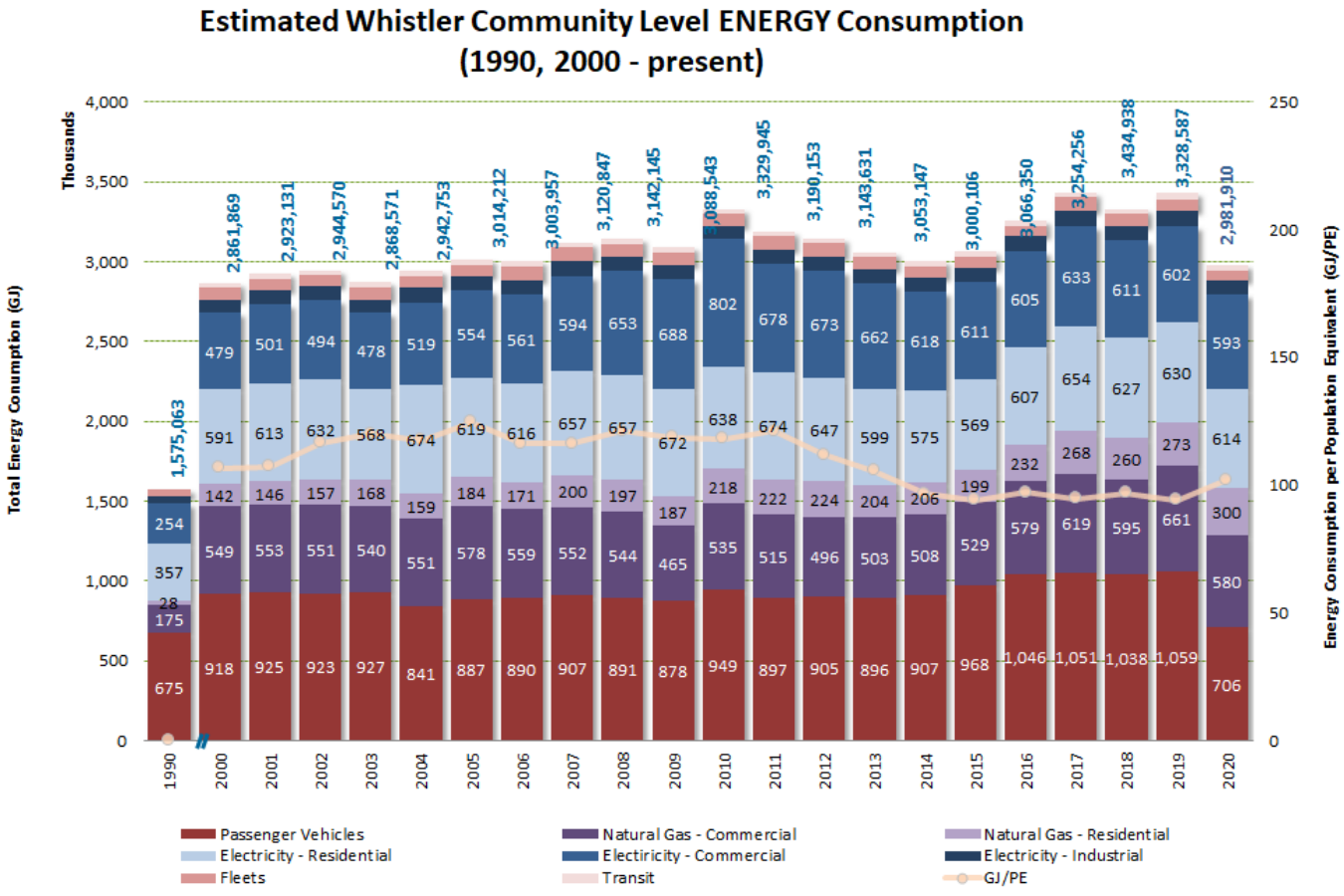


Figure 3.2 Whistler's community wide energy consumption from 2000 to present

3.1.2 Community Greenhouse Gas Emissions

The total community GHG emissions in 2020 were estimated to be 108,643 tCO_2e. The vast majority of Whistler's emissions are from passenger vehicle transport and the built environment. With 40% of emissions originating from passenger vehicles and 51% from buildings, the 2020 reporting year was no exception. Fleet

and transit fuel use and landfill emissions make up the remainder of emissions. Figure 3.3 shows the breakdown of community-wide GHG emissions (including corporate emissions) for the 2020 reporting year. It is worth noting that different energy sources have differing carbon content, therefore GHG emissions are much more heavily associated with consumption of fossil fuels (i.e. gasoline, diesels, and natural gas) than with electricity use.

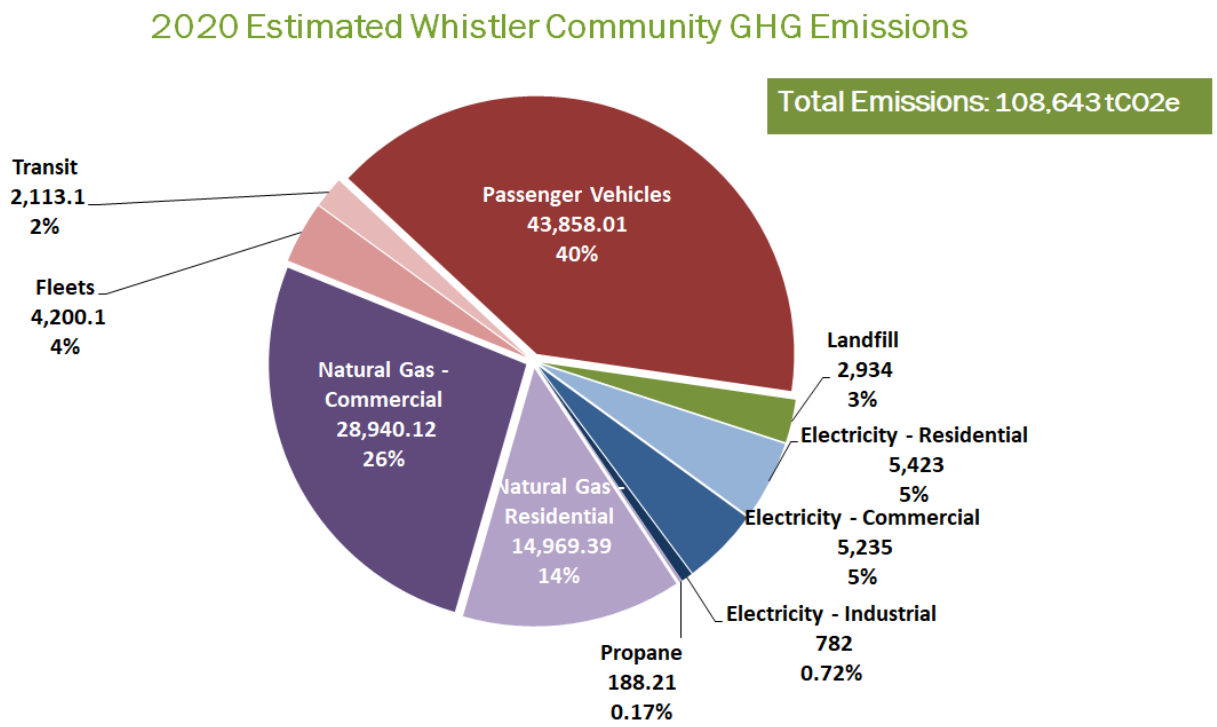


Figure 3.3 Estimated 2020 Whistler Community GHG emissions

Figure 3.3 shows a breakdown of the Whistler community-level GHG emissions since 2000-present. Whistler's total community-wide GHG emissions approximately 21% below 2019 emissions, 18% below 2007 emissions, and 24% below 2000, but well above (+22%) our 2020 community target levels. The main reason for this overall decrease in GHG emissions is the COVID-19 pandemic and all related restrictions and changes in 2020.

The 2020 GHG emissions per population equivalent (PE)[15] decreased by 2% to 3.45 tCO2e/PE which is a result of a 20% decrease in Whistler's population equivalent number and the 18% decrease in total GHG emissions.

[15] The nature of Whistler being a tourism community means the number of people in Whistler on any given day is generally far greater than the population counts provided Canada Census or BC Statistics estimates. The total Population Equivalent is an estimate of the total number of people in Whistler on an average annualized basis. The indicator is often used in 'per capita' measures to normalize the data and make it comparable to other communities.

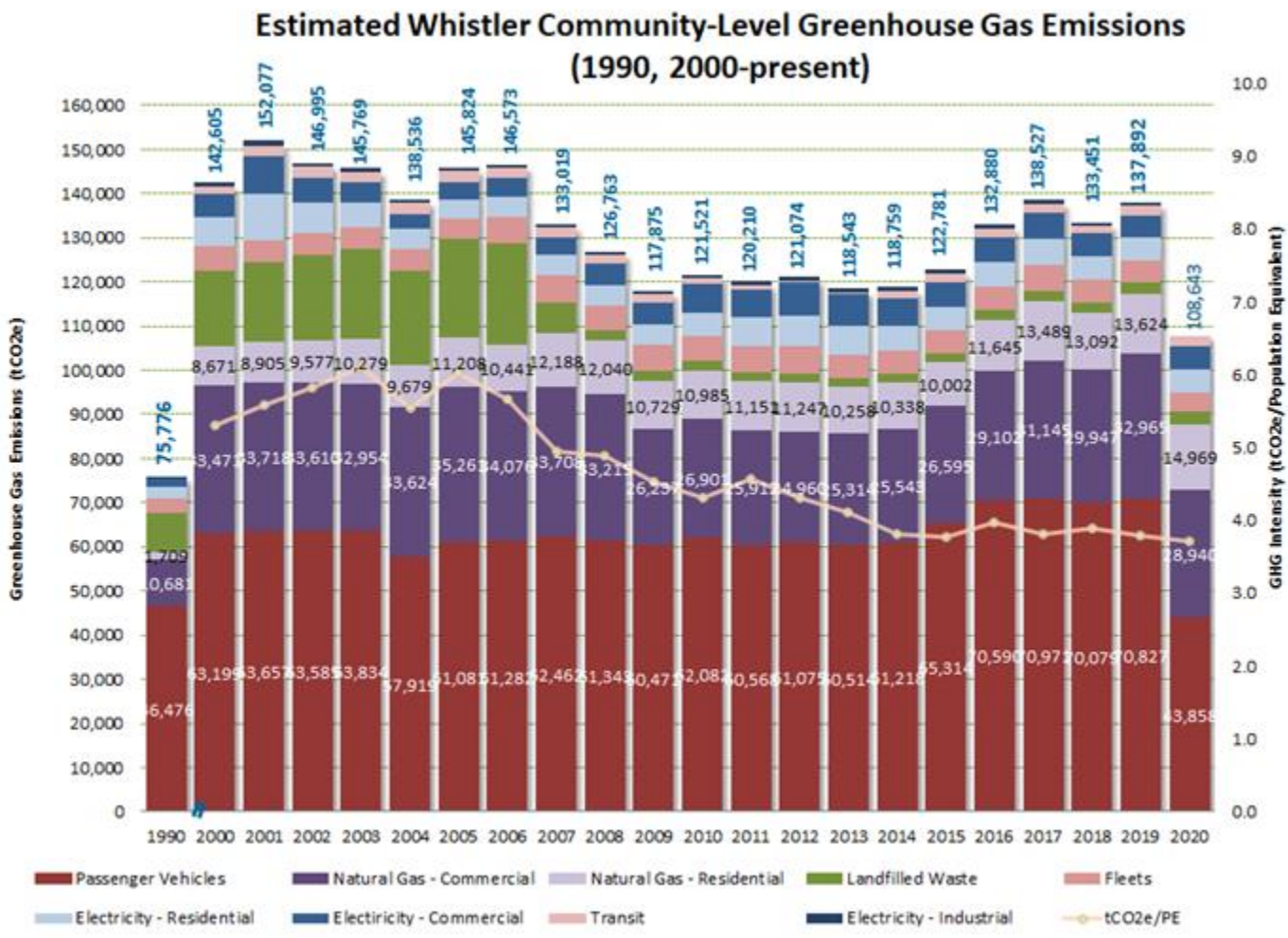


Figure 3.4 Estimated Whistler community-level GHG emissions 1990, 2000-present

3.2.1 Passenger Vehicles

The results of both GHG emission quantification approaches for passenger vehicle fuel use and related GHG emissions are being presented hereafter to provide as much transparency as possible.

Traffic Counter Vehicle Model - energy and GHG emissions:

The total estimated fuel consumption for all passenger vehicles travelling within the Whistler municipal boundaries in 2020 was approximately 20 M liters, which is a 28% decrease compared to 2019. Of this fuel, approximately 95% was gasoline and 5% was diesel. Estimated fuel consumption for vehicles registered in Whistler for 2020 was approximately 8.7 M liters (99.2% of which was gasoline and 0.8% diesel).

Passenger vehicle transportation within RMOW boundaries continues to represent the single largest share of the overall emission footprint at 40%. Since 2007, there has been a steady increase in vehicle emissions (+12% from 2007-2019). However, 2020 saw a 38% decrease in passenger vehicle emissions from 2019 with a total of 43,858 tCO2e. This decrease stems from both reduced number of trips registered by the traffic counters (16% decrease), as well as the use of refined emission factors and vehicle population data in the methodology (22% decrease).

Heavy duty vehicle emissions in 2020 totaled 35,352 tCO2e representing 80.6% of all vehicle emissions. Heavy duty gasoline emissions were 32,704 tCO2e, and heavy duty diesel emissions were 2,640 tCO2e, representing 75% and 6%, respectively. The remaining heavy duty emissions were produced by electric vehicles (6.3 tCO2e, 0.01% of total vehicle emissions) Light duty vehicle emissions totaled 8,506 tCO2e (19.4% of all vehicle emissions). Light duty gasoline emissions were 8,493 tCO2e, and light duty diesel emissions were 1.97 tCO2e, representing 19% and 0.0004% respectively. The remaining light duty emissions were produced by electric vehicles (10.5 tCO2e, 0.02% of all vehicle emissions).Figure 3.5 shows the breakdown of vehicle emissions by fuel type.

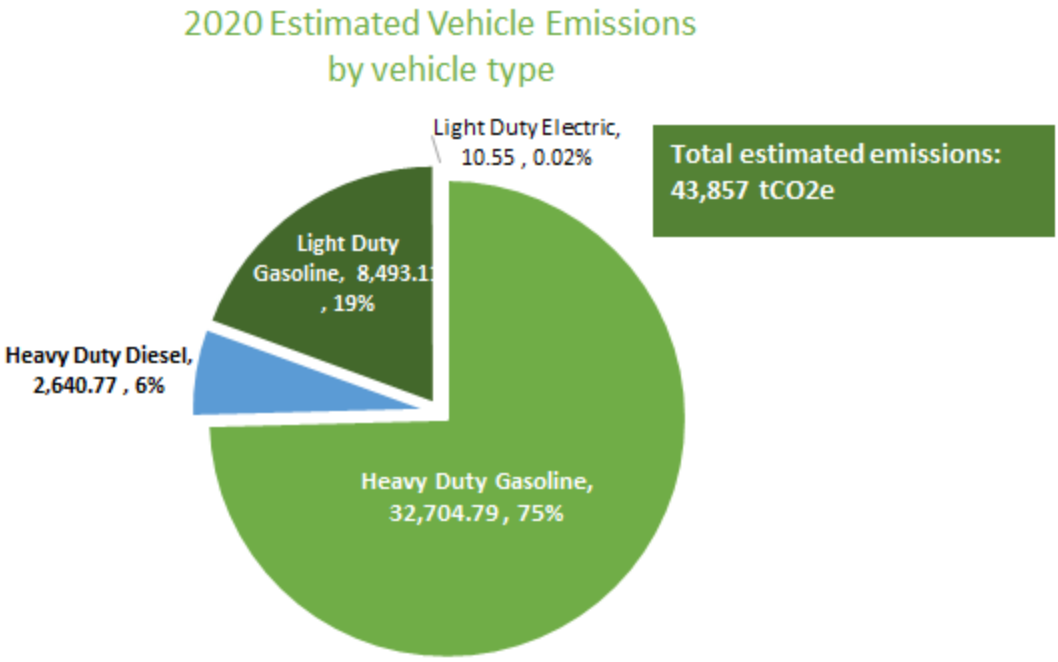


Figure 3.5 2020 estimated emissions from vehicle travel within the municipality of whistler

Residents Only Vehicle Model:

The *Residents Only Vehicle Model* shows that light-duty vehicles registered in Whistler consumed approximately 3.6 M L of gasoline and 16,150 L of diesel. Heavy-duty vehicles registered in Whistler consumed approximately 2.3 M L of gasoline and 58,260 L of diesel.

Whistler-registered vehicles produced 19,623 tCO_2e in 2020. Heavy duty vehicle emissions in 2020 totaled 5,659 tCO_2e. Heavy duty gasoline emissions were 5,321 tCO_2e, and heavy duty diesel emissions were 159 tCO_2e. Light duty vehicle emissions totaled 13,964 tCO_2e. Light duty gasoline emissions were 13,915 tCO_2e, and light duty diesel emissions were 44 tCO_2e. Electric vehicle emissions in 2020 totaled 2.5 tCO_2e.

Figure 3.6 compares the results of the *Residents Only Vehicle Model* with the *Traffic Counter Vehicle Model.* Whistler residents emitted 19,623 tCO_2e, 55% less than the total vehicle emissions produced within the municipal boundaries. Light-duty vehicles account for 71% of Whistler-registered vehicle emissions, with heavy-duty vehicles accounting for 29%. These different methodologies highlight the fact that over 50% of vehicle emissions produced within Whistler are stemming from vehicles that are not registered in Whistler, most likely commuter or visiting vehicles, and a large portion of these emissions are due to heavy-duty gasoline vehicles. However, almost half of Whistler's passenger vehicle emission are coming from vehicles that are registered within Whistler with the majority being light duty gasoline vehicles. These emissions have the highest reduction potential as trips can be either done by preferred modes of transport or vehicles could be electrified.

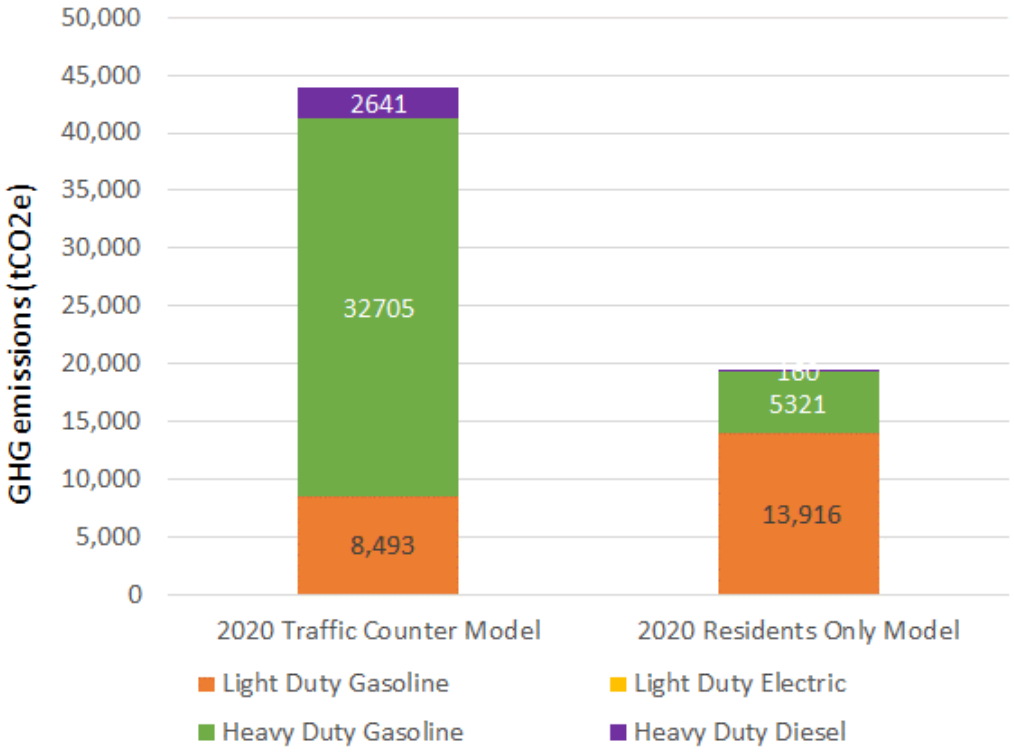


Figure 3.6: Traffic Counter Model results compared to Residents Only Model results

3.2.2 Fleet and Transit Vehicles

Fleet vehicles include those registered to the RMOW, Whistler Blackcomb, Whistler RCMP, and BC School District No. 48. Transit vehicles include buses operated by BC Transit in Whistler. Fleet fuel consumption in 2020 was approximately 1.6 M liters, down 18% from 2019. Fleet energy consumption in 2020 was approximately 60,495 GJ, 17% lower than in 2019. Transit energy consumption decreased significantly for the 2020 reporting year, to 36,802 GJ (a 7% decrease compared to 2019).

Fleet vehicle emissions in 2020 totaled 4,200 tCO2e, an 18% decrease compared to 2019. Transit emissions totaled 2,113 tCO2e, 8% lower than in 2019. The decrease in fleet and transit vehicle emissions stem from the COVID-19 pandemic and the related reduction in transit service in 2020. However, it is worth noting that in 2020 BC transit began using compressed natural gas (CNG) as its primary fuel source which has a much lower emission factor of CNG. Consequently, BC transit GHG emissions have decreased from 2,307 to 2,113 tCO2e in 2020 compared to 2019 which represents an 8.4% decrease.

3.2.3 Buildings

Natural gas, propane, and electricity consumption contribute to Whistler's building GHG emissions. Although natural gas has historically been a less expensive energy to heat buildings with, its GHG intensity is significantly higher than electricity in BC.

There are several normalizers that influence building energy consumption and emissions. These include heating degree days (the number of degrees that a day's average temperature is below 18˚ Celsius[16]) and population equivalent (estimate of the total number of people in Whistler on an average annualized basis).

Residential Buildings

Total 2020 residential energy consumption was the second highest ever at 914,956 GJ (up 1 % compared to 2019 and 7% compared to 2007). 2020 was slightly colder (0.02% greater HDD) and had a lower population equivalent number due to COVID-19 travel restrictions (PE is -20%) compared to 2019.

Residential electricity consumption decreased in 2020 to 614,059 GJ (3% decrease compared to 2019). Consumption per account increased slightly to 51.7 GJ (4% increase vs 2019). Natural gas consumption in 2020 was 300,897 GJ, which is up 10% compared to 2019. Per account gas consumption is up 8% at 99.5 GJ. Figure 3.8 highlights Whistler's 2020 residential energy use.

[16] Weather Statistics Canada. (2020). *Heating Degree Days (18˚C) – Quarterly data for Whistler*. Retrieved from https://whistler.weatherstats.ca/charts/hdd-quarterly.html

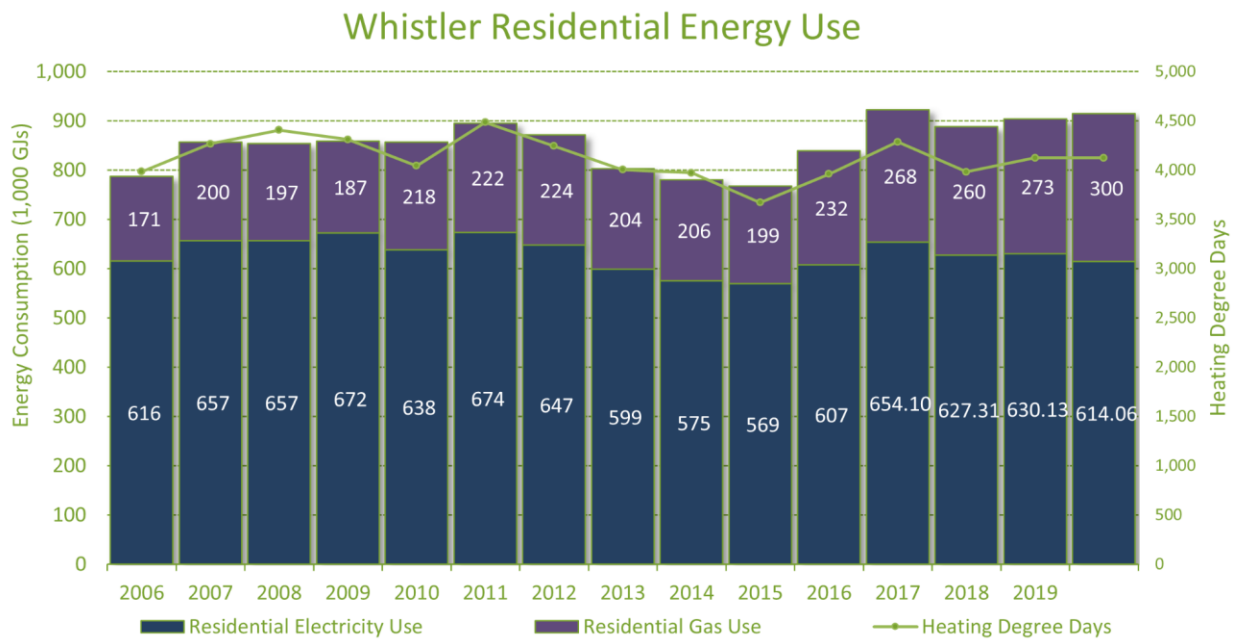


Figure 3.8 Estimated 2020 Residential Energy Use

The total estimated 2020 GHG emissions (electricity and gas) of Whistler's residential sector were 20,438 tCO_2e, which is a 9% increase compared to 2019. This increase is related to potentially greater usage of the existing residential housing inventory due to a COVID-19 related increase in home office and a resulting increase in home heating. In addition, the increase in residential GHG emissions resulted from a greater load share of natural gas (i.e. in 2003 natural gas represented approximately 23% of all residential energy use, in 2020 it had risen to 33%) and increased GHG intensity of electricity. Currently 73% of residential GHG emissions in Whistler originate from natural gas. BC Hydro's GHG intensity increased to 40.1 gCO_2e/kWh in 2020 and was updated in Whistler's inventory for the 2020 reporting year, resulting in increases in electricity emissions, where consumption did not significantly change relative to 2019. Note, that despite the increase in GHG intensity, electricity still has significantly lower emissions compared to natural gas.

Natural gas based GHG emissions across the residential sector were 15,015 tCO_2e, which is a 10% increase compared to 2019. Electricity-based emissions totaled 5,422 tCO_2e, which is a 7% increase compared to 2019. Natural gas emissions per residential account increased by 8% compared to 2019, and the number of residential accounts increased by 2%. Electricity emissions per residential account increased by 7% and the number of residential accounts decreased by 7%. Figure 3.9 shows Whistler's residential sector GHG emissions by source.

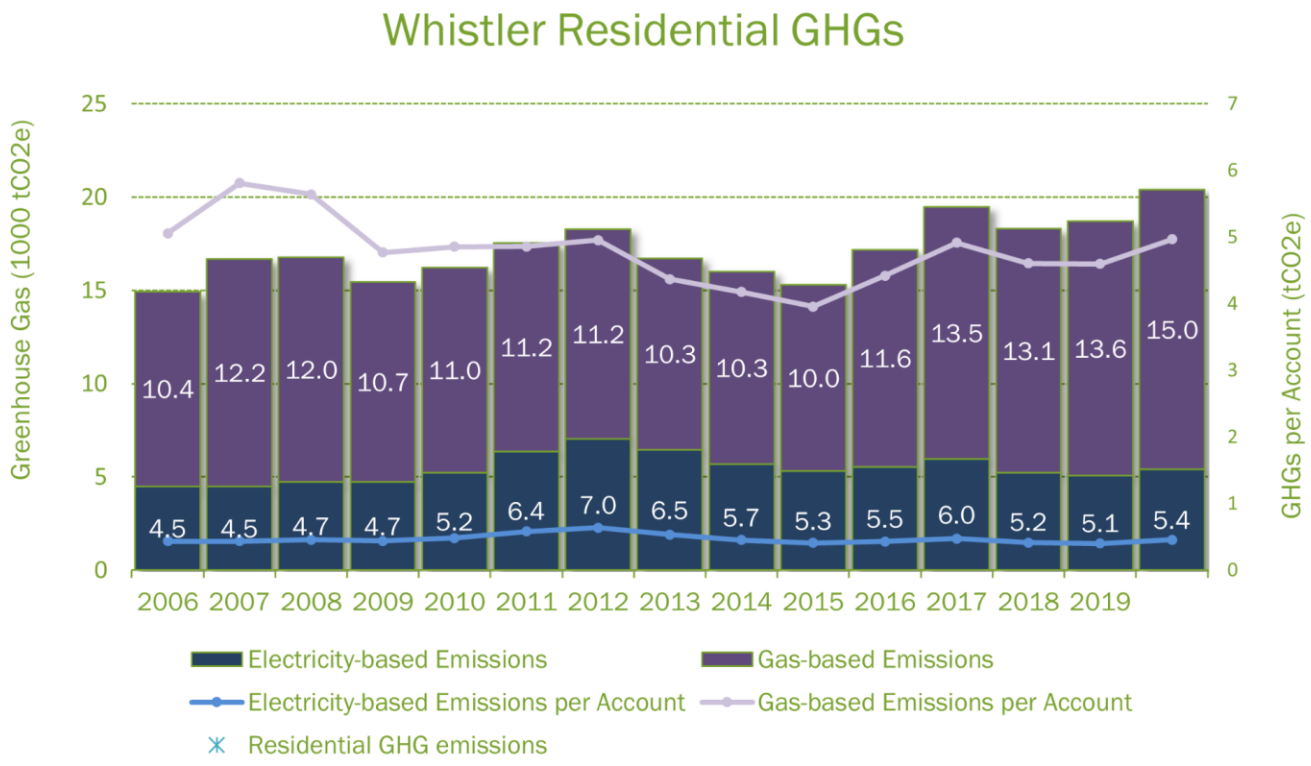


Figure 3.9 Estimated 2020 Residential GHG Emissions

Commercial Buildings

Total commercial energy consumption decreased slightly compared to 2019, down 7% (2% above 2007 levels). Commercial electricity consumption was 592,802 GJ, which was a 2% decrease compared to 2019. Electricity consumption per account decreased by 29% compared to 2019 to 2,065 GJ with the number of commercial increasing by 39%. Commercial natural gas consumption was 580,274 GJ, which was a 12% decrease compared to 2019. Natural gas consumption per account decreased by 13% to 1,469 GJ and the number of commercial accounts increased by 1%. Figure 3.9 depicts Whistler's commercial building energy use from 2007 to present.

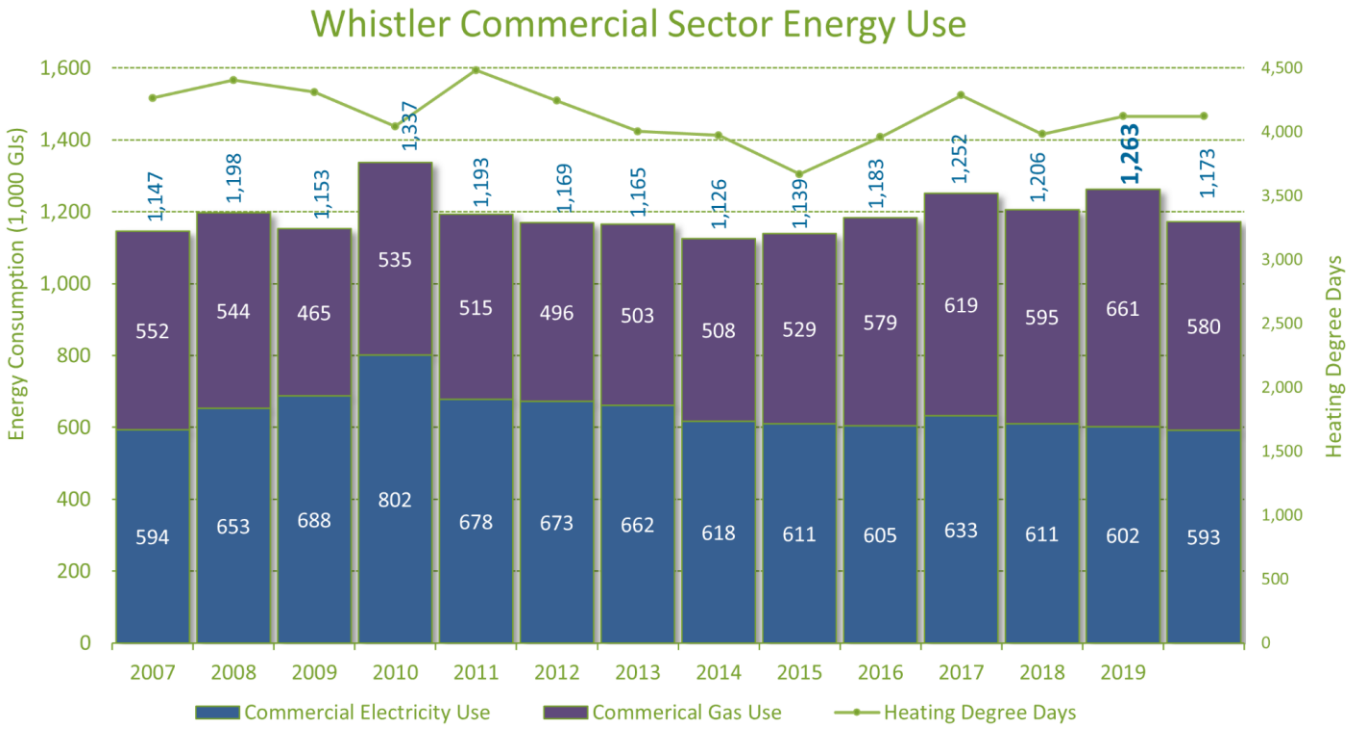


Figure 3.9 Estimated Commercial Sector Energy Use, 2007-2020

The 2020 electricity share of commercial energy consumption was 51%, up 6% from 2019.

Total commercial building emissions (electricity and natural gas) were 34,751 tCO_2e, which was a 10% decrease compared to 2019 and a 15% decrease per account. Currently 85% of commercial GHG emissions originate from natural gas.

In 2020 commercial sector natural gas GHG emissions totaled 28,940 tCO_2e, which represents a 12% decrease in GHG emissions compared to 2019. Emissions per account decreased by 13% with the number of commercial natural gas accounts increasing by 1%. Commercial electricity-based emissions totaled 5,235 tCO_2e, which represents an increase of 8% compared to 2019. Emissions per account decreased by 23%, and the number of commercial electricity accounts increased by 39% compared to 2019. Figure 3.10 illustrates the breakdown of commercial building GHG emissions in Whistler.

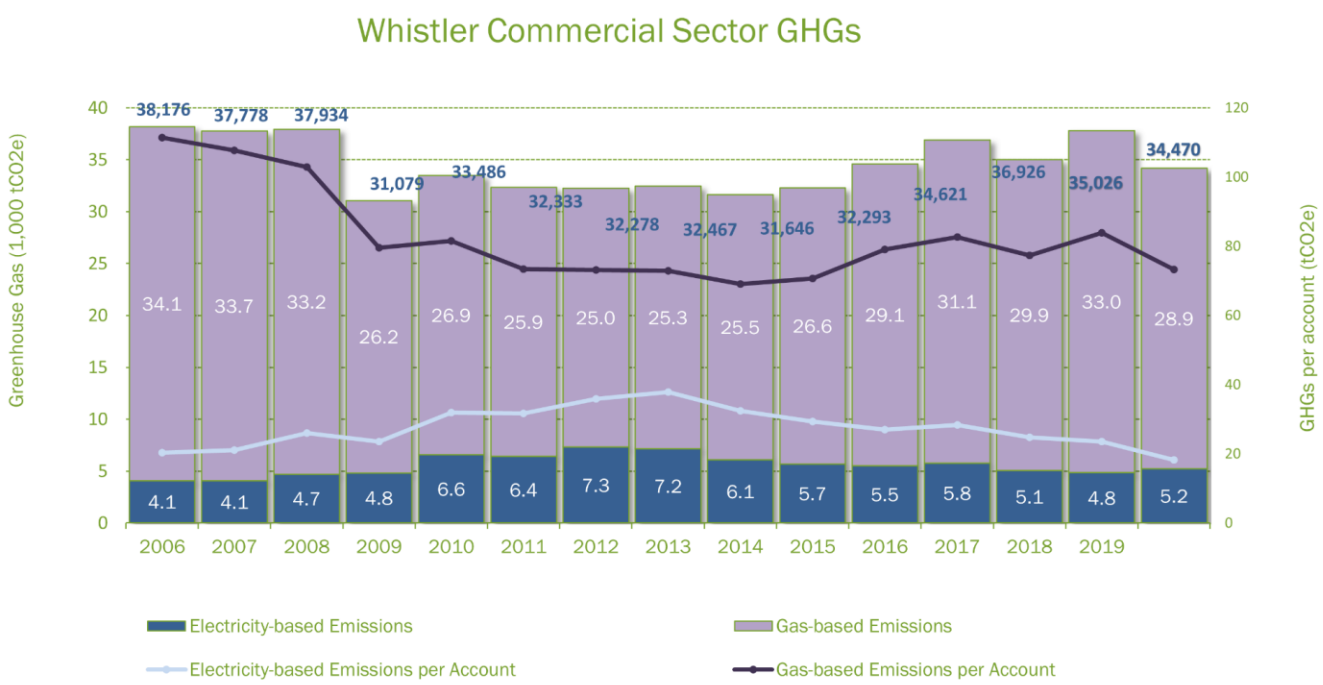


Figure 3.10 Whistler commercial sector GHG emissions, 2006-present

3.2.4 Landfill

Although landfill related emissions only account for 3% of Whistler's community emissions, it is worth drawing attention to the source of the emissions. Landfill transport emissions in 2020 totaled 808 tCO2e, and stationary landfill emissions totaled 2127 tCO2e. Until November 2020, solid waste was exported from Whistler to the Rabanco Landfill in Washington. GFL was contracted for this transportation and primarily used rail transport. GFL transport emissions for 2020 totaled 734 tCO2e. In November 2020, Whistler began shipping waste to the Cache Creek landfill site and ended the GFL contract. Belkorp Transport Services and Supplies has been contracted for the Cache Creek shipments, and uses trucks. Belkorp transport emissions for 2020 totaled 74 tCO2e. Figure 3.11 shows the breakdown of transport and stationary landfill emissions for 2020.

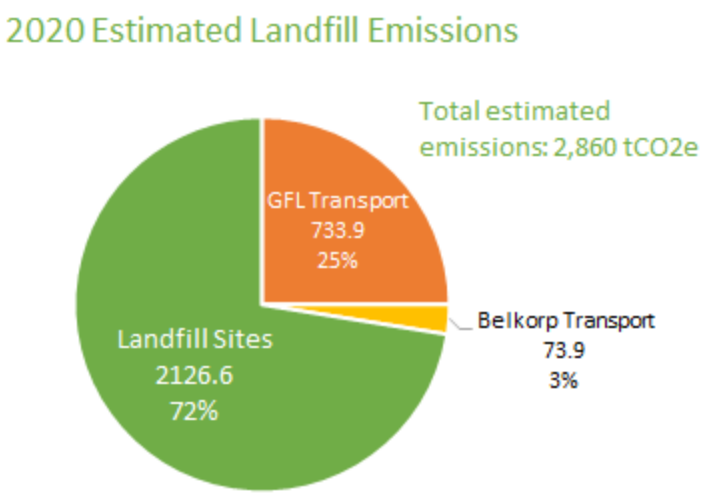


Figure 3.11 2020 estimated landfill emissions

3.3 Key Community GHG Performance and Energy Consumption Insights

Overall GHG and Energy Performance

- 2020 community GHG emissions were 18 % below 2007 levels but 22% above our current community target levels
- Total community GHG emissions decreased by 21% compared to 2019 to a total of 108,643 tCO2e
- GHG intensity (tCO2e/PE) decreased by 2% compared to 2019
- Total community energy consumption decreased by 13% compared to 2019 to a total of 2.98 M GJ.
- Despite the overall consumption decrease, energy intensity (GJ/PE) increased by 8% compared to 2019. This is due to a 20% decrease in population equivalent compared to 2019.
- Community energy consumption in 2020 was 4.5% lower than 2007, 4% higher than 2000, and 89% higher than in 1990

Buildings

- Energy consumption in residential buildings increased by 7% compared to 2019 due to a 10% increase in natural gas consumption and a 3% decrease in electricity consumption
- Commercial building energy consumption decreased by 7% compared to 2019 due to an 12% decrease in natural gas consumption and a 2% decrease in electricity consumption
- Electricity represents 57% of energy consumed in Whistler but only 11% of the emissions
- Residential building emissions increased by 9% compared to 2019

- Natural gas accounts for 73% of all residential building emissions and increased by 10% compared to 2019 due to increased consumption
- Residential electricity emissions increased by 7% compared to 2019 despite a decrease in consumption, due to an increased emissions factor
- Commercial building emissions decreased by 10% compared to 2019
- Natural gas accounts for 85% of all commercial building emissions and decreased by 12% compared to 2019 due to decreased consumption.
- Commercial electricity emissions increased by 8%, despite a slight decrease in consumption due to an increased emissions factor as provided by the Province

Transportation

- Transportation (fleet, transit, and passenger vehicles) represents 27% of total energy consumption for 2020
- Passenger vehicle energy consumption decreased by 33% from 2019
- Total vehicle traffic in Whistler consumed 20 M L, whilst Whistler residents consumed 8.68 M L of fuel (43% of all vehicle fuel consumption).
- Fleet and transit vehicles represent 6% of total community GHG emissions
- Passenger vehicle emissions account for 40% of total Whistler community GHG emissions
- Passenger vehicle emissions decreased by 38% from 2019 to a total of 43,858 tCO2e
- Whistler-registered vehicles emissions totaled 19,623 tCO2e, approximately 45% of all passenger vehicle emissions
- The decrease in transportation-related GHG emissions is primarily due to the COVID-19 pandemic and related travel restrictions in British Columbia

4.0 CORPORATE PERFORMANCE

This section highlights key trends in the RMOW's corporate GHG emissions, energy consumption and energy expenditure for the 2020 reporting year.

4.1 Divisional Trends Overview

Total corporate GHG emissions in 2020 were 2,641 tCO2e. Direct corporate GHG emissions were 2,160 tCO2e, which represents a 34% increase from 2019. Contracted emissions were 481 tCO2e, which is a 36% decrease from 2019 (Figure 4.1). The increase in direct emissions can be attributed to an increase in natural gas use at the wastewater treatment plant and other corporate buildings as well as added fleet fuel use, mainly diesel. The decrease in contracted corporate emissions may be related to changes resulting from the Covid 19 pandemic.

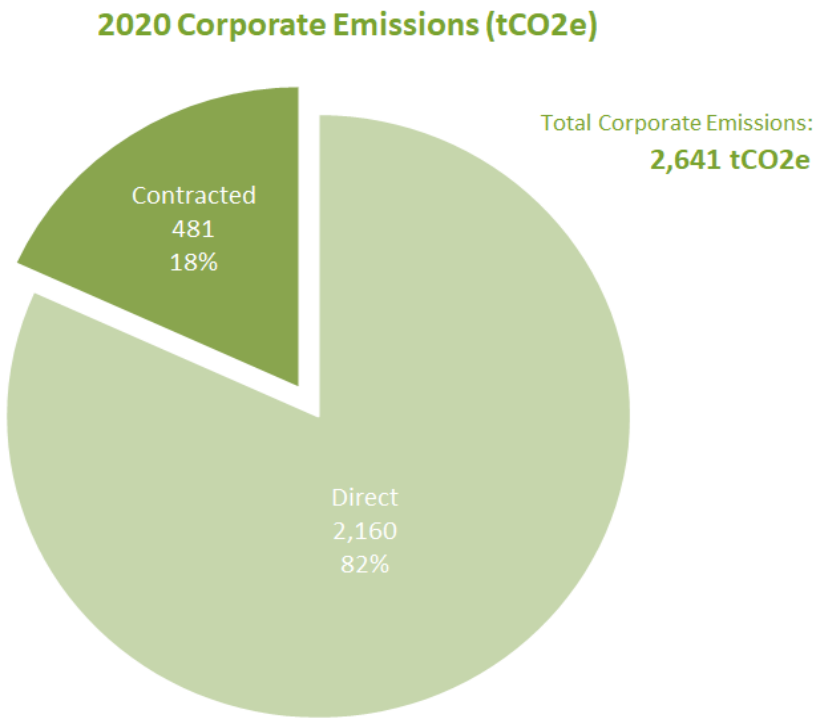


Figure 4.1.
Breakdown of corporate GHG emissions for the 2020 reporting year

On a division-by-division basis, the relative emissions footprint of direct corporate operations is primarily associated with the following three divisions: (54%) Infrastructure Services (which includes roads crews, solid waste systems, the water utility as well as the sewer utility); (27%) Resort Experience (which includes village maintenance operations, horticulture, turf, and irrigation crews, parks and trails, and facility construction and maintenance operations); and (19%) Corporate and Community Services (including bylaw, fire, Meadow Park Sports Centre, and other recreation programs). Figure 4.2 highlights the relative contributions from each division and Figure 4.3 highlights the trends in RMOW Corporate GHG emissions since 2007.

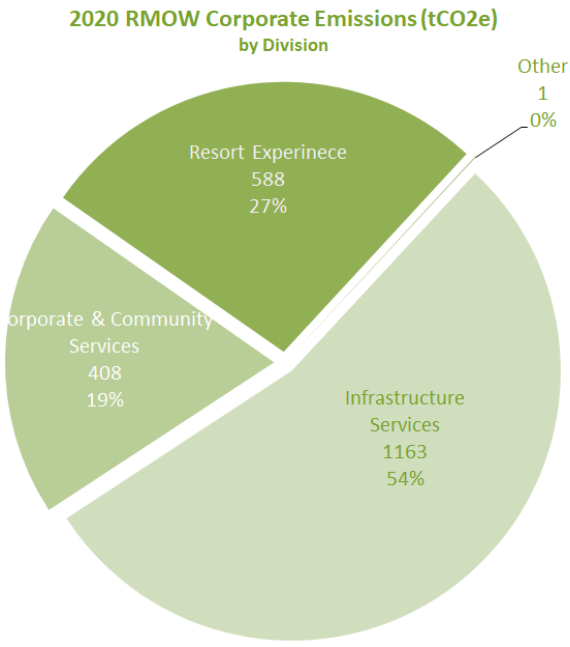


Figure 4.2 RMOW corporate emissions by division for the 2020 reporting year

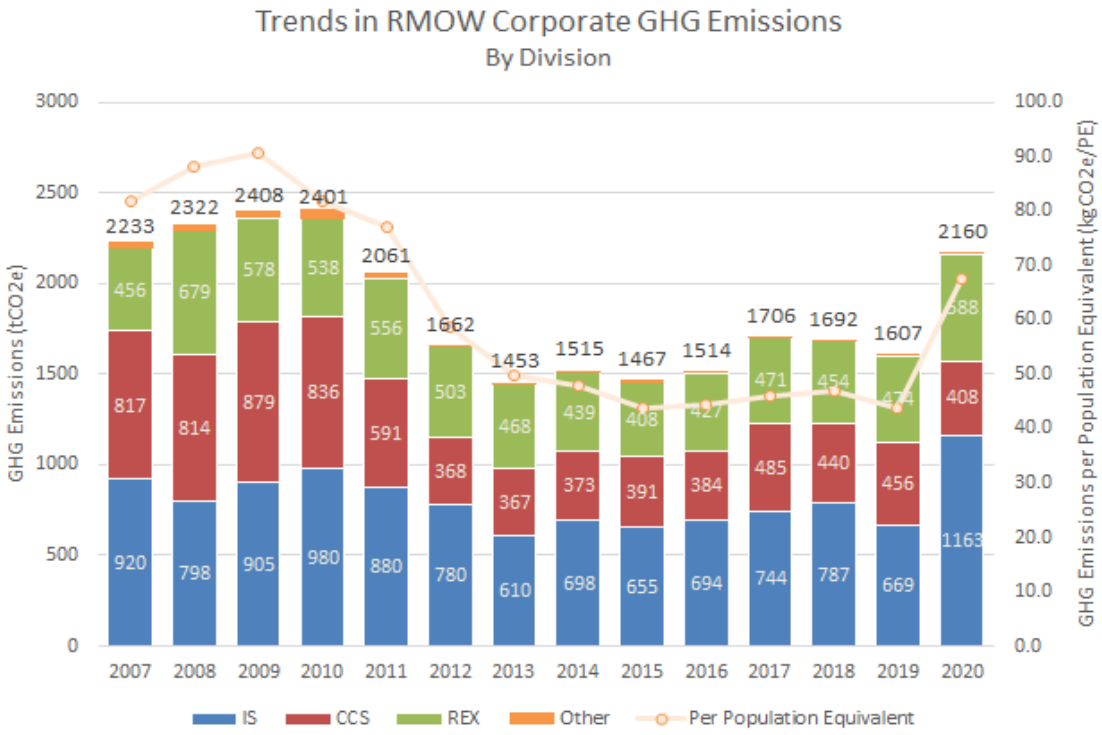


Figure 4.3. Trends in RMOW corporate GHG emissions from directly delivered services from 2007 to present

Infrastructure Services

Infrastructure Services' GHG emissions increased from 669 tCO2e to a total of 1163 tCO2e (74% increase) from 2019. This increase in GHG emissions can be mainly attributed to an increase in natural gas consumption at the wastewater treatment plant (WWTP) from 3215 to 8281 GJ (158%) which results in a 95% increase in GHG emission from 263 to 513 tCO2e at the WWTP alone.

This increase in natural gas consumption at the WWTP stems from the fact that only one primary tank was used on a regular basis in the Primary Building through most of 2020 instead of the two tanks that are on-line during normal operation. Operating a single primary tank was due to the pandemic low population figures. Effluent flowing through the primary tanks provide a significant natural heat source to the building. Reducing to one tank leads to a reduction in naturally derived heat for the building that is then compensated for by the natural gas supplied boiler heat source. In July 2020 the Capital Projects team replaced an older boiler in the Primary Building with a new higher efficiency unit.

The Primary Building of the WWTP has been consistently identified as one of the largest energy consumers in the RMOW inventory. This has prompted a WWTP Primary Building Energy Efficiency Study which is in the final phase of procurement. The scope of work for the consultant includes completing an on-site investigation and analysis of the building operations, with the primary focus on the processes, mechanical, electrical, plumbing, lighting systems and control. The final report will focus on how the WWTP primary building can work to reduce greenhouse gas emissions, improve energy efficiency, improve occupant comfort and reduce energy costs.

The transportation department's mobile fuel use related GHG emissions increased by 11% from 373 tCO2e to 415 tCO2e compared to 2019. This increase in GHG emissions is mainly due to an 18% increase in GHG emissions from diesel consumption. Increased single occupancy vehicle use was most likely a result from COVID-19 restrictions on car pooling or car sharing.

Corporate and Community Services

Corporate and Community Service's GHG emissions decreased by 11% from 2019 to a total of 408 tCO2e. The main reason for the lower GHG emissions compared to 2019 is a 15% reduction in natural gas consumption at the MPSC. This decrease can be attributed to the Covid-19 related closures of the facility.

Resort Experience

Resort Experience saw an emissions increase of 24% from 2019 to a total of 588 tCO_2e. Emissions from the Resort Experience division are mainly associated with the Parks/Village Operations functional area and within that, the Facilities, Construction and Maintenance (FC & M) department makes up over half of the emissions. Therefore, this increase can be attributed to a 15% increase in fleet related emissions (31 tCO_2e) and in stationary natural gas use for building heating systems at Municipal Hall (34%), the Maury Young Arts center (21%), the Whistler Library (36%), the Public Safety building (24%) and the Spring Creek Fire Hall (9%). The increase in natural gas use in the buildings is most likely a result of lower occupancy which leads to higher heating energy demand.

4.2 Energy Type Trends

RMOW corporate emissions related to directly delivered and contracted services come from two sources primarily: 47% from mobile sources (gasoline and diesel), followed by 34% from natural gas combustion. Figure 4.4 depicts RMOW corporate GHG emissions by fuel type.

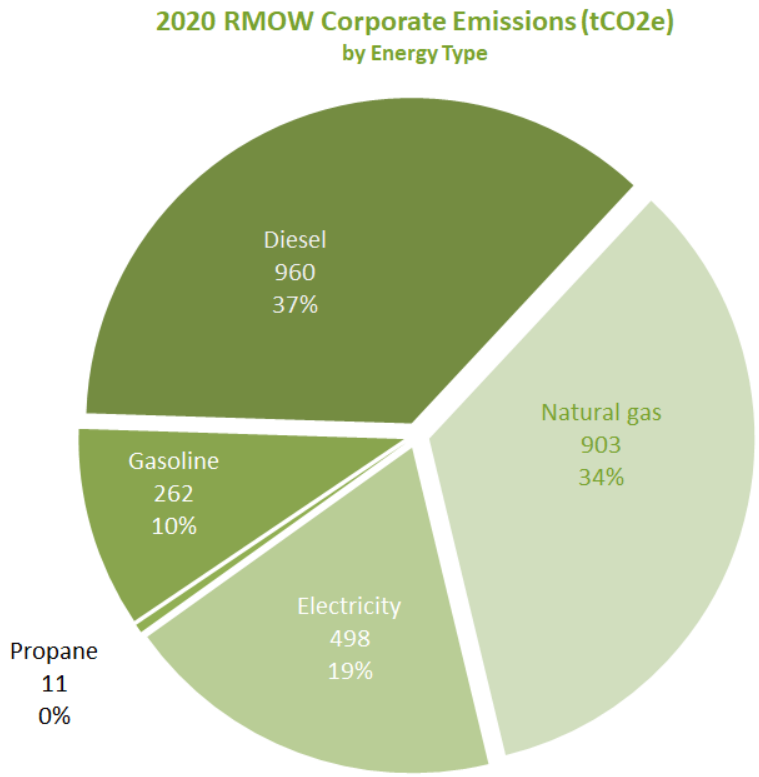


Figure 4.4 RMOW Corporate emissions by energy type for the 2020 reporting year

Total direct corporate energy consumption in 2020 increased by 3% since 2019 to 80,612 GJ. This increase is mainly attributed to a 45% increase of mobile fuel use and a 19% increase of natural gas consumption. Electricity consumption decreased by 12% compared to 2019.

Figure 4.5 shows the RMOW energy source trends from 2007 to present. Despite a 12% decrease from 2019, electricity makes up the greatest portion of total energy consumed across municipal operations in 2020 at 55% of total consumption, followed by natural gas (23%) and mobile fuels (22%). 2020 corporate energy consumption per population equivalent increased by 28% but remained below the recent high in 2011.

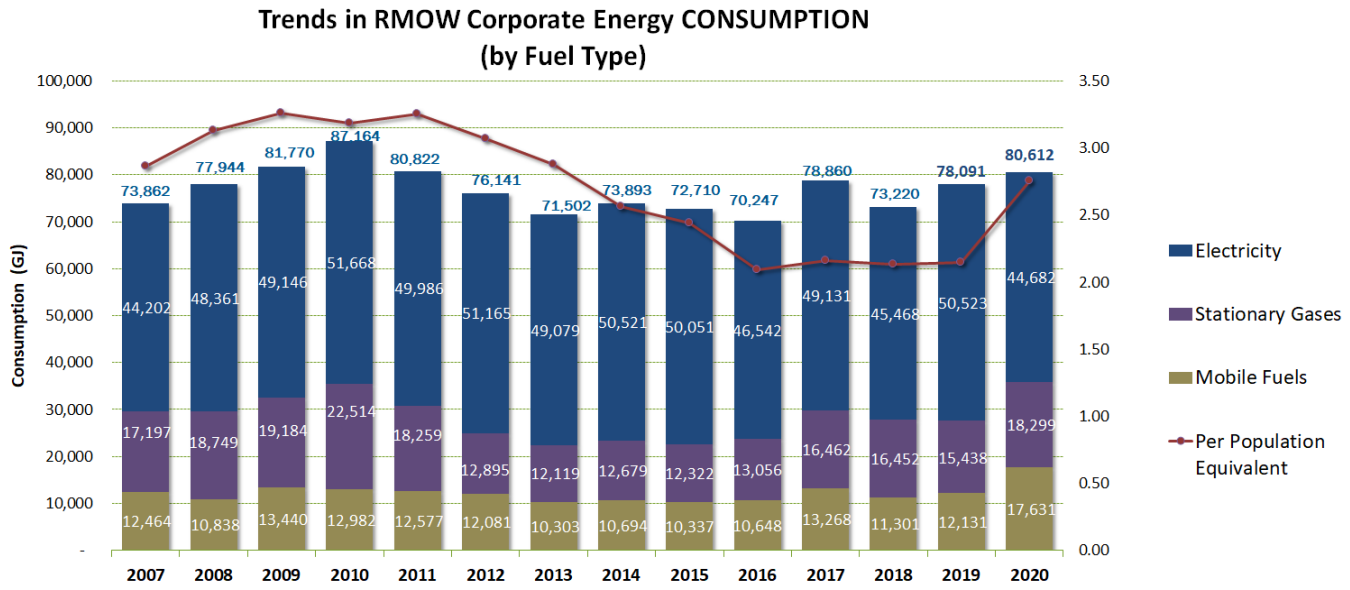


Figure 4.5 Energy type trends in corporate energy consumption from 2007 to present

4.2.1 Buildings

The total building-related GHG emissions in 2020 were 1,412 tCO2e, a 35% increase relative to 2019. The total building related energy consumption in 2020 was 62,795 GJ, a 2% increase relative to 2019 (Figure 4.6). The increase in building related emissions stems mainly from a 42% increase in natural gas. Electricity consumption decreased by 9%. However, due to the updated electricity emission factors as outlined above, this decrease does not result in a significant decrease in GHG emissions.

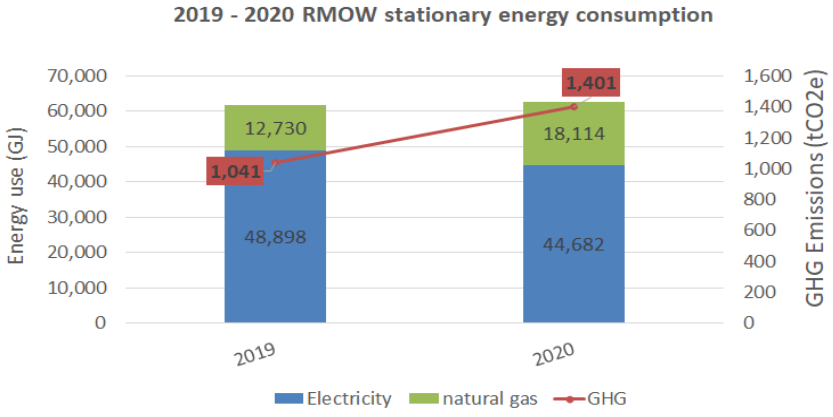


Figure 4.6 Stationary energy consumption and GHG emissions at RMOW corporate buildings for the 2019 and 2020 reporting year

Figure 4.7 provides detail on the electricity and natural gas use related GHG emissions in the largest RMOW corporate buildings for the 2020 reporting year. Similar to 2019, the wastewater treatment plant (WWTP) had the highest energy use and related GHG emissions with 17,235 GJ and 513 tCO_2e, respectively, followed by the Meadow Park Sports Centre (MPSC) with 10,658 GJ and 307 tCO_2e, respectively. Spring Creek Fire hall showed with 60 $kgCO_2/m^2$ the highest heating related GHG emission per floor area, followed by MPSC with 51 $kgCO_2e/m^2$. The GHG emissions per floor area at the WWTP value of 147 $kgCO_2e/m^2$ is not representative of building efficiency since natural gas is used to run the process.

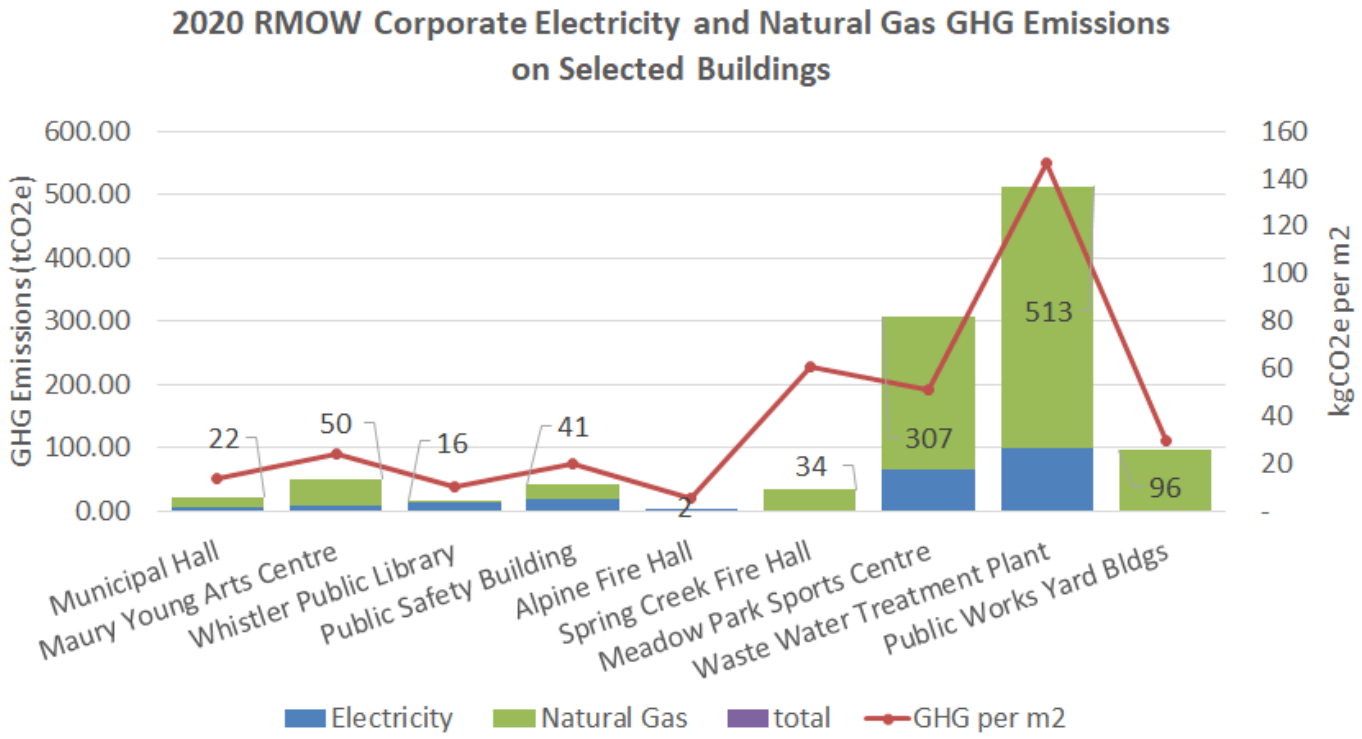


Figure 4.7 RMOW corporate buildings GHG emissions by energy type for the 2020 reporting year

The most significant changes RMOW buildings' in energy use and GHG emissions were observed at the WWTP and the MPSC.

The WWTP saw a 95% increase in GHG emissions from 263 to 513 tCO_2e due to an increase in natural gas consumption from 3215 to 8281 GJ. Electricity consumptions at the WWTP decreased by 27% compared to 2019. Due to an increase in the electricity emission factor the resulted in a decrease of GHG emissions of 2.5% only.

The MPSC saw a 12% decrease in GHG emissions compared to 2019 from 348 tCO2e to 307 tCO2e mainly due to a 15% decrease in natural gas consumption from 5,676 GJ to 4,853 GJ. This decrease can be attributed to the Covid-19 related closures of the facility.

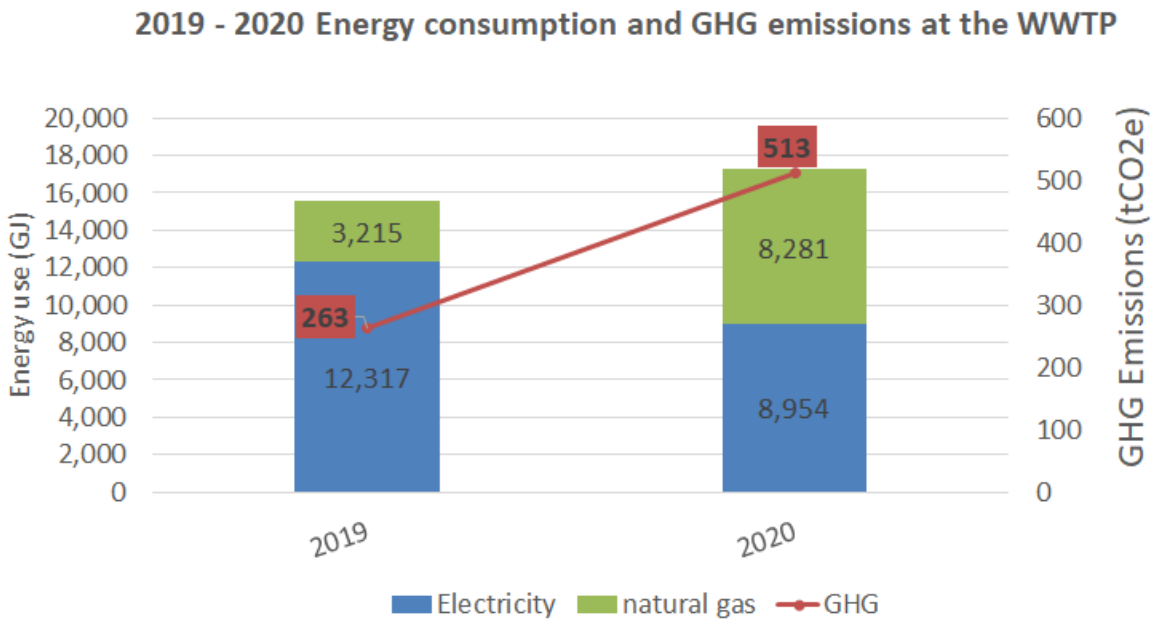


Figure 4.8 Energy consumption and GHG emissions at the wastewater treatment plant for the 2019 and 2020 reporting year

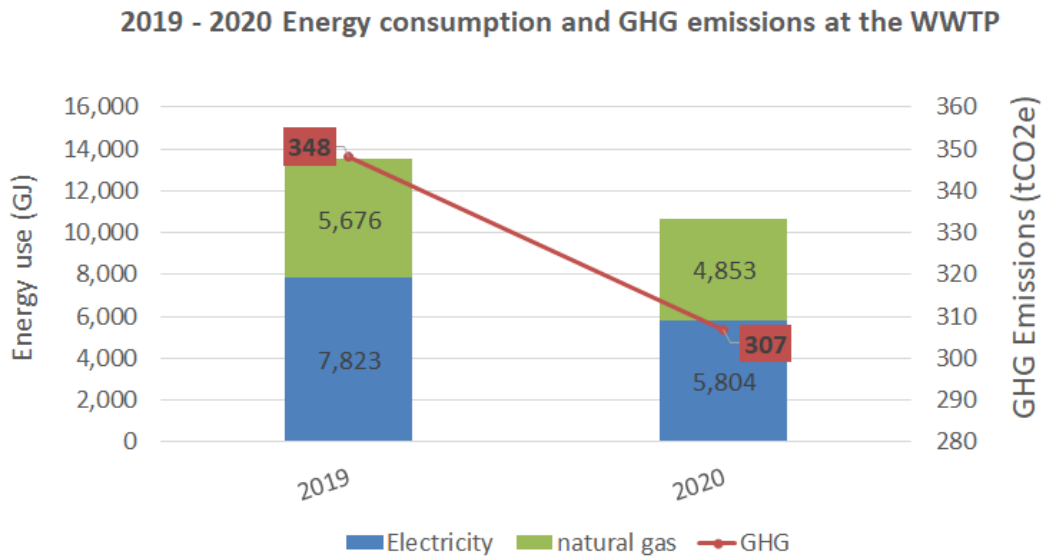


Figure 4.9 Energy consumption and GHG emissions at the Meadow Park Sports Centre for the 2019 and 2020 reporting year

4.2.2 Fleet

The total RMOW corporate fleet emissions for the 2020 reporting year are 747 tCO2e, a 9% increase compared to 2019. The divisional fleet fuel use in the 2020 reporting year is as follows: 55% from the Infrastructure services fleet, followed by 32% the Resort Experience fleet, and 13% from the Corporate and Community Services Fleet (Figure 4.10).

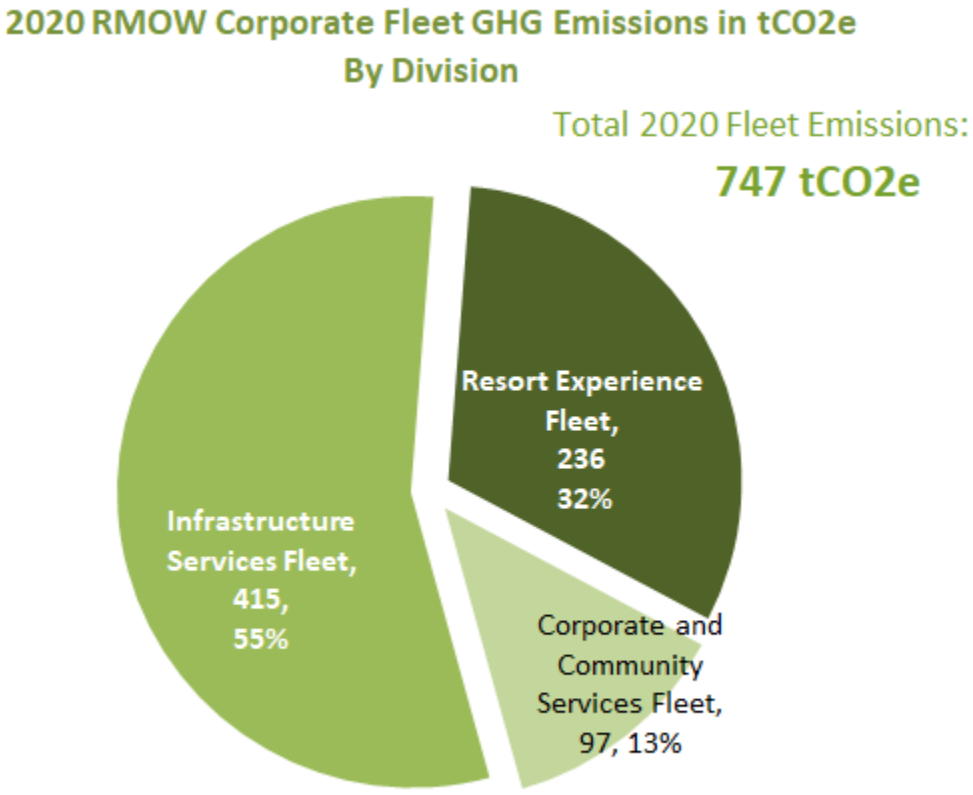


Figure 4.10 Fleet energy use in GJ by division and fuel type for the 2020 reporting year

Figure 4.11 and 4.12 provide detail on the mobile fuel energy use and GHG emissions from the RMOW corporate fleet for the 2020 reporting year. Heavy duty diesel represents with 36% the largest source of GHG emissions, followed by Off-road diesel (28%) and heavy-duty gasoline (11%).

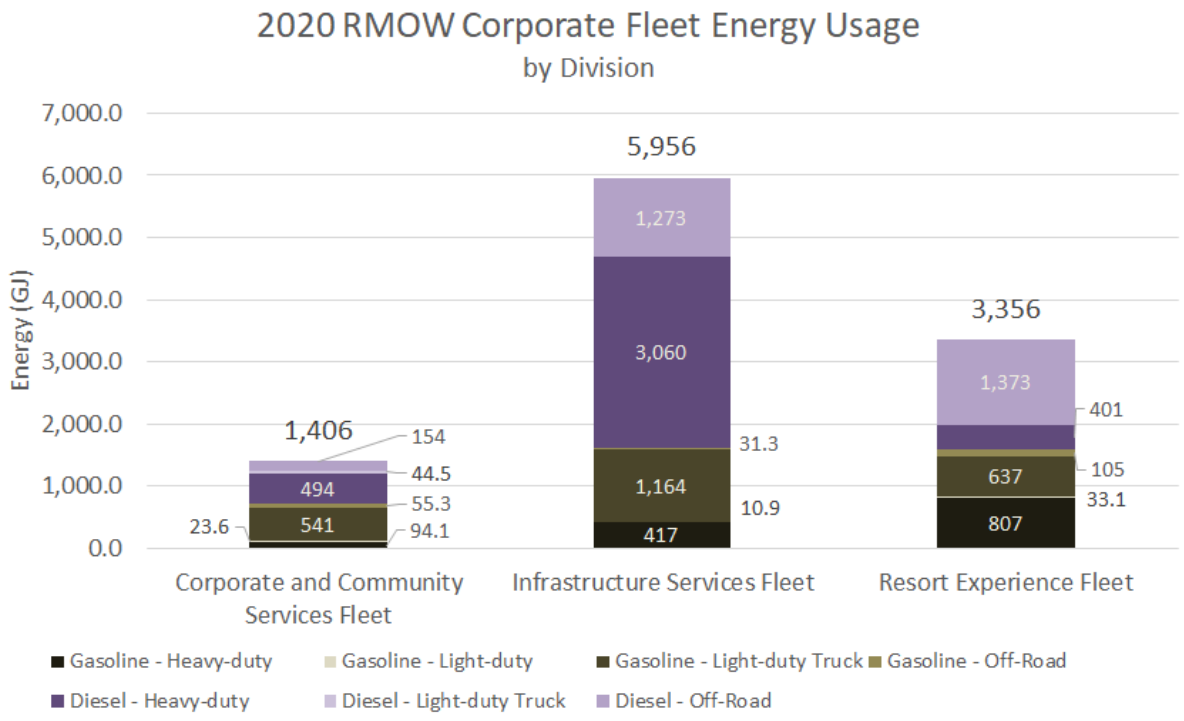


Figure 4.11 Fleet energy use in GJ by division and fuel type for the 2020 reporting year

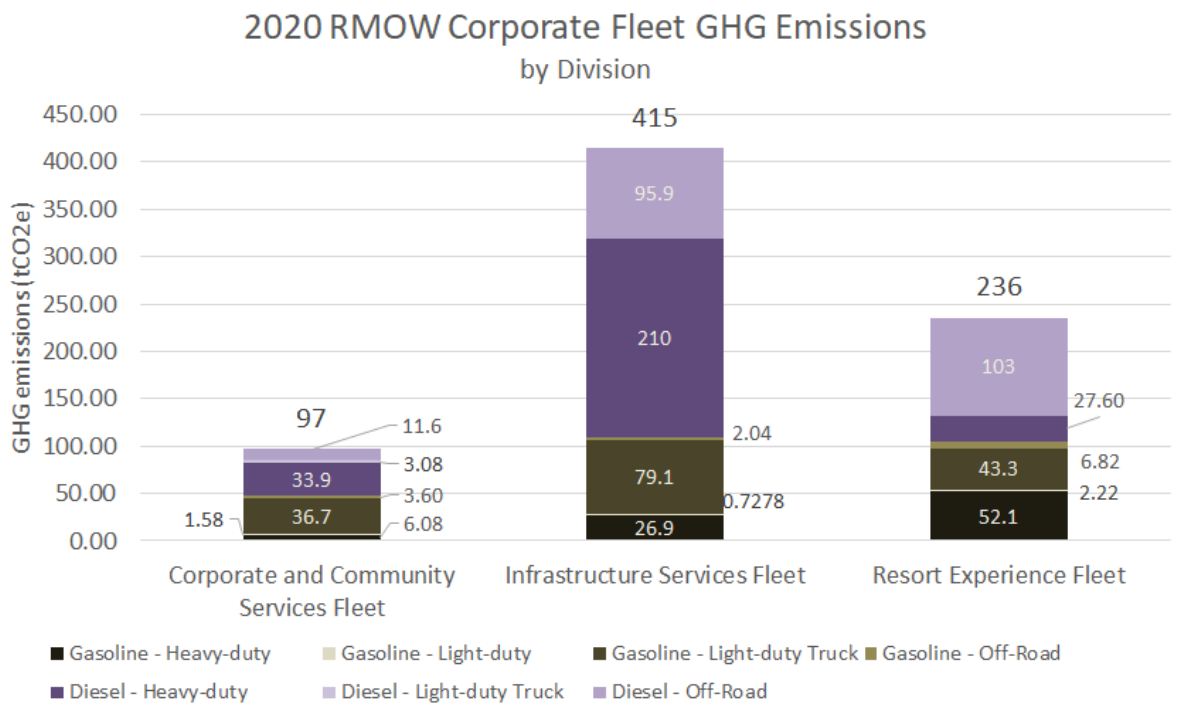


Figure 4.12 GHG emissions by division and fuel type for the 2020 reporting year

4.3 Key Corporate Energy and GHG Performance Insights

Overall

- RMOW direct corporate emissions increased by 34% compared to 2019 to a total of 2,160 tCO2e. This increase in emissions can be attributed to material emission increases at the WWTP but it should be noted that there was a decrease in emissions at MPSC.
- RMOW contracted emissions decreased by 36% relative to 2019 to a total of 481 tCO2e.
- Corporate energy consumption increased by 3% from 2019 to 80,612 GJ. This increase is mainly attributed to a 45% increase of mobile fuel use and a 19% increase of natural gas consumption. Electricity consumption decreased by 12% compared to 2019.

Divisional

- Infrastructure Services' emissions decreased by 74% from 2019 to a total of 1163 tCO2e, mainly because of increased natural gas consumption (158%) at the WWTP. The transportation department's mobile fuel use emissions also increased (11%).
- Corporate and Community Services emissions decreased by 11% from 2019 to a total of 408 tCO2e due to a decrease in natural gas usage at MPSC.
- Resort Experience saw an emissions increase of 24% relative to 2019 levels to a total of 588 tCO2e. The majority of this increase was due to an increase in stationary natural gas use in Facilities, Construction & Maintenance (building heating systems) and a 15% increase in fleet related emissions.

Buildings

- The total building-related GHG emissions in 2020 were 1,412 tCO2e, a 35% increase relative to 2019.
- The total building related energy consumption in 2020 was 62,795 GJ, a 2% increase relative to 2019
- The WWTP saw a 95% increase in GHG emissions from 263 to 513 tCO2e due to an increase in natural gas consumption
- The MPSC saw a 12% decrease in GHG emissions compared to 2019 from 348 tCO2e to 307 tCO2e mainly due to a 15% decrease in natural gas consumption

Fleet

- The total RMOW corporate fleet emissions for the 2020 reporting year are 747 tCO2e, a 9% increase compared to 2019.
- Heavy duty diesel represents with 36% the largest source of GHG emissions, followed by Off-road diesel (28%) and heavy-duty gasoline (11%).

4.4 Contracted Corporate Greenhouse Gas Emissions

The scope boundaries for RMOW's corporate GHG inventory include emissions related to the operation and maintenance of traditional services (as defined by the *Becoming Carbon Neutral Guidebook* in the BC Climate Action Toolkit)[17]. Some of these traditional services are carried out by contractors hired by the RMOW. Therefore, GHG emissions originating from these contracted services are included in the corporate inventory.

Contracted GHG emissions for 2020 were 481 tCO_2e. This is 18% of total corporate emissions (2,641 tCO2e). Solid waste and compost pick-up and disposal as well as the operation of the Whistler Transfer Station make up 39% of the contracted emissions. The remainder are largely associated with maintenance and upgrades to municipal infrastructure including sewer, valley trail, wastewater treatment plant, etc. Table 4.4 highlights the three largest contributors to the RMOW's contracted emissions. Whistler also incurs additional expenses and GHG emissions to ship solid waste to the Rabanco Landfill in Washington. However, the associated shipping emissions are included in the community inventory only.

Table 4.4 Three largest contracted GHG emitters for the 2019 reporting year

Contractor	Emissions	Percentage of total contracted emissions
GFL Environmental Inc.	194 tCO_2e	39%
Suncor Energy Products Partnership	33 tCO_2e	7%
Alpine Paving (1978) Ltd.	25 tCO^2e	5%

[17] Province of British Columbia. (2014). *Becoming Carbon Neutral: A Guidebook for Local Governments in British Columbia*. Retrieved from http://www.toolkit.bc.ca/sites/default/files/BecomingCarbonNeutralGuideV3.pdf

5.0 CECAP IMPLEMENTATION UPDATES

The following section will provide information on key initiatives advanced over the first and second quarter of 2021 (January through June), including the status of CECAP's 94 recommendations for mitigating climate change and for 40 recommendations to adapt to climate change. Although significant actions have been taken, the need to accelerate Whistler's climate action is clear, and the Climate Action Big Moves Strategy prioritizes what needs to be done. The Strategy focuses on transportation, buildings, and waste, and articulates the key strategies and actions Whistler will need to further reduce greenhouse gas emissions to meet its targets. Background on the RMOW CECAP and Climate Action Big Moves Strategy can be found on the Whistler website.[18][19]

5.1 Reduction/Mitigation Initiatives

The below table summarizes key changes in the CECAP implementation for the first and second quarter of 2021. Consistent with the fact that the majority of Whistler's GHG emissions come from the passenger vehicle sector, significant internal effort has been applied to transportation sector reductions. Highlights of the 94 CECAP recommended 'reduction' initiatives are included in the tables below. By the end of the second quarter of 2021, 84 of these initiatives were in progress/ongoing and 6 were complete. In comparison 72 were in progress/ongoing and 6 were complete by the second quarter of 2020.

Note that the numbering references below relate directly to the 2016 CECAP structure.

6.1 Mobile Energy Use – Transportation-based GHG Emissions

6.1.1 Design Land Use for Location Efficient Living, Working and Playing

		Recommended Action	Updates
short	6.1.1.1	Continued commitment to ensuring that Whistler is made up of increasingly complete and compact neighborhoods	• Commitment to complete and compact neighborhoods is still in place. • Significant progress on WHA housing in Cheakamus Crossing, delivering compact community development in energy efficient housing, linked to transit. • Cheakamus Crossing Phase 2 is now in progress, with two employee-restricted apartment buildings now under construction (100 units). Connected to transit and the Valley Trail. This increase in population is approaching critical mass to deliver other services in this neighbourhood, e.g. a grocery store, which would likely result in lower passenger vehicle trips. • 1330 Cloudburst Drive is now resident-occupied: 45 units BC Step Code 3; connected to transit.

[18] Resort Municipality of Whistler. (2016). *Community Energy and Climate Action Plan.* Retrieved from https://www.whistler.ca/sites/default/files/2020/Jun/related/26399/cecap_draft_7_0_final.pdf

[19] Resort Municipality of Whistler. (2020). *Climate Action Big Moves: Strategy Development.* Retrieved from https://www.whistler.ca/municipal-gov/strategies-and-plans/climate-action-big-moves-strategy-development#:~:text=The%20Climate%20Action%20Big%20Moves,emissions%20to%20meet%20its%20targets.

			• Planning process (community engagement, rezoning, etc) now underway for 4500 Northlands Blvd (significant redevelopment within Whistler village town centre area).
short	6.1.1.2	Investigate raising the target for the number of employees, especially full-time employees, living locally (i.e. > than the current 75%)	• No specific initiative led by RMOW staff at this time
short	6.1.1.3	Adhere to the Whistler Urban Development Containment Area (WUDCA) as a means of reducing automobile trip distances.	• OCP was adopted on June 23rd, 2020
short	6.1.1.4	Ensure that whenever possible, new development or significant redevelopment is concentrated in existing neighborhoods or settled areas that are well-served by transit, pedestrian and cycling routes, amenities, and services; and are characterized by increased residential density.	• Cheakamus Crossing Phase 2 is now in progress, with two employee-restricted apartment buildings now under construction (100 units). Connected to transit and Valley Trail. • 1330 Cloudburst Drive is now resident-occupied: 45 units BC Step Code 3; connected to transit. • Planning process (community engagement, rezoning, etc) now underway for 4500 Northlands Blvd (significant redevelopment within Whistler village town centre area, close to transit, Valley Trail and amenities).
short	6.1.1.5	Explore opportunities to expand live-work use designations within existing zones where this inclusion would not have adverse impacts on the neighborhoods' character.	• OCP was adopted on June 23rd, 2020
short	6.1.1.6	Proposals for significant new development or redevelopment should be required to quantify future GHG emissions and energy consumption impacts (including transportation-based) and incorporate measures to minimize and/or mitigate projected increases.	• The Big Moves Climate Strategy was approved by Council in December 2020 to prioritize and accelerate key actions. The Big Moves Climate Strategy focuses on reducing the carbon emissions from new buildings (Big Move 4). • Phase 1 of the GHG impact tool development is underway (focus on corporate emissions). RFP was published in March 2021 and work is in progress. Phase 2 (community emissions) is scheduled for 2022.

6.1.2 Advance Local and Regional Mass Transportation Service

Recommended Action	Updates

short	6.1.2.1	Work with regional passenger carriers and provincial regulatory bodies to encourage greater frequency and more affordable choices for regional bus travel	• The Big Moves Climate Strategy was approved by Council in December 2020 to prioritize and accelerate key actions, including regional transit.
short	6.1.2.2	Support the expansion, promotion, and increased convenience of mass transportation services between Vancouver and Whistler	• Staff are doing some further cost analysis, but no additional Provincial funding is available in the foreseeable future. • RMOW staff participated in the February 13, 2020 meeting organized by the Chamber of Commerce with Private Carriers. RMOW was invited to attend a UBCM sponsored forum on Regional Transit in Q2.
short t	6.1.2.3	Develop a public realm with improved multi-modal integration and comfortable, convenient transition areas – Bus Loop/taxi loop	• Gateway Loop is in operation.
short	6.1.2.4	Advance a community-based social marketing research project to determine the key perceived barriers and benefits of increased use of mass transit transportation. Based on the associated results, develop, and execute targeted community-based social marketing campaign and other relevant, practical solutions to increase use of mass transit	• Received grant from GoByBIke BC to deliver GoByBike Week 2021. Hired AWARE to deliver Spring & Fall GoByBike Week events. • Delivered GoByBike Week May 30-June 5, 2021. • Met with POW Whistler Chapter to coordinate on campaigns in 2021. • Continuing to offer free cloth masks to transit passengers to support public health re: COVID 19. • Planning spring/summer social media campaign with a COVID19 lens informing of tips to reduce GHG emissions, including using transit and biking.
short	6.1.2.5	Advance all potential opportunities to avoid increases in local transit fares.	• Monthly pass rates remain at the reduced price. • Whistler/Blackcomb continued to sponsor free evenings and early morning service on the Route 7- Staff Housing from Nov 21, 2020 through April 5, 2021. • RMOW staff is working with Whistler Chamber of Commerce staff to see how the Spirit Transit Pass program can be expanded to a one month pass. • Received announcement regarding Provincial Kids Ride Free program to start September 2021. • RMOW received the $3,647,254 one-time contribution of federal Safe Restart funding to address fare losses and other COVID-related expenses to be used between 2020 and 2024. $1million has been allocated to 2021
med	6.1.2.6	Continue to pass the infrastructure, maintenance, congestion, environmental and land costs of road and parking infrastructure onto users.	• User pay parking in high-demand areas in Whistler Village continues. • Assisted with REX-led Parks Summer Experience program which includes the introduction of user-pay parking at four parks, the introduction of the Rainbow Park Shuttle and the Bike Valet services at Lost Lake and Rainbow Park.

med	6.1.2.7	Optimize the road network and highway to prioritize the flow of high occupancy vehicles (HOVs).	• RMOW comments on the draft Highway Capacity Study have been sent to MOTI. • RMOW staff developed conceptual designs for the five priority locations on Highway 99. Met with MOTI to confirm budgets for a preliminary design of Highway 99 at Whistler Road. • MOTI is preparing a Letter of Agreement to allow the RMOW to lead the preliminary design process.
med	6.1.2.8	Strategically expand transit system service levels and frequency where possible and affordable	• Phase 2 of the Transit Future Plan public engagement is complete and TMAC has received the results. • TMAC will review options for prioritized Transit Future actions in 2021 Q3.
med	6.1.2.9	Explore and consider opportunities to link Whistler Blackcomb and other local business products with (discounted) local and regional mass transit passes.	• No specific initiative led by RMOW staff at this time
long	6.1.2.10	Continue to encourage the provincial government and private sector to pursue the return of higher-volume, affordable and more frequent passenger rail service to Whistler.	• Current focus on regional bus/coach transit
long	6.1.2.11	Ensure that any potential investigation into new regional air service or a new airport facility includes a full assessment of the GHG emissions balance of the proposed project.	• No new regional air services are proposed at this time.

6.1.3 Activate Walking, Biking, and other Forms of Healthy Transportation

	Recommended Action	Updates
short	6.1.3.1 Prioritize the recommendations of and regularly update the Whistler Transportation Cycling Plan and the Whistler Recreational Cycling Plan in planning for the pedestrian and bicycle network.	• Millar Creek to Function Junction expansion in progress with completion date in Q3 2021 • Prism property Valley Trail: project remains in the planning stage. • New 1.5 km Valley Trail from Rainbow Park to Scotia Creek was tendered. • RMOW received the $10,000 grant and has created a TAG Active Transportation Sub-committee to guide the development of the Active Transportation Plan for Whistler. • RMOW received an additional $10,000 for a total of $20,000 UBCM grant to develop an Active Transportation Plan for Whistler.

short	6.1.3.2	Consider opportunities to permit the repurposing of existing village parking to other purposes to support preferred modes of transportation (i.e. bike parking, end of trip facilities).	• Activated the Secure Bike Parking under the Library in March 2021 (as of June 30, there were 13 keys signed out).
sshort	6.1.3.3	Advance a community-based social marketing research project to determine the key perceived barriers and benefits of increased use of active transportation. Built upon the findings of the research, develop, and execute targeted community-based social marketing campaign and other practical relevant solutions to increase use of active transportation	• RMOW received the $10,000 grant and has created a TAG Active Transportation Sub-committee to guide the development of the Active Transportation Plan for Whistler. • RMOW received an additional $10,000 for a total of $20,000 UBCM grant to develop an Active Transportation Plan for Whistler.
med	6.1.3.4	Where opportunities exist, prioritize the optimization and enhancement of pedestrian infrastructure and safety throughout the community.	• Completed two designs for a pedestrian connection from Alta Vista to the southbound bus stop for review • As part of the Whistler Summer Experience program led by REX, implemented pedestrian safety upgrades on Alta Lake Road at Rainbow Lake Trailhead and Rainbow Park Parking lot.

6.1.4 Support Electrification, and the Adoption of other Low Carbon Transport Options

	Recommended Action		Updates
short	6.1.4.1	Support the development of, and increased access to, reduced-carbon mobile fuel options such as natural gas, appropriate biofuels, and electrical charging stations across the community.	• The EV charger user fee strategy for all municipal-owned EV chargers was adopted by Council on February 16, 2021. The goal of this strategy is to continually support EV adoption in Whistler while incentivizing home charging, increasing turnover, and recovering municipal operation costs at the same time. • Phase 1 of the EV charger user fee strategy was implemented on June 15, 2021. A fee of $1/hr applies to chargers outside of the daylots. • A grant application to EMOTIVE for $9,960 for EV outreach activities in collaboration with Squamish was successful.
short	6.1.4.2	RMOW to aggressively advance the average fleet GHG and energy efficiency of the municipal vehicle fleet.	• Fleet purchases continue to consider electric vehicles wherever possible. • An info session with PlugIn BC was held in March 2021 to explore the opportunity to access fleet electrification funding. • A successful applicant to perform the RMOW fleet assessment has been chosen. Staff is in the final procurement stages.
short	6.1.4.3	Champion and support inter-community travel providers (including airlines) that are progressive leaders in energy and GHG innovation through preferred marketing relationships and other in-kind partnership opportunities	• No specific initiative led by RMOW staff at this time

med	6.1.4.4	Integrate electric and/or lower carbon fuel vehicles into existing private and public fleets (transit/delivery/taxis/shuttles).	• BC Transit has introduced its Low Carbon Fleet Program, which will focus on purchasing electric heavy-duty buses as primary option starting in 2023. In addition, BC Transit has committed to increase the use of Renewable Natural Gas (RNG) in fleets that have CNG buses. • RMOW staff has engaged with BC Transit staff on their Low Carbon Fleet Program, and will continue to advocate that Whistler receive both higher shares of RNG as fuel source for current buses, as well as electric ones for bus replacement/expansion programs.
med	6.1.4.5	Support the use of 'appropriate' electric assist bicycles on Whistler's roads, and Valley Trail network, and support appropriate opportunities to increase secure storage and charging infrastructure in the Village.	• Draft e-mobility device policy remains in draft form. Formalizing policy deferred to 2022 due to other priorities. Monitoring of E-device use on VT's will continue throughout the summer. E-device pilot programs underway elsewhere in BC will be observed.
med	6.1.4.6	Explore opportunities to structure local incentives to support electric vehicle use within and to/from Whistler. (i.e. preferred or reduced parking fees for electric vehicles)	• CleanBC Go Electric EV Charger Rebate Program extended until December 31, 2021 for single family homes, MURBs, and businesses. • A grant application to EMOTIVE for $9,960 for EV outreach activities in collaboration with Squamish was successful. The project will be delivered through Q3/Q4 2021
med	6.1.4.7	Profile ultra-low emission private vehicle fleets (hotels, commercial recreation, as appropriate).	• No updates for 2021 Q1, Q2
med	6.1.4.8	Increase the enforcement of the Whistler anti-idling bylaw.	• No updates for 2021 Q1, Q2
med	6.1.4.9	Invest in electric vehicle integration across municipal fleet	• An info session with PlugIn BC was held in March 2021 to explore the opportunity to access fleet electrification funding. • A successful applicant to perform the RMOW fleet assessment was chosen. Staff are in the final procurement stages before initiating the fleet assessment and electrification plan.
med	6.1.4.10	Encourage local commercial recreation and leisure operators to minimize the GHG emissions associated with their activities	• Supported through ongoing commercial recreation Crown land referral processes.

long	6.1.4.11	Develop a social marketing initiative to drive the use and purchase of more efficient vehicles.	• A grant application to EMOTIVE for $9,960 for EV outreach activities in collaboration with Squamish was successful. The project will be delivered through Q3/Q4 2021.
long	6.1.4.12	Explore opportunities to effectively support and encourage the development of a new car coop/sharing program in Whistler, in addition to promoting ride-share and carpool programs.	• Carpool parking pass (Day Lots 4+5) still available as a more cost-effective option, encouraging carpooling.

6.2 Stationary Energy Use – Buildings & Infrastructure GHG Emissions

6.2.1 Improve the Energy Efficiency and Comfort of Existing Buildings and Infrastructure

	Recommended Action	Updates
Existing RESIDENTIAL Buildings		
short	6.2.1.1 Continue to support and enhance the social marketing campaign to increase uptake of enhanced incentive programs and associated energy efficiency performance improvements.	• Collaboration with the CEA, District of Squamish and New Westminster is underway to increase the uptake on heat pump incentives through a 'one stop shop' concierge approach. A project grant proposal was submitted to FCM to fund the pilot implementation. Additional BC Hydro funding was secured for program implementation. • The FCM project grant proposal was successful and project work to increase the uptake on heat pumps in Whistler is underway. Additional BC Hydro funding was secured for program implementation.
short	6.2.1.2 Support and encourage EnerGuide energy performance labeling on homes for sale.	• Regular promotion of EfficiencyBC incentives through social media, newsletter, website, and poster/ word of mouth at the Building Department • Power Down to Save up continues to offer rebates for home energy assessment
short	6.2.1.3 Expand the integration of climate change, energy efficiency and water conservation literacy into school programs and curriculum.	• Environmental Stewardship continues to partner with and support AWARE as it delivers climate and environmental programs at Whistler Secondary.
short	6.2.1.4 Profile a deep energy retrofit as an example of what can be done to promote energy efficient retrofits in existing homes.	• The Big Moves Climate Strategy was adopted by Council in December 2020 to prioritize and accelerate this CECAP action. • High level energy audits were completed for all 6 municipal buildings. This will guide and support the decision for a deep energy retrofit of one of the assessed buildings.

short	6.2.1.5	Continue to optimize performance outcomes of the Cheakamus Crossing District Energy System and apply learning to future projects.	• To-date, over 34 units have removed themselves from DES in Cheakamus Crossing. • Green building covenants require DES connection domestic hot water for all Part 3 buildings in Cheakamus Crossing Phase 2, and advanced step code requirements for Part 9 buildings and to achieve decreased energy load for space heating. • A DES specialist visited the mechanical rooms in 7 large buildings and recommendations to improve performance are being prepared
long	6.2.1.6	Advance opportunities to reduce the direct heating of outdoor areas (i.e. heated driveways, heated stairs, patio heaters, outdoor gas fireplaces).	• Reducing the emissions from outdoor heating is a priority action in the Big Moves Climate Strategy
long	6.2.1.7	Encourage existing multi-tenant or multi-owner residential buildings to maintain or add individually metered energy consumption for individual properties (i.e. encourage user-pays principle).	• The Big Moves Climate Strategy was adopted by Council in December 2020 to prioritize and accelerate this action.
Existing COMMERCIAL/INSTITUTIONAL Buildings and Infrastructure			
short	6.2.1.8	Actively investigate the development of new district energy system for Whistler Village that increases energy efficiency, increases the share of energy production from renewable sources, reduces operating costs and decreases GHG emissions.	• No specific initiative led by RMOW staff at this time
short	6.2.1.9	Develop and implement a social marketing campaign with incentives to increase audits, uptake of incentive programs and associated energy efficiency performance improvements.	• No specific initiative led by RMOW staff at this time
short	6.2.1.10	Support and improve staff training on energy efficiency practices across hotel operations (start-up practices, etc.).	• No specific initiative led by RMOW staff at this time - on hold due to COVID-19
short	6.2.1.11	Advance a system of voluntary and mandatory energy benchmark reporting across Whistler's large energy consumers (leverage NRCAN Portfolio Manager updates into Canada).	• No specific initiative led by RMOW staff at this time

short	6.2.1.12	Promote increased awareness of Energy Performance Contracting and other energy efficiency opportunities for commercial sector properties.	• The Big Moves Climate Strategy was adopted by Council in December 2020 to prioritize and accelerate actions focused on increased energy efficiency of the commercial sector.
short	6.2.1.13	Support the reestablishment of the former Whistler Facility Managers Association (WFMA).	• Engagement of the hotel sector has been put on hold due to Covid 19
med	6.2.1.14	Encourage approaches that reduce the direct heating of outdoor areas such as through open shop doors, patio heaters and heated driveways (i.e. explore the potential to create and enforce a closed door - energy waste bylaw in commercial and retail zones).	• OCP was adopted on June 23rd, 2020/ OCP policy 10.3.1.3 gives direction for advancing regulatory approaches for reducing the use of outdoor area heating.
med	6.2.1.15	Encourage existing multi-tenant or multi-owner commercial buildings to maintain or add individually metered energy use (i.e. encourage user-pays principle).	• No specific initiative led by RMOW staff at this time
med	6.2.1.16	Catalogue and develop strategies for maximizing the re-use of waste heat resources across the resort community.	• No specific initiative led by RMOW staff at this time

6.2.2 Ensure the Most Energy Efficient and Comfortable New Buildings and Infrastructure as Possible

		Recommended Action	Updates
New RESIDENTIAL Buildings			
short	6.2.2	Support the trades, sub-trades, developers and building community with programs and initiatives designed to increase the uptake of energy efficient residential building designs, programs, and technologies in Whistler.	• Staff is planning the next steps to adopt the BC energy step code for part 3 buildings and to incentivize the installation of low carbon and high energy efficient systems.

	.1		
short	6.2.2.2	Streamline the development of passive house-certified, and net-zero residential buildings using tools such as accelerated permit processing.	• no update for Q1/Q2 2021 due to resource restrictions
medt	6.2.2.3	Explore the feasibility for requiring energy modeling for new residential buildings and significant renovations at building permit phase.	• The implementation of the Energy Step Code requires Energy Modelling for all new residential buildings (but not renovations). • Staff is planning the next steps to adopt the BC energy step code for part 3 buildings and to incentivize the installation of low carbon and high energy efficient systems.
long	6.2.2.4	Maintain and update the RMOW Green Building Policy to require higher energy performance standards during rezoning for new residential buildings.	• Internal discussions underway to plan next steps to advance the BC energy step code faster than provincial timelines.
long	6.2.2.5	Encourage new multi-tenant or multi-owner residential buildings to have individually metered energy use (i.e. encourage user-pays principle).	• No specific initiative led by RMOW staff at this time

Existing COMMERCIAL/INSTITUTIONAL Buildings and Infrastructure

short	6.2.2.6	Designate Whistler Village as a District Energy Investigation Area to encourage flexible building systems for future potential District Energy System connectivity.	• Complete. OCP was adopted on June 23rd, 2020
short	6.2.2.7	Streamline the development of certified high-performance commercial buildings and/or significant renovations using tools such as accelerated permit processing.	• No specific initiative led by RMOW staff at this time
med	6.2.2	Explore the feasibility of requiring energy modeling for new commercial buildings and significant renovations at building permit phase.	• Internal planning is underway to adopt step code for Part 3 Buildings and incentives for the installation of low carbon energy systems.

	.8		
med	6.2.2.9	Support the trades, sub-trades, developers and building community with programs and initiatives designed to increase the uptake of energy efficient commercial building designs, programs, and technologies in Whistler.	• In progress but no Q1/Q2 updates
long	6.2.2.10	Update the RMOW Green Building Policy to modernize the framework and ensure that opportunities to increase energy performance outcomes are identified and leveraged during permit approval and rezoning processes (commercial, institutional, and residential).	• Staff is planning the next steps to update the green building policy.
long	6.2.2.11	Encourage new multi-tenant or multi-owner commercial buildings to have individually metered energy use (i.e. encourage user-pays principle).	• No specific initiative led by RMOW staff at this time

6.3 Renewable Energy and Energy Supply Alternatives

6.3.1 Encourage the Use of Renewable Energy across the Community

	Recommended Action		Updates
short	6.3.1.1	Encourage the use and fair commodity pricing of 'renewable' natural gas.	• No specific initiative led by RMOW staff at this time
short	6.3.1.2	Investigate and advance opportunities to incent electric heat pump systems to replace existing gas/propane/basic electric heating systems.	• Collaboration with the CEA, District of Squamish, and New Westminster is underway to increase the uptake on heat pump incentives through a 'one stop shop' concierge approach. A project grant proposal was submitted to FCM to fund the pilot implementation. Additional BC Hydro funding was secured for the program implementation. • The FCM project grant proposal was successful and project work to increase the uptake on heat pumps in Whistler is underway. Additional BC Hydro funding was secured for the program implementation

short	6.3.1.3	Evaluate the potential for including support for local renewable energy installations within future energy and/or climate related community-based social marketing campaigns.	• No update for Q1/Q2 2021
short	6.3.1.4	Support provincial building code extensions and other tools that maximize the extent that local building regulation can require or support increased energy efficiency or renewable energy systems in local development and construction.	• Internal planning is underway to adopt step code for Part 3 Buildings and incentives for the installation of low carbon energy systems.
med	6.3.1.5	Develop a Renewable Energy Strategy to move Whistler toward the new 100% renewable energy target	• The Climate Action Big Moves strategy includes renewable energy policies. • No specific initiative led by RMOW staff at this time,
med	6.3.1.6	Undertake a research study to evaluate the best opportunities for developing and expanding renewable energy production in Whistler.	• No specific initiative led by RMOW staff at this time
med	6.3.1.7	Develop and/or expand renewable energy pilot installations on appropriate municipal buildings and facilities	• No specific initiative led by RMOW staff at this time

6.3.2 Encourage the Addition of Responsible, Regional Renewables

	Recommended Action		Updates
short	6.3.2.1	Support local and regional renewable electricity production opportunities that include a careful assessment of potential negative impacts on ecosystem function, wildlife values, air quality, community character and visual aesthetics.	• No specific initiative led by RMOW staff at this time
med	6.3.2.2	Partner with utilities to provide feedback on the Integrated Resource Plans, and advocate for the inclusion of renewable energy provisions.	• No specific initiative led by RMOW staff at this time

6.4 Solid Waste System-based GHG Emissions

6.4.1 Materials Minimization and Diversion

	Recommended Action		Updates
short	6.4.1.1	Support the implementation of a strong SLRD Solid Waste Management Plan - with strong targets and actions, regional collaboration, and continued avoidance of waste/garbage incineration as part of the Plan.	• SLRD, DoS, RMOW staff working group. • Zero Waste Plan has been prepared and will be presented to Council Aug 17, 2021
short	6.4.1.2	Support the expansion of local compost diversion programs (marketing, education, pricing, infrastructure, etc.)	• Zero Waste Committee Action Plan development. • Zero Waste Plan has been prepared and will be presented to Council Aug 17, 2021
short	6.4.1.3	Evaluate opportunities to require new development or significant redevelopment to incorporate meaningful measures to minimize solid waste during design and construction, deconstruct rather than demolish, and encourage alternative and evolving methods of waste diversion during building operation.	• Internal planning under way to update the Green Building Policy. • Staff successfully applied for a CEA grant with the goal to understand and reduce embodied carbon emissions over the next two years. The project will be a collaboration with the District of Squamish, the Community Energy Association, and the Pacific Institute of Climate Solutions.
med	6.4.1.4	Continue moving towards the Zero Waste goal endorsed in 2005 and update the municipal solid waste strategy to advance zero-waste goals, planning and actions.	• Educational training material in development. • Zero Waste Plan has been prepared and will be presented to Council Aug 17, 2021
med	6.4.1.5	Support and promote the increased use of the Sustainable Events Guide and monitor performance outcomes for all key events.	• No specific initiative led by RMOW staff at this time
med	6.4.1.6	Evaluate and support implementation of efficient and convenient methods of collecting solid waste, recyclables and compost for people utilizing preferred methods of transportation.	• Transport of waste and/or recyclables on local transit is now permitted as a pilot project (with some limitations). Project is still in place as of Q2 2021 with no major complaints from Transit.

med	6.4.1.7	Encourage the private sector to develop and/or participate in innovative, cost-effective, and environmentally sustainable solid waste and recycling programs in support of achieving our Zero Waste goal.	• Ongoing - Solid Waste Coordinator runs an outreach program to better inform businesses about their options and responsibilities regarding waste management.
med	6.4.1.8	Implement standardized SLRD signage across Whistler to improve recycling and composting rates.	• Implementing updated Streetscape signage for Parks and Village. • Internal staff discussions are happening regarding the best approach and challenges with contamination.

6.4.2 Reduce Upstream Emissions from Goods and Services

		Recommended Action	Updates
short	6.4.2.1	Support the creation of a 'sharing economy' working group to explore the best opportunities for sharing locally available skills and equipment as a means of increasing affordability, reducing new consumption, and decreasing local waste production.	• No specific initiative led by RMOW staff at this time
short	6.4.2.2	Encourage the use of the Re-Build-It Centre and Re-Use it Centre for the reuse of building materials, products and to support community services.	• Action considered complete
short	6.4.2.3	Promote opportunities for education and learning related to food production and associated GHG and environmental impacts.	• The Climate Action Big Moves outreach campaign has been developed over Q1/Q1 2021 and will be launched in August 2021 beginning with a campaign about food waste.
short	6.4.2.4	Promote and facilitate opportunities to shorten food supply chains and that support less GHG intensive food growing and menu choices.	• No specific initiative led by RMOW staff at this time

6.5 Enabling Energy Reduction and Climate Change Mitigation

6.5.1 Ensure Adequate Governance and Funding for ongoing Climate Action progress

Recommended Action	Updates

short	6.5.1.1	Create a 'Climate Leadership Committee' as a select committee of Council.	• The Climate Innovation working group is an RMOW internal staff group that meets monthly with the goal to implement climate measures within the RMOW and thereby lead by example. • The Climate Action Big Moves outreach campaign has been developed over Q1/Q1 2021 with launch date in August 2021. The campaign is a collaboration with AWARE and planning is underway to create the Climate Leadership Committee after conclusion of the 12 month campaign.
short	6.5.1.2	Investigate and advance opportunities to fund expanded local energy efficiency incentive programs with the annual RMOW corporate carbon tax rebate (CARIP).	• The updated CARIP fund policy A-32 was adopted by Council on July 20th, 2021. The CARIP program will be terminated by the Province and a replacement program has not yet been announced.
short	6.5.1.3	Create a Climate Action Coordinator position on municipal staff to lead the coordination and implementation of this CECAP and related energy and climate management responsibilities at the RMOW.	• The Climate Action Coordinator continues to advance CECAP actions in coordination with other staff and stakeholders.
short	6.5.1.4	Review and consider the implementation of a FortisBC franchise fee and dedicate the incremental funds to energy efficiency programs.	• No specific initiative led by RMOW staff at this time
short	6.5.1.5	Consider use of cash-in-lieu parking fees for improvement of pedestrian, cycling, and transit infrastructure.	• No specific initiative led by RMOW staff at this time

6.5.2 Actively Work with Other Levels of Government to Advance Shared Climate Goals

	Recommended Action		Updates
short	6.5.2.1	Lobby the Provincial government for further systematic increases in the BC Carbon Tax, and for a shift toward VKT-based car insurance structures (vehicle-kilometers-travelled-based).	• Support for carbon pricing planned for upcoming community engagement campaign.
short	6.5.2.2	Lobby the Provincial government for further systematic improvements to the BC Building Code that focus on energy efficiency.	• This is built into the Energy Step Code. The Energy Step Code focuses on building envelopes and energy efficiency. Planning to adopt the BC energy step code for part 3 buildings is currently underway.

short	6.5.2.3	Lobby senior governments to encourage increased energy and GHG innovation in the automotive and aviation sectors.	• No specific initiative led by RMOW staff at this time
short	6.5.2.4	Increase collaboration with neighbouring Sea to Sky communities and the SLRD on climate-related issues.	• Collaboration with the District of Squamish is underway for numerous projects.
med	6.5.2.5	Work with other groups and jurisdictions (i.e. BC Mayors Climate Leadership Council, City of Vancouver, and other leading communities) toward advancing Whistler's 100% renewable energy goals.	• Climate Action Coordinator researching all feasible low carbon energy options, including clean electricity, renewable natural gas, district energy and more. Engaging with thought leaders in business, academia, and utilities. • Ongoing collaboration with City of Vancouver staff on identifying priority climate action, to build on their leadership. • Collaboration of new Climate Action Coordinator with FCM Community of Practices group and teh BC Hydro sustainable communities peer networks to leverage learning and amplify voice to advance strong action for municipalities across Canada

6.5.3 Support High Quality, Third-Party Verified Local Offset Products

	Recommended Action		Updates
short	6.5.3.1	Encourage local organizations to support local carbon reduction projects like the Cheakamus Community Forest offset project.	• RMOW completed the CARIP report and identified 2020 emissions. • Carbon offsets for 2,641 tCO2e to be purchased from CCF.
short	6.5.3.2	Encourage local accommodation providers and booking companies to provide options for purchasing local offset products.	• Internal staff discussions on engaging associations to offer and promote local carbon offset projects
short	6.5.3.3	Continue to meet municipal carbon neutral commitments through the purchase of locally and regionally sourced high quality, externally verified offset products (i.e. Cheakamus Community Forest).	• The RMOW has maintained its carbon neutral status every year since 2010. • Annual offset purchases are 100% sourced from the Cheakamus Community Forest. • RMOW has purchased its offset credits for 2020.

5.2 Adaptation Initiatives

Consistent with both the 2017 and 2018 Council Priorities and the key findings of the CECAP vulnerability and risk assessments, the primary (though not exclusive) focus of the adaptation activities over the last two years was wildfire protection initiatives. Highlights of CECAP recommended initiatives as well as recent updates are included below for reference. By the end of the second quarter of 2020, 26 of these initiatives were in progress/ongoing and 3 were complete, which is the same as at the end of the fourth quarter of 2019.

Note that the numbering references below relate directly to the 40 recommended 'climate adaptation' actions included within the 2016 CECAP structure.

8.5 Recommended Adaptation Initiatives

8.5.1 Minimize Wildfire Threats

	Recommended Action		Updates
short	8.5.1.1	Continue to implement the Community Wildfire Protection Plan, including emphasis on public education and engagement.	• Community Wildfire Protection Plan (2011) to be updated in 2021. Wildfire workshop planned for April 29 with key wildfire stakeholders to review past work/approach and share insight into new opportunities/learnings that can be included in update. • A Whistler Wildfire program workshop was held on June 30, 2021. The input will be used in developing the Community Wildfire Resiliency Plan that is currently under development. • FireSmart program continues to complete assessments, deliver chipper program and is hiring 2 term administrators to assist with assessments and tracking.
short	8.5.1.2	Prioritize the implementation of the landscape-level wildfire management plan for the Cheakamus Community Forest area.	• RMOW has funding for 16 Mile FSR prescription preparation in 2021. • Both the Cheakamus Lake Road and Nesters Hill fuel thinning projects were recently completed by CCF. • Taluswood fuel thinning project (~15 hectares) started in early July 2021.
short	8.5.1.3	Increase municipal and collaborative efforts around wildfire prevention with key corridor partners (i.e. MFLNRO, Sea to Sky fire rescue services, SLRD, Vancouver Coastal Health).	• RMOW will participate in the newly formed SLRD FireSmart Resiliency Committee with a wide range of regional stakeholders.
short	8.5.1	Continue to review and update pre-incident and emergency response plans and communication protocols for wildfire situations.	• Response plans, contact information, etc. has been updated and regular reviews are scheduled.

	.4		
short	8.5.1.5	Develop private property wildfire risk reduction guidelines and implement through municipal policy and/or procedures.	• Wildfire DPA brochure finalized and printed. Once it is made available to the public, feedback on the brochure will be monitored to determine if future edits are needed to improve the clarity of the information
short	8.5.1.6	Review existing and consider more restrictive campfire and backyard fire bans and increase the enforcement of fire bans and ticketing/fines for offenses during high fire risk periods.	• The proposed Fire and Life Safety Bylaw 2201, 2018 remains in draft. The existing Fire Protection and Fireworks Bylaw 2046, 2014 remains in effect. 6.5 request for "Campfire Permit" remains in effect until further notice. 6.11 Garden Debris Fires are no longer allowed in the RMOW and will be repealed in the new Fire and Life Safety Bylaw. Further, WFRS are part of the Wildfire Working Group together with Protective Services, Emergency Management and Environmental Stewardship preparing a coordinated effort at education, response and enforcement with wildfire, illegal campfires, etc.
short	8.5.1.7	Consider creating Development Permit Areas for wildfire protection.	• OCP was adopted on June 23rd, 2020 which includes a Wildfire Development Permit.
med	8.5.1.8	Lobby Provincial and Federal governments to increase funding for community and landscape level wildfire fuel reduction and response.	• The Province introduced a new COVID-19 -related infrastructure funding stream but uncertain for how many years it will be available.
med	8.5.1.9	Encourage private operators to implement wildfire prevention best practices for outdoor tourism and recreation facilities, particularly in and around high-risk interface areas.	• OCP Wildfire DPA will capture development requests by commercial operators located within RMOW boundaries. • No other actions taken beyond the Wildfire DPA and general FireSmart messaging to the community.
long	8.5.1.10	Enhance collaborative efforts with regional partners to prevent and respond to wildfires (i.e. MFLNRO, Sea to Sky fire rescue services, SLRD, Vancouver Coastal Health).	• RMOW is updating its Community Wildfire Protection Plan in 2021 and will include information on regional collaboration and partnerships. • Community Wildfire Resiliency Plan draft is now underway. • RMOW will participate in the newly-formed SLRD FireSmart Resiliency Committee.

long	8.5.1.11	Lobby the Province to incorporate FireSmart principles into the BC Building Code.	• No specific initiative led by RMOW staff at this time

8.5.2 Minimize Congestion on Highway 99

	Recommended Action		Updates
short	8.5.2.1	Facilitate, develop, and promote alternative and mass transportation options to and from Whistler.	• Regional Transit Committee meeting is scheduled for August 2021.

8.5.3 Minimize Damage from Heavy Rain Events

	Recommended Action		Updates
short	8.5.3.1	Continue to conduct annual assessments of significant waterways to identify and mitigate high risk flood locations while respecting in-stream and riparian habitat regulations.	• No specific initiative led by RMOW staff at this time
med	8.5.3.2	Complete and implement a comprehensive update of the Whistler Integrated Stormwater Management Plan (ISMP) that accounts for future climate change and related hydrologic changes within the lifespan of all existing and new infrastructure, buildings, and developments. The ISMP should include key components of leading best practices in stormwater management planning and risk assessment.	• No specific initiative led by RMOW staff at this time
med	8.5.3.3	Complete and/or update floodplain mapping for all significant Whistler watersheds. Amend zoning and/or policies as needed to reflect adequate flood protection measures.	• Received grant for designing flood protection upgrades on Spring Creek and Van West Creek.
med	8.5.3.3	Follow changes in risk-based insurance premiums and overland flood insurance and adapt as needed to changing context and regulations.	• No changes required yet.

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med	8.5.3.5	Review and adapt as appropriate emergency planning protocols for extreme weather occurrences and related impacts, in consideration of projected climate changes.	• Emergency planning protocols are constantly being updated, improved, and expanded.
med	8.5.3.6	Improve the design and maintenance of current and future outdoor recreation assets to better absorb heavy rain events (i.e. trails, roads and other activity infrastructure).	• No specific initiative led by RMOW staff at this time
med	8.5.3.7	Consider improvements to signs and lighting for Highway 99 and municipal bridges with respect to weather and flooding alerts. Explore new or additional tools for monitoring at-risk areas.	• No specific initiative led by RMOW staff at this time
long	8.5.3.8	Update relevant policies and plans aimed at protecting Whistler's potable water supply from contamination (i.e. 21 Mile Watershed Protection Plan and Groundwater Protection Plan) to consider additional potential impacts related to projected local climate changes.	• No specific initiative led by RMOW staff at this time
long	8.5.3.9	Explore opportunities to improve sediment and erosion control requirements during development and construction.	• No specific initiative led by RMOW staff at this time
long	8.5.3.10	Join the UN campaign "My City's Getting Ready!"	• RMOW joined the Outdoor Recreation Municipality Coalition launched by Protect Our Winters (POW) and Climate Caucus (i.e. outdoor recreation tourism communities working together to share information and accelerate climate actions).

8.5.4 Ensure Adequate Water Supply

Recommended Action	Updates

short	8.5.4.1	Continue to update and prioritize implementation of the Comprehensive Water Conservation and Supply Plan focused on municipal conservation and infrastructure improvements, in addition to relevant policies, community-wide regulations and enforcement. The plan should be updated as needed to include or consider best practices in water conservation and supply management.	• No specific initiative led by RMOW staff at this time
short	8.5.4.2	Enhance public engagement, communications, and social marketing initiatives to optimize water conservation efforts and emergency preparedness related to water shortages.	• Communications regularly shares messaging regarding water quantity and related water quality issues, particularly during spring through fall.
short	8.5.4.3	Explore opportunities to improve municipal irrigation systems to maximize efficiency and reduce irrigation needs.	• Through the parks master planning process to address potential improvements across municipal parks.
long	8.5.4.4	Consider opportunities to increase and promote rainwater and grey water capture and use in public and private infrastructure.	• No specific initiative led by RMOW staff at this time

8.5.5 Enhance Weather Independent Tourism Opportunities

		Recommended Action	Updates
short	8.5.5.1	Consider the development of a comprehensive resort-wide product enhancement, communications, and marketing strategy to improve and promote the range of weather-independent and all-season tourism and recreation opportunities.	• Advancement of Arts, Culture and Heritage programing and itineraries under development
short	8.5.5.2	Explore possibilities to secure additional appropriate waterfront areas for parks and recreation as needed (according to carrying capacity research) to support long-term growth in summer visitation, while preserving the environmental values of new site(s).	• No specific initiative led by RMOW staff at this time
short	8.5.5	Continue to advance both cultural tourism development and the expansion of complementary learning and education initiatives.	• Advancement of new and ongoing initiatives underway by the Manager for Cultural Planning & Development

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med	8.5.5.4	Explore opportunities to develop easily accessible and affordable non-skiing, snow-based winter activities above the valley.	• No specific initiative led by RMOW staff at this time
med	8.5.5.5	Explore opportunities to accelerate Whistler Blackcomb Bike Park and other multi-use trail expansion in both physical footprint and length of season.	• Recreation Trails Strategy community engagement phase launched in Q1.
med	8.5.5.6	Place emphasis in relevant municipal policies on re-purposing existing under-used space to diversify tourism economy and provide non-snow-dependent recreation opportunities; remove barriers and encourage innovation.	• Parks Master Plan process is underway, with anticipated completion in Q3 2021.

8.5.6 Improve Ski Infrastructure for Weather Variability

	Recommended Action		Updates
short	8.5.6.1	Anticipate snowline changes and consider building, improving, and/or moving lifts, trails, and other infrastructure accordingly to maintain and enhance terrain quality and user experience.	• Unchanged, RMOW not lead
short	8.5.6.2	Continue to improve summer/fall grooming, trail surfacing and snowmaking operations at lower elevations to facilitate more effective snow management in low-snow conditions for alpine and cross-country ski trails.	• Unchanged, RMOW not lead
short	8.5.6.3	Consider the potential to offer a Whistler Blackcomb combination ski/bike park pass and promote the overlap of recreation offerings earlier and later in the respective seasons.	• Unchanged, RMOW not lead

med	8.5.6.4	Investigate potential land exchanges to optimize potential ski terrain.	• Unchanged, RMOW not lead
med	8.5.6.5	Investigate opportunities to develop and/or improve policies related to alpine land use and development, with emphasis on enhancing recreation offerings and protecting the environment.	• Unchanged, RMOW not lead

8.5.7 Minimize Threats to Ecosystems, Biodiversity and the CCF

	Recommended Action		Updates
short	8.5.7.1	Improve invasive species management efforts related to increasing pressures associated with a changing climate.	• Sea to Sky Invasive Species Council (SSISC) is engaged and implementing 2021 work plan.
med	8.5.7.2	Develop and implement a Biodiversity Conservation Strategy that considers climate change and includes recommendations to monitor and protect ecosystem health and biodiversity from pressures including climate change.	• Consultant and Environmental Stewardship staff continue to develop priority habitat protection framework. • Municipal Natural Asset Management initiative has launched which will inventory key natural areas that deliver ecosystem services for RMOW (e.g. drinking water, flood management). This will be combined with identifying other priority habitats for protection and monitoring.
med	8.5.7.3	Conduct research and modify Cheakamus Community Forest management plans and practices to minimize risks related to climate change.	• Cheakamus Community Forest recently engaged Brinkman Associates to do an analysis on options for more rapidly moving away from harvesting old growth while maintaining second growth forests committed to delivering the carbon offset program.

6.0 CLOSING COMMENTS

The impact of changing climatic conditions – especially reliable snow patterns – has the potential to substantially impact Whistler's primary economic engine – tourism. Informed, strategic planning that considers and evaluates the impacts of the issues related to climate change and rising fuel costs can help to ensure that Whistler is best positioned to maintain its success into the future.

Accurate, detailed data is fundamental to these discussions; information like that which is included within this report will continue to provide a strong basis for informed decision-making as our community measures its success, matures, evolves, and thrives in the coming decades.

APPENDICES

A	Summary of Corporate Carbon Neutral Commitment Verified Emission Reductions (VERs)
B	SUMMARY OF RMOW 2020 TRADITIONAL SERVICES GHG INVENTORY

APPENDIX A: SUMMARY OF 2020 CORPORATE CARBON NEUTRAL COMMITMENT

Verified Emission Reduction (VERs): The RMOW has purchased and retired Verified Emission Reduction credits equal to its entire corporate carbon footprint for every year between 2010 and 2020 inclusive, a summary is provided below:

Year	VERs	Project	Certification Standard	Registry	Vendor
2010	**1,145 tonnes**	Mare Monastir Wind Farm, Turkey	Gold Standard – project reference: GS368	GS APX Registry	Offsetters Clean Technology Inc.
	1,145 tonnes	Sun Select Aldegrove Biomass Boiler, British Columbia	ISO 14064-3 and CDM additionality tool	Markit Registry	Offsetters Clean Technology Inc.
2011	**1,063 tonnes**	Mare Monastir Wind Farm, Turkey	Gold Standard – project reference: GS368	Markit Registry	Offsetters Clean Technology Inc.
	1,063 tonnes	Sun Select Aldegrove Biomass Boiler, British Columbia	ISO 14064-3 and CDM additionality tool	Markit Registry	Offsetters Clean Technology Inc.
2012	**973 tonnes**	Mare Monastir Wind Farm, Turkey	Gold Standard – project reference: GS368	Markit Registry	Offsetters Clean Technology Inc.
	974 tonnes	Sun Select Aldegrove Biomass Boiler, British Columbia	ISO 14064-3 and CDM additionality tool	Markit Registry	Offsetters Clean Technology Inc.
2013	**1,617 tonnes**	Cheakamus Community Forest, British Columbia	BC Emission Offsets Regulation using the BC Forest Carbon Offset Protocol	Markit Registry	Cheakamus Community Forest
2014	**1,805 tonnes**	Cheakamus Community Forest, British Columbia	BC Emission Offsets Regulation using the BC Forest Carbon Offset Protocol	Markit Registry	Cheakamus Community Forest
2015	**1,751 tonnes**	Cheakamus Community Forest, British Columbia	BC Emission Offsets Regulation using the BC Forest Carbon Offset Protocol	Markit Registry	Cheakamus Community Forest
2016	**1,810 tonnes**	Cheakamus Community Forest, British Columbia	BC Emission Offsets Regulation using the BC Forest Carbon Offset Protocol	Markit Registry	Cheakamus Community Forest
2017	**2,385 tonnes**	Cheakamus Community Forest, British Columbia	BC Emission Offsets Regulation using the BC Forest Carbon Offset Protocol	Markit Registry	Cheakamus Community Forest
2018	**2,177 tonnes**	Cheakamus Community Forest, British Columbia	BC Emission Offsets Regulation using the BC Forest Carbon Offset Protocol	Markit Registry	Cheakamus Community Forest
2019	**2,360 tonnes**	Cheakamus Community Forest, British Columbia	BC Emission Offsets Regulation using the BC Forest Carbon Offset Protocol	Markit Registry	Cheakamus Community Forest
2020	**2,641 tonnes**	Cheakamus Community Forest, British Columbia	BC Emission Offsets Regulation using the BC Forest Carbon Offset Protocol	Markit Registry	Cheakamus Community Forest

Since 2013 the RMOW has purchased VERs from the Cheakamus Community Forest (CCF) to offset 2013 - 2020 corporate emissions. More information about the project can be found on the Cheakamus Community Forest (CCF) website (https://www.cheakamuscommunityforest.com/)

RMOW staff are confident in the benefits of supporting a local offset project, the co-benefits associated with the project approaches, and the independent, third party rigor that is being applied to the CCF project. Consistent with our commitments in both the UBCM Climate Action Charter, and the RMOW Carbon Neutral Plan, the RMOW remains committed to achieving carbon neutrality with respect to all corporate operations. All RMOW departments have been charged internally for the costs associated with the RMOW carbon neutrality commitments. All departments continue to use the price signals that these costs imply ($25/t$CO_2$e) to improve financial decision making and preference cost-effective projects and initiatives that are capable of continuously reducing carbon emissions and decreasing carbon costs across corporate operations. Note that consistent with Provincial policy, the carbon neutral commitment of the RMOW includes an estimate of the contracted emissions associated with 'traditional services of local government' (e.g. any contracted snow clearing in the Village, solid waste collection contracts etc.)

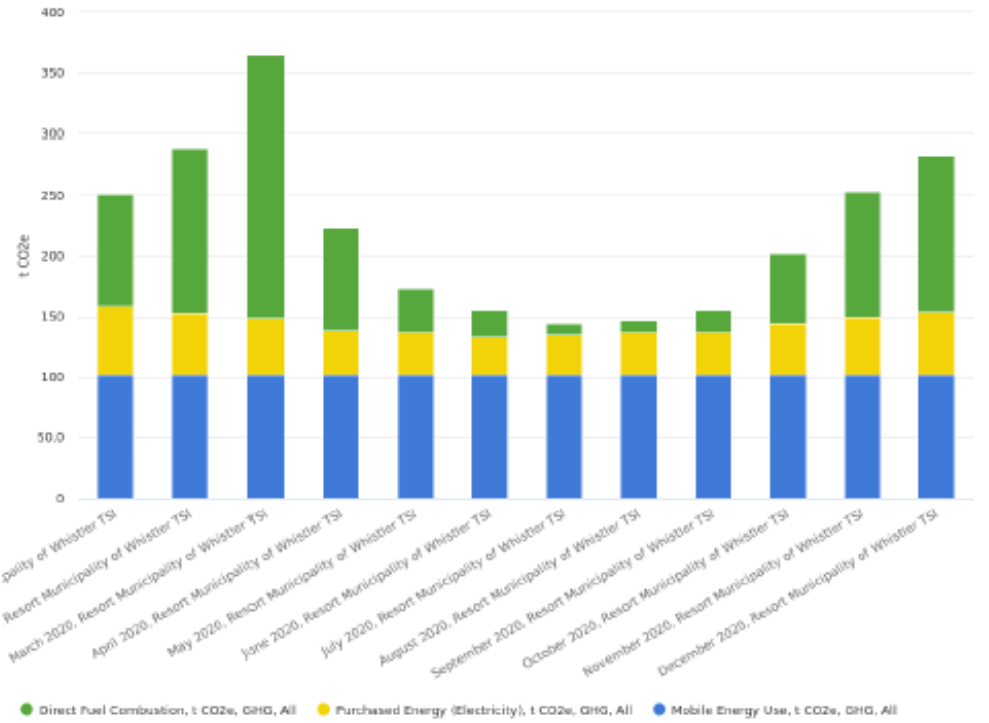
APPENDIX B: SUMMARY OF RMOW 2020 TRADITIONAL SERVICES GHG INVENTORY

Resort Municipality of Whistler

2020 BC Traditional Services GHG Inventory

Reporting Entity:	Resort Municipality of Whistler
Reporting Year:	Calendar Year 2020
Inventory Scope:	BC Traditional Services Inventory "TSI"
Quantification Methodology:	2020 B.C. Best Practices Methodology for Quantification GHG Emissions, Local Governments & Public Sector Organizations
System Support:	SoFi GHG Reporting by GHG Accounting Services
Data collection:	Resort Municipality of Whistler
Data Entry:	Data Upload and Manual Entry Client

Total TSI GHG Inventory: 2,641 t CO_2e



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Total Energy Consumption by Energy Type for Traditional Services Inventory:

	Resort Municipality of Whistler TSI
Natural Gas Stationary [GJ]	18,114
Propane [l]	7,301
Electricity [kWh]	12,411,543
Gasoline [l]	112,127
Diesel [l]	357,872
Propane [l]	18.0
Gasoline – Car [l]	2,950

Category 1:

	Resort Municipality of Whistler TSI				
	GJ, Energy	t CO_2	t CH_4	t N_2O	t CO_2e, GHG, Category 1
Direct Fuel Combustion	18,299	909	0.01828	0.017097	915

Category 2:

	Resort Municipality of Whistler TSI	
	kWh	t CO_2e, GHG, Category 2
Purchased Energy (Electricity)	12,411,543	498

Category 3:

	Resort Municipality of Whistler TSI				
	GJ, Energy	t CO_2	t CH_4	t N_2O	t CO_2e, GHG, Category 3
Mobile Energy Use	17,631	1,177	1.91	49.2	1,228

Biogenic GHG Emissions:

	Resort Municipality of Whistler TSI		
	t Bio CH_4	t Bio CO_2	t Bio CO2e, GHG, All
Direct Fuel Combustion			
Mobile Energy Use	7.24	44.1	137
Total	7.24	44.1	44.1

Totals by Service Delivery:

	Delivered Directly	Contracted Services	Total
	Energy Inventory t CO_2e, GHG, All	Energy Inventory t CO_2e, GHG, All	
2020	2,160	481	2,641

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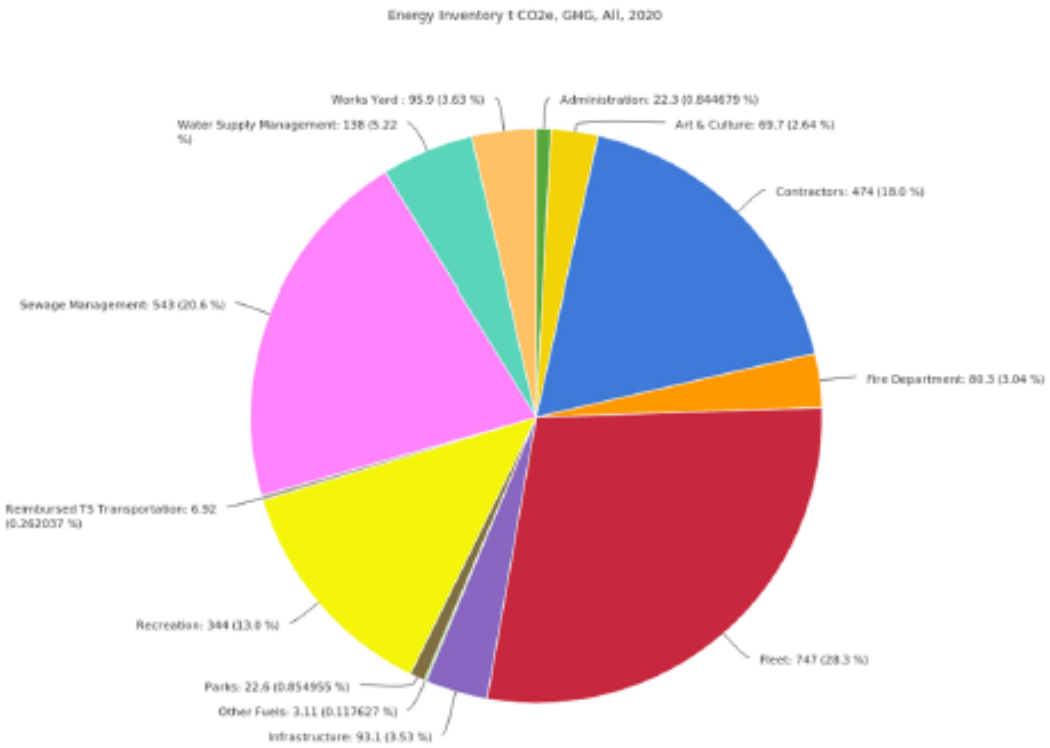
Summary:

	2020	
	Energy Inventory	Total
	t CO_2e, GHG, All	
Resort Municipality of Whistler TSI	2,641	2,641

Overview by Service Areas:



Top GHG Emitters:

	t CO_2e, GHG	%
Total Resort Municipality of Whistler TSI	2,641	100
Fleet	747	28.3
Sewage Management	543	20.6
Contractors	474	18.0

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