Preliminary AMS Nest GHG Inventory Results

April 2021

This report provides the preliminary results for the AMS Nest 2019 GHG Inventory (Table 1 & Figure 1), based on the 2019 data that is available so far. We have also pulled utility data for the Nest from SkySpark for 2018-2020 to show trends over time (see Table 2 and Figure 2); however, the full AMS GHG Inventory will only be completed for 2019, in keeping with the project scope of work. The totals presented here may change in the final report, since data is still being received. Notes and assumptions related to these findings are located at the end of this report.

Total 2019 GHG emissions for the AMS Nest based on currently available data is 681.6 tonnes CO_2e. To provide context, this is equivalent to:

- The annual emissions of 35 average Canadians
- Driving 3,156 passenger vehicles for one year, or
- Combusting 253,367 litres of gasoline

Table 1. Preliminary Results: 2019 AMS Nest GHG Emissions by Source

Emissions Source	tCO_2e
Scope 1	**335.2**
Natural Gas	228.8
District Energy	104.7
Fleet – Gasoline	1.4
Fleet - Diesel	0.3
Scope 2	**33.9**
Electricity (market-based)	33.9
Electricity (location-based)	40.7
Scope 3	**312.5**
Water Consumption	8.3
Employee Commuting	304.2
OVERALL TOTAL	**681.6**

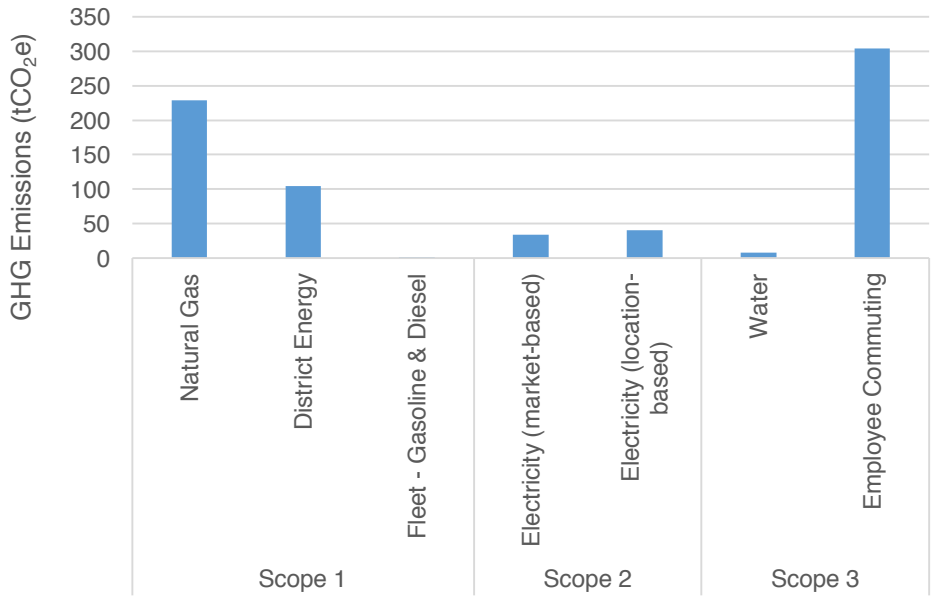

Figure 1. Preliminary Results: 2019 AMS Nest GHG Emissions by Source

Table 2. Preliminary Results: 2018 - 2020 AMS Nest GHG Emissions from Utilities

Emissions Source	2018	2019	2020
Scope 1			
Natural Gas	273.6	228.8	128.7
District Energy	50.4	104.7	103.5
Scope 2			
Electricity (market-based)	34.9	33.9	27.3
Scope 3			
Water Consumption	7.6	8.3	4.1
OVERALL TOTAL	**366.6**	**375.7**	**263.6**

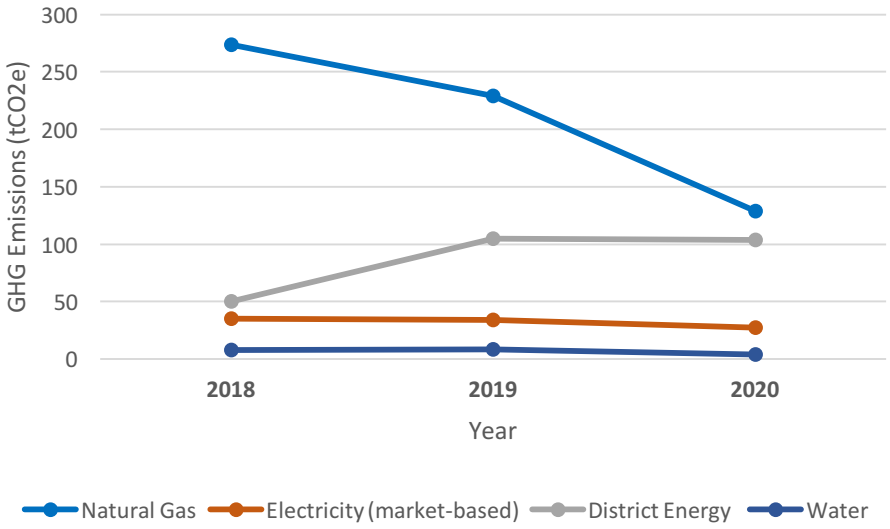

Figure 2. Preliminary Results: AMS Nest GHG Emissions from Utilities from 2018 to 2020

Notes & Assumptions

Utility data was pulled from the SkySpark energy tab: https://skyspark.energy.ubc.ca/user/login

UBC provided estimated emissions factors for the District Energy System by month based on the calendar year 2022 forecasts. These emission factors were used in our calculations for years 2018-2020; if emissions factors specific to these years are available, they should be provided.

For 2019, Natural Gas consumption was recorded as 0 m^3 from November 17th to December 31st. At this point in time, we have used 2018 as a proxy for this missing data.

Some data gaps were noted. For 2020, Natural Gas consumption was recorded as 0 m^3 from January 1st to February 17th, and there were additional data blips from March 2nd to 3rd, and from November 5th to November 16th. There were also blips in water consumption data from January 12th to February 17th and from November 5th to November 16th. For electricity consumption, there was an abnormal recording on February 29th, followed by no data entries March 1st through to March 31st. In all these cases, 2019 data was used as a proxy.

Employee commuting habits for 2019 were estimated based on 2020 commuting patterns prior to COVID-19 restrictions.

Fleet fuel consumption data was provided for the 2019/2020 academic year, and is being used as a proxy for the 2019 calendar year.