City of Kingston
2021 Energy Benchmarking Report
for the 2020 Calendar Year

Mayor Steven T. Noble

This Energy Benchmarking Report will provide insight into the City of Kingston's energy use for the period January 1st, 2020 to December 31st, 2020.

This report includes:

- An introduction and overview of the benchmarking process
- Building information including: property name, address, benchmarked metrics, use, and square feet
- 19 monthly energy use graphs for individual municipal buildings over 1000 square feet
- 2 cumulative energy use graphs for municipal buildings over 1000 square feet
- Conclusions drawn from the information presented in the graphs

Introduction:

Benchmarking energy performance is the first step in determining where and how to implement energy improvements within a municipality. Benchmarking is a mechanism through which the City of Kingston tracks and inventories how energy is used across multiple properties. Through benchmarking, the City has established baselines for building energy use that help identify inefficiencies, maximize performance, and support budgeting efforts. Benchmarking provides the City with energy use data needed to increase operational efficiency and effectively use taxpayer resources. Additionally, this data is needed to inform energy conservation policy and program development, a crucial aspect of climate action planning.

Overview of the benchmarking process:

The City of Kingston benchmarks energy use through Portfolio Manager, a free online program by Energy Star and the U.S. Environmental Protection Agency (EPA). As required by the City of Kingston's 2017 Benchmarking Initiative, City employees input monthly energy use information into Portfolio Manager. The software then catalogues the data for easy access. All energy use information in the report was obtained through Portfolio Manager, and then organized and graphed on Microsoft Excel workbooks.

The City of Kingston benchmarks energy use through two metrics: electricity and natural gas. All levels are recorded in Kilo British Thermal Units (kBtu). Electricity use information is available in this report for 19 municipal buildings, and natural gas for 17 buildings.

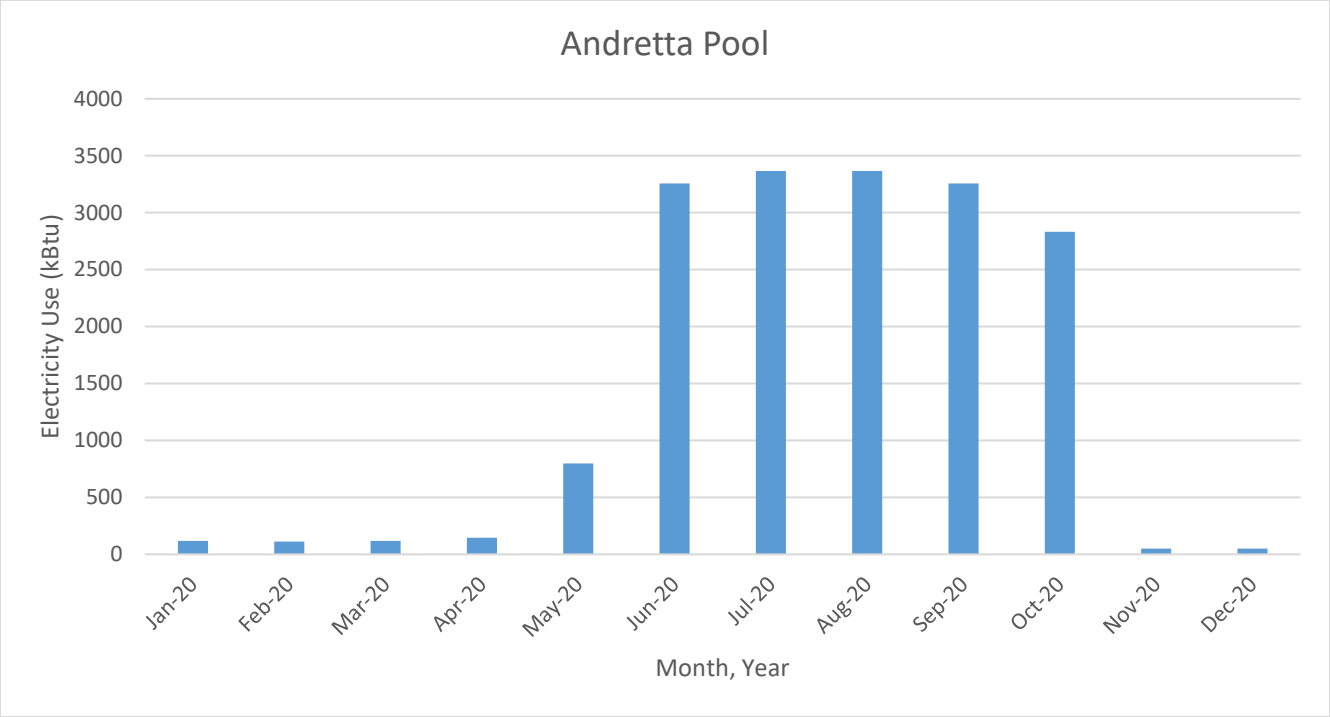
Municipal buildings included in this report:

Property Name	Address	Benchmarked Metrics	Use	Square Feet
Andretta Pool	76 North Front Street	Electricity	Recreation	3,100
Andy Murphy Neighborhood Center	467 Broadway	Electricity and Natural Gas	Fitness Center	30,832
Central Firehouse	19 East O'Reilly Street	Electricity and Natural Gas	Fire Station	10,140
City Hall	420 Broadway	Electricity and Natural Gas	Office	24,906
DPW Administrative Building	25 East O'Reilly Street	Electricity and Natural Gas	Office	13,593
DPW Building – Wilbur Avenue	454 Wilbur Avenue	Electricity and Natural Gas	Repair Services	2,240
DPW Bus Garage	464 Hasbrouck Avenue	Electricity and Natural Gas	Garage	7,000
DPW Bus Wash	478 Hasbrouck Avenue	Electricity and Natural Gas	Bus Wash	6,200
DPW Maintenance Garage	478 Hasbrouck Avenue	Electricity and Natural Gas	Garage	12,420
Everette Hodge Community Center	15-21 Franklin Street	Electricity and Natural Gas	Community Center	3,600
Volunteer Fireman's Museum	267 Fair Street	Electricity and Natural Gas	Museum	14,896
Heritage Area Visitor's Center	20 Broadway	Electricity and Natural Gas	Museum	1,600
Police Station and Courthouse	1 Garraghan Drive	Electricity and Natural Gas	Police Station	25,907
Rondout Fire Station	5 Garraghan Drive	Electricity and Natural Gas	Fire Station	7,340
Rondout Neighborhood Center	103 Broadway	Electricity and Natural Gas	Childcare	11,070
Salt Shed	394-458 Wilbur Avenue	Electricity	Utility	1,120
Uptown Firehouse	30 Frog Alley	Electricity and Natural Gas	Fire Station	6,603
Wastewater Treatment Plant	91 East Strand Street	Electricity and Natural Gas	Utility	26,405
Water Department Administrative Building	111 Jansen Avenue	Electricity and Natural Gas	Office	1,225

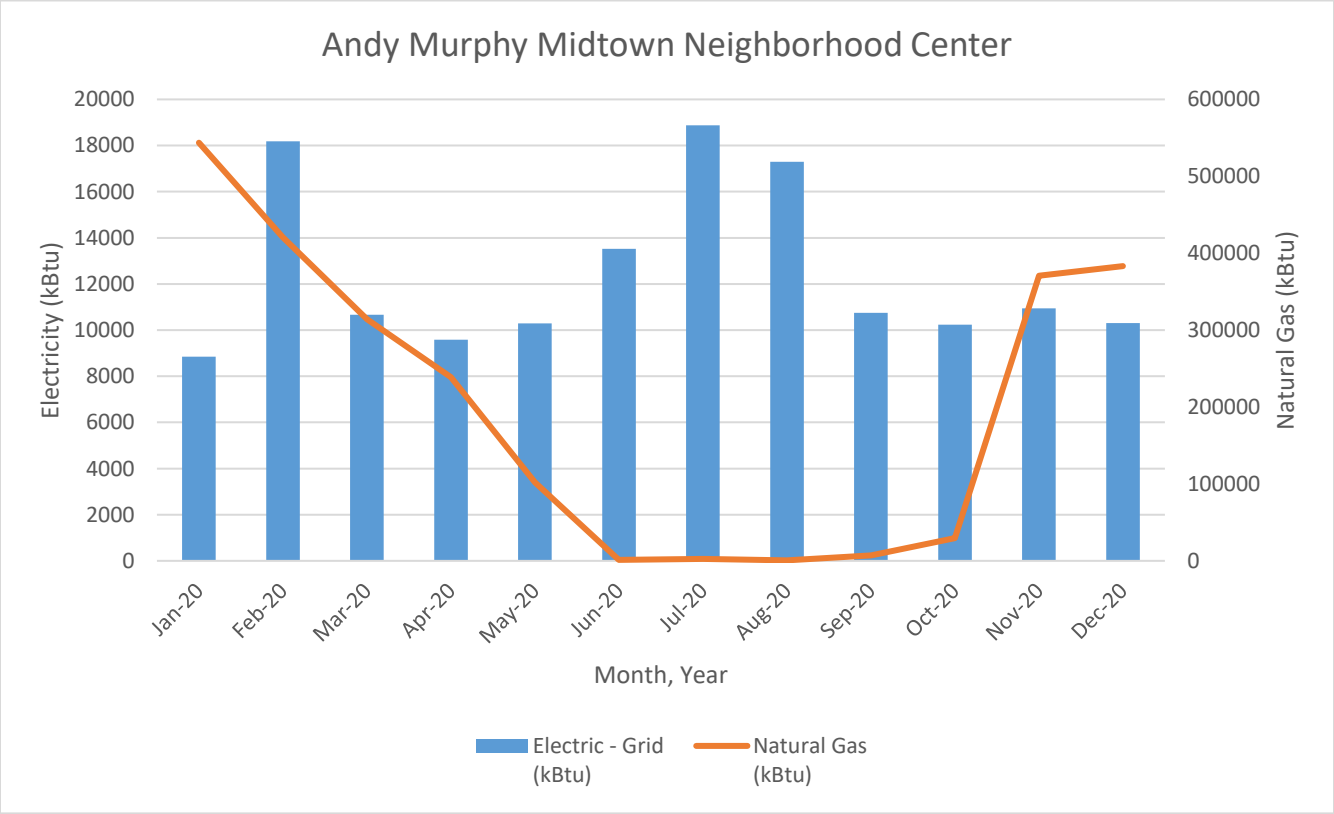
The following graphs represent alphabetically the energy consumption of each municipal facility.

Please note: All dual-metric graphs contain two scales. The left axis is scaled to electricity data, and the right axis is scaled to natural gas data, both in kBtu.

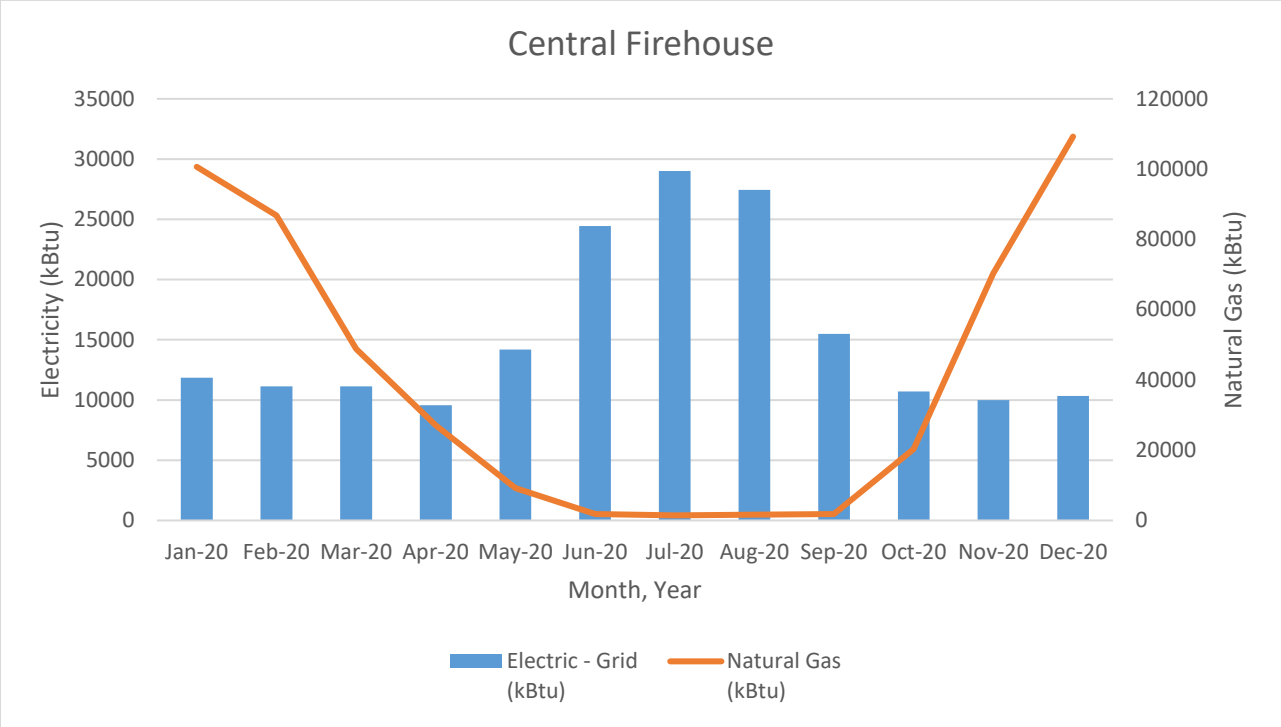
Andretta Pool, Electricity



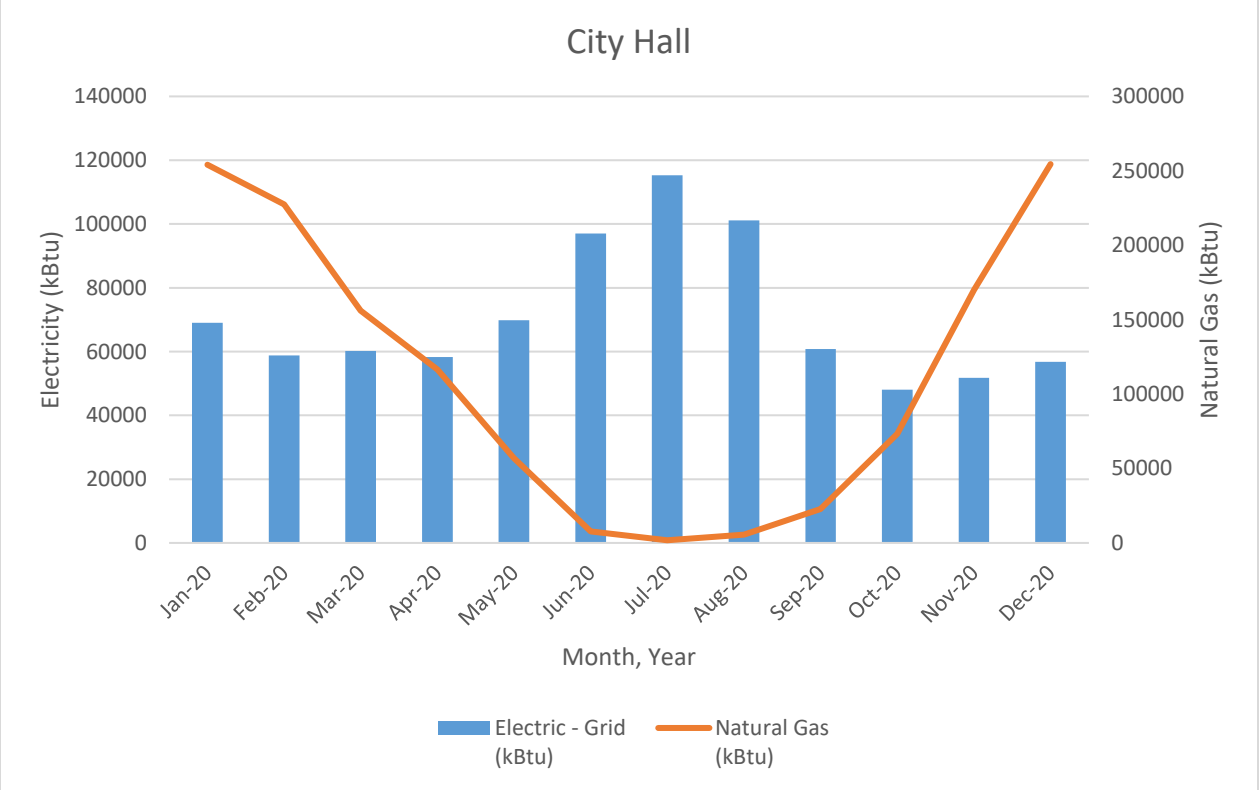
Andy Murphy Neighborhood Center, Electricity and Natural Gas



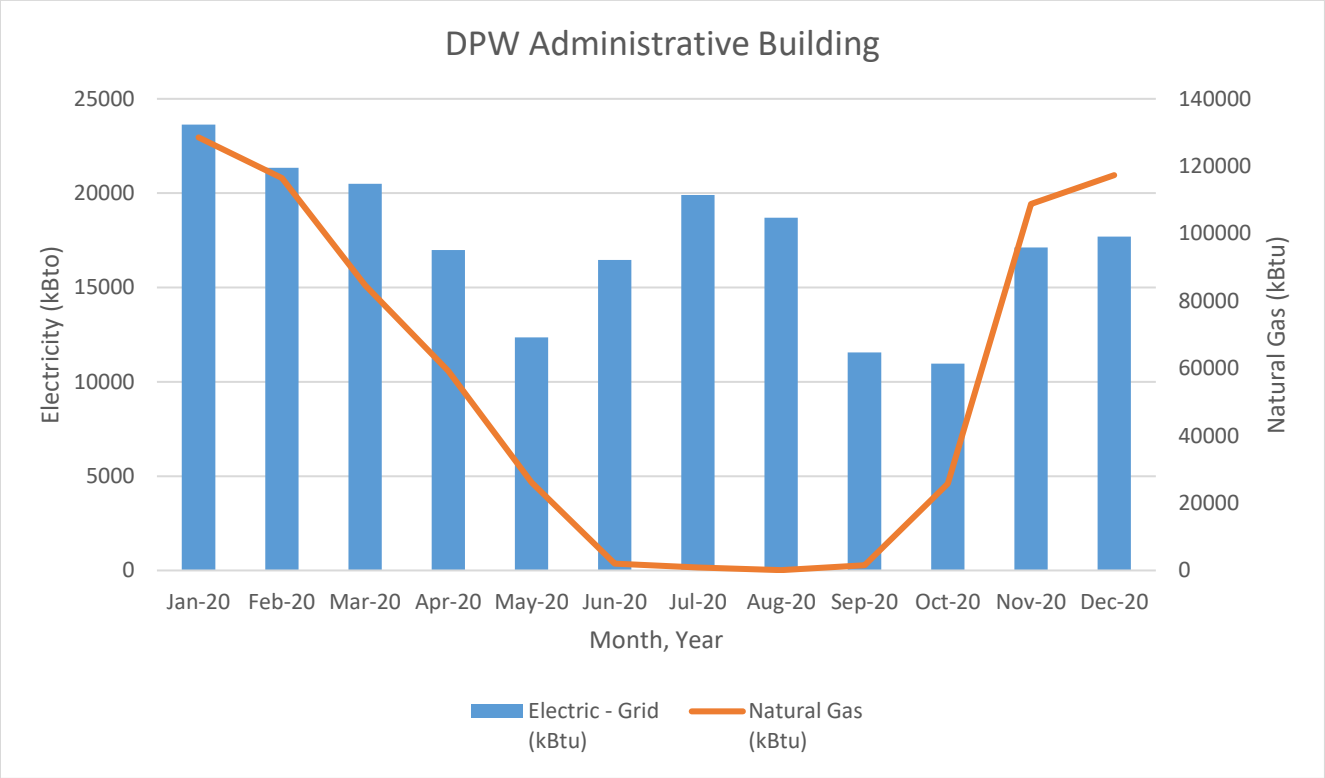
Central Firehouse, Electricity and Natural Gas



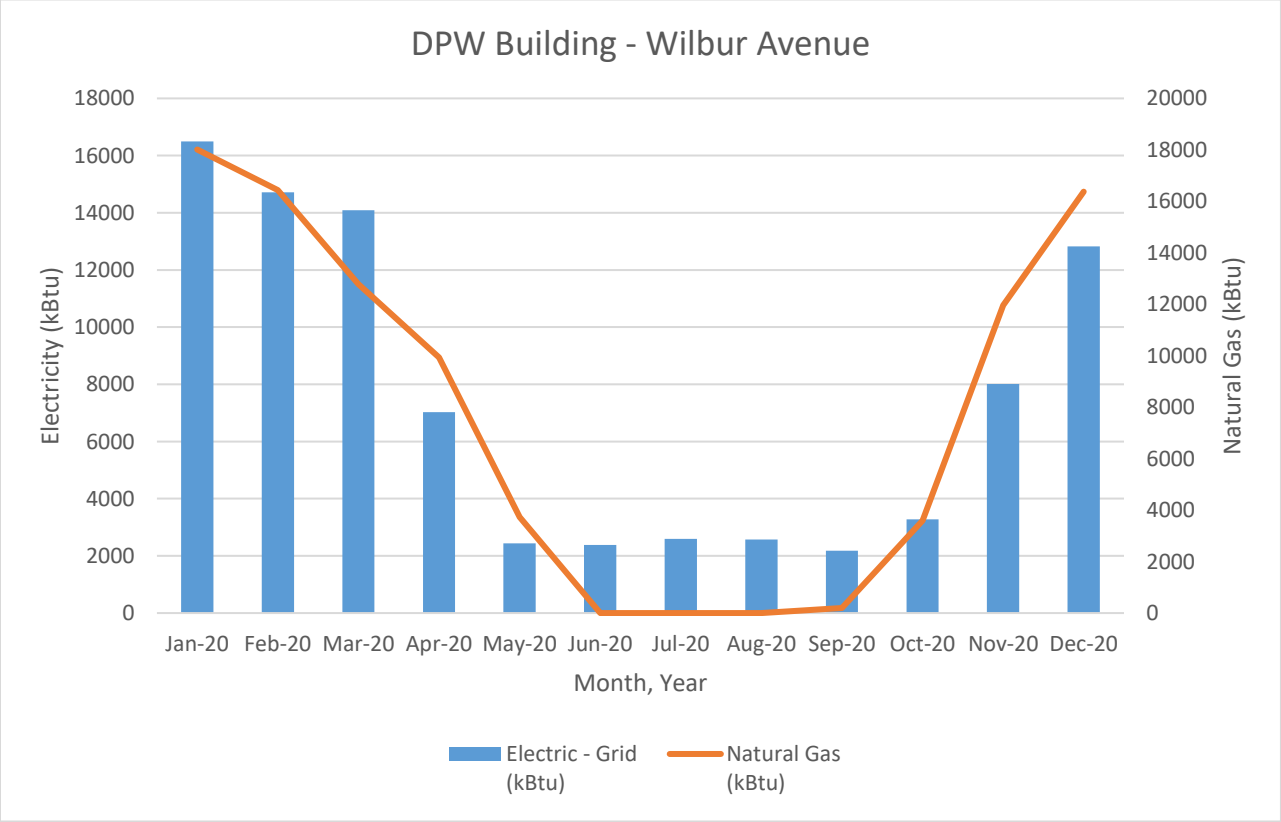
City Hall, Electricity and Natural Gas



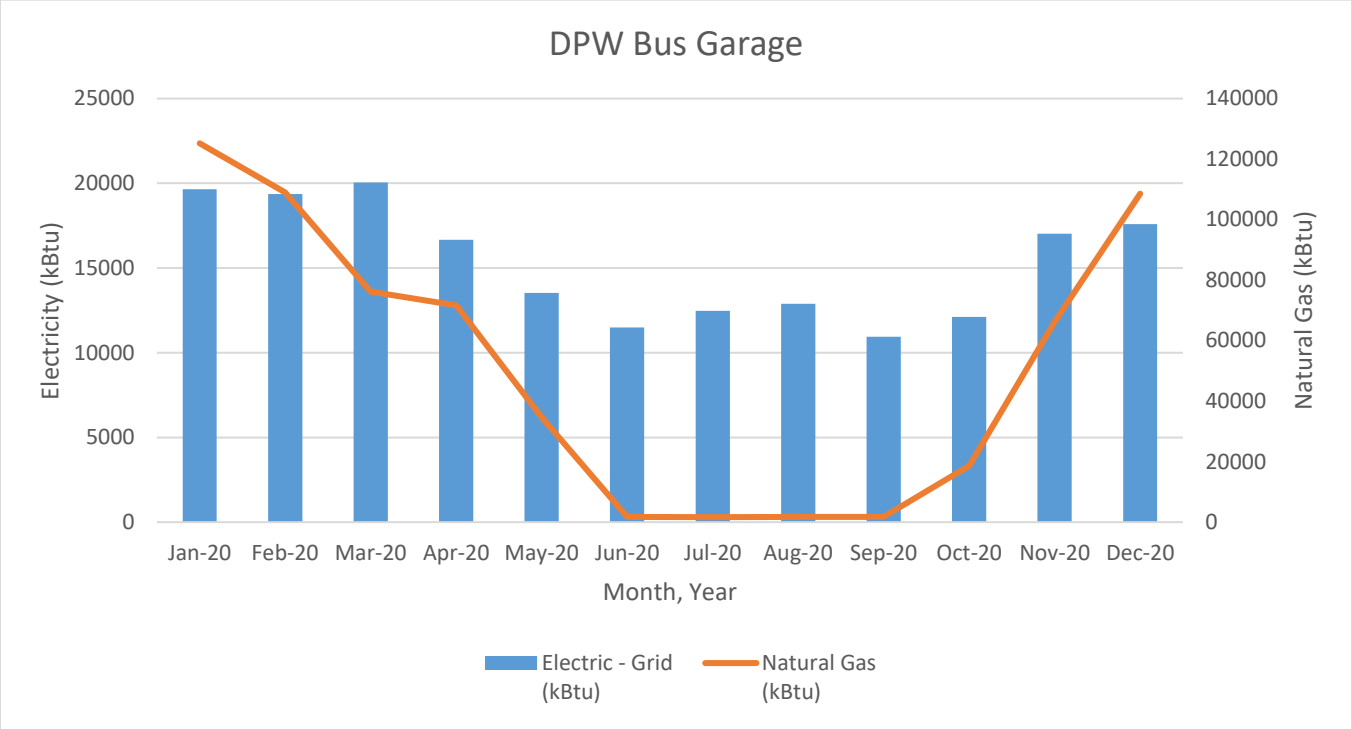
DPW Administrative Building, Electricity and Natural Gas



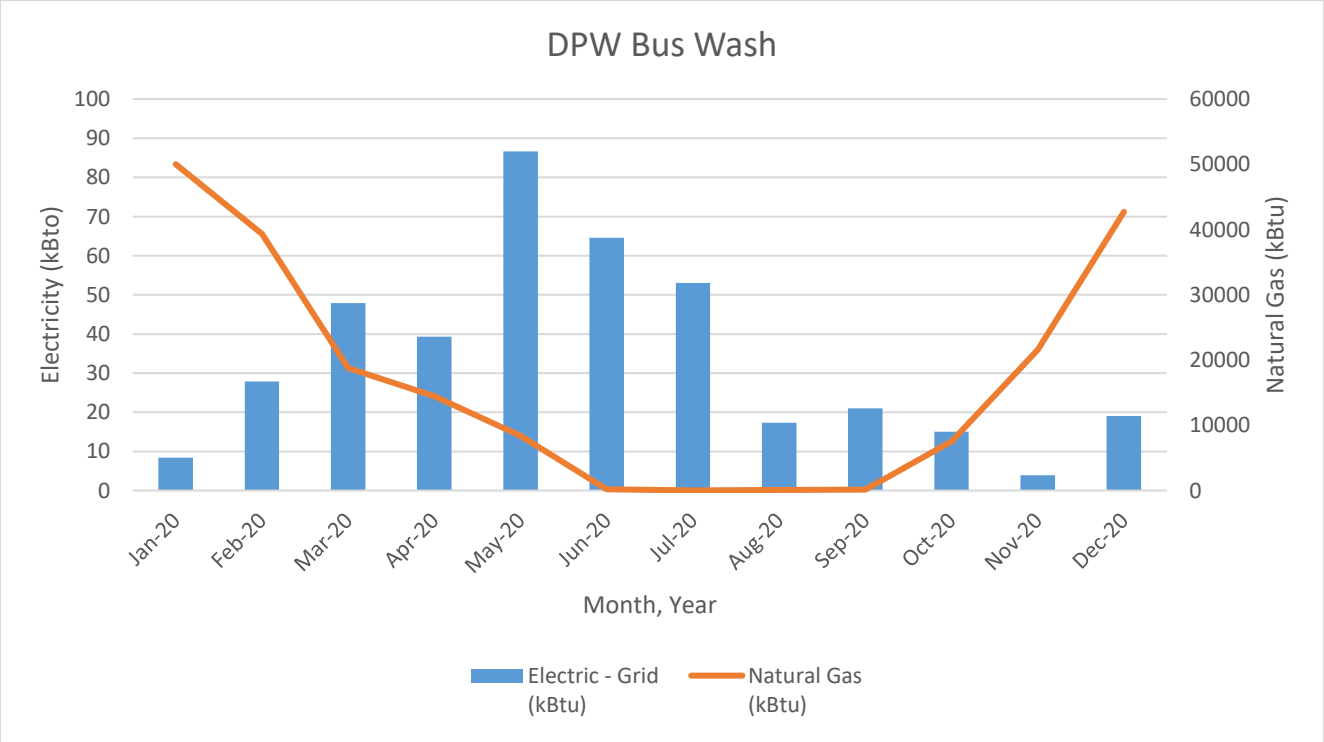
DPW Building – Wilbur Avenue, Electricity and Natural Gas



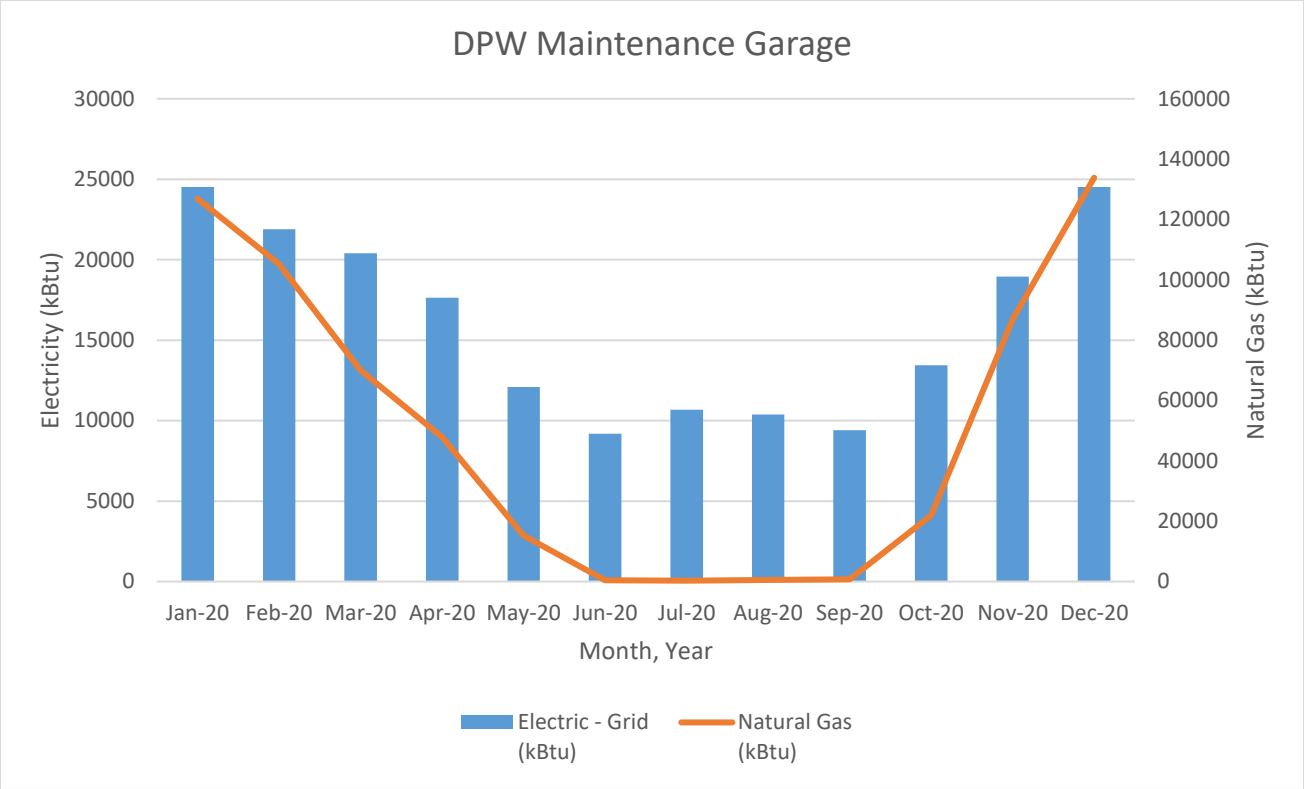
DPW Bus Garage, Electricity and Natural Gas



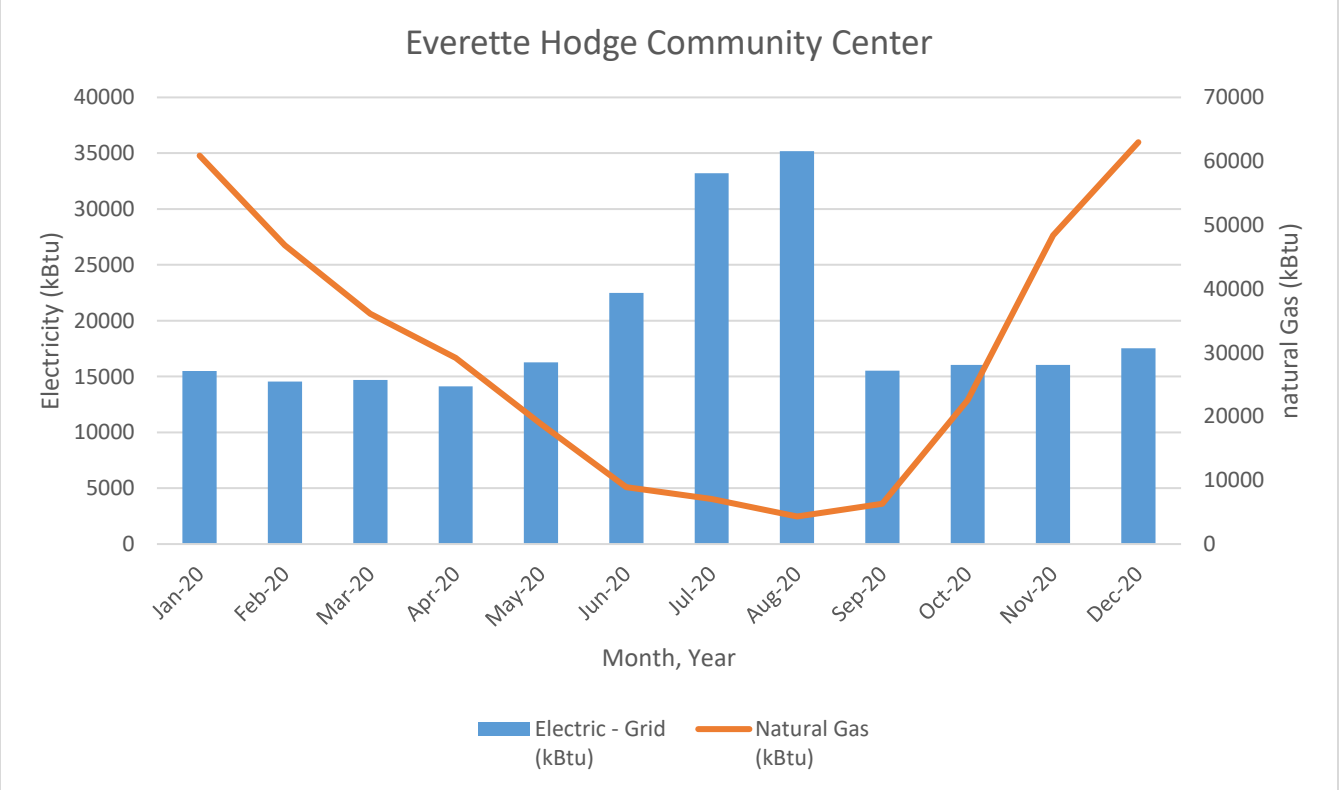
DPW Bus Wash, Electricity and Natural Gas



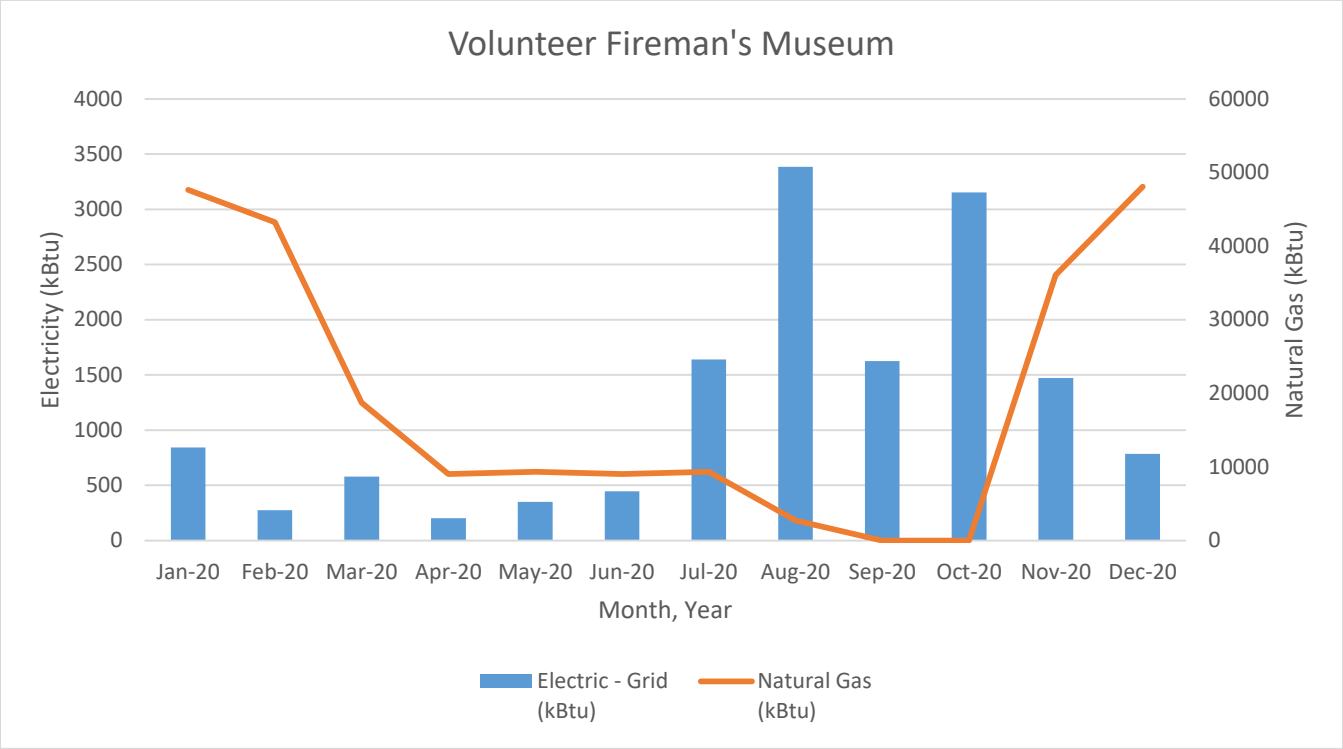
DPW Maintenance Garage, Electricity and Natural Gas



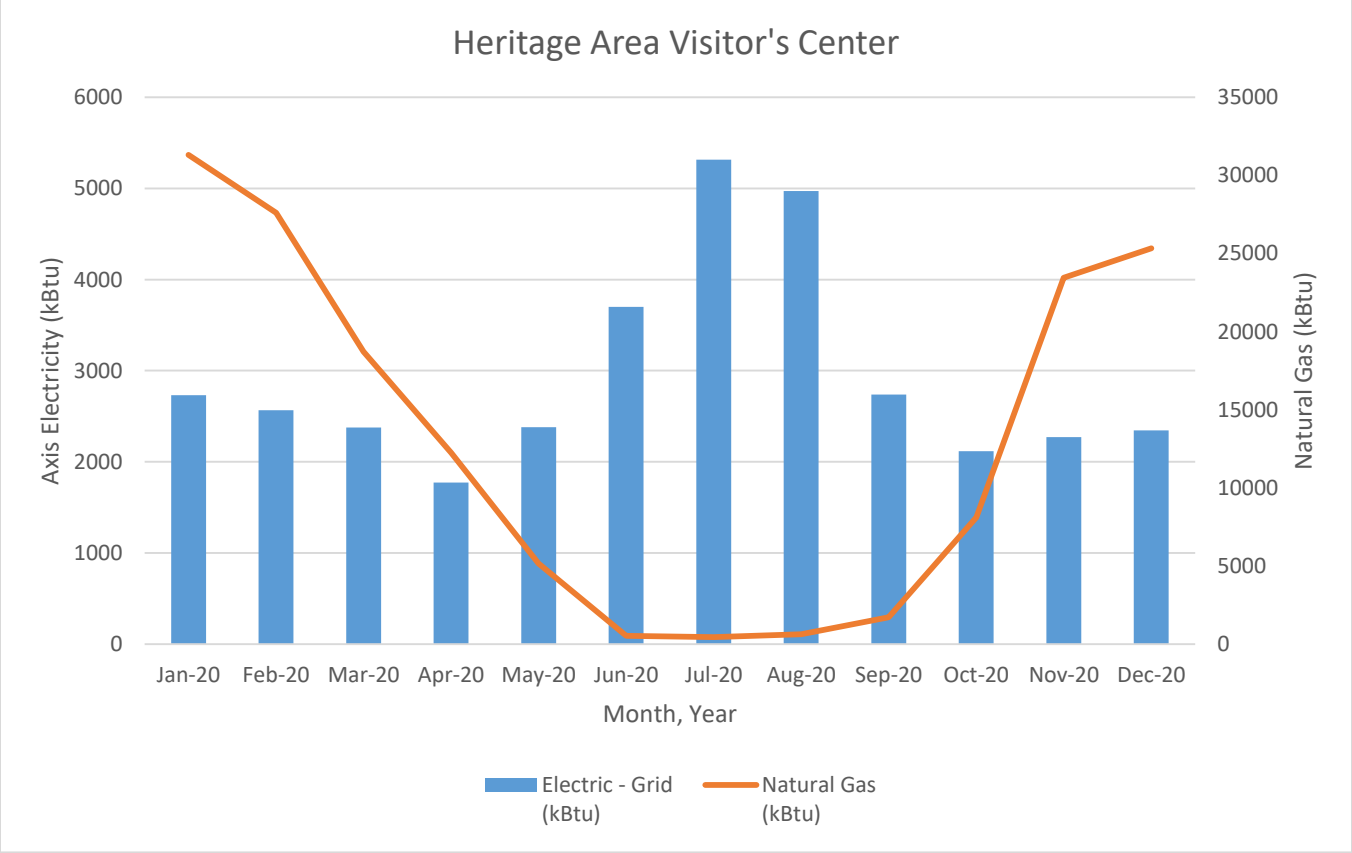
Everette Hodge Community Center, Electricity and Natural Gas



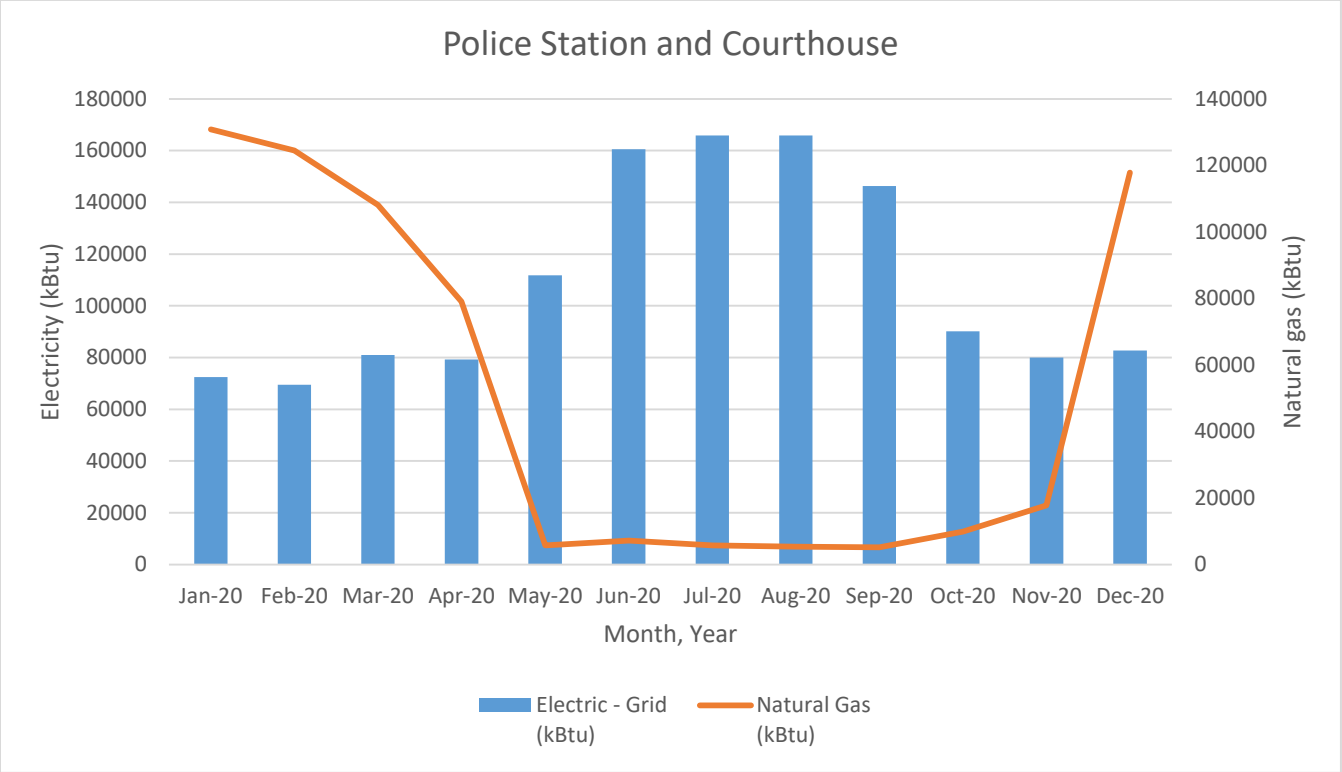
Volunteer Fireman’s Museum, Electricity and Natural Gas



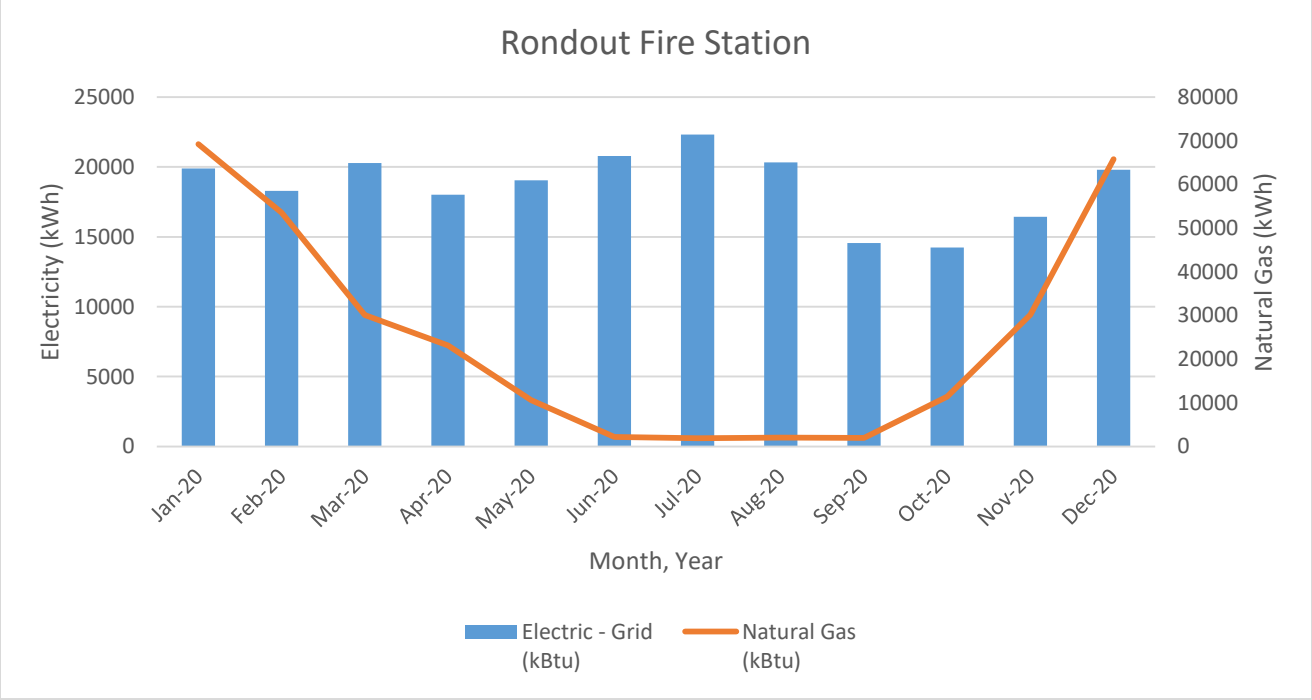
Heritage Area Visitor’s Center, Electricity and Natural Gas



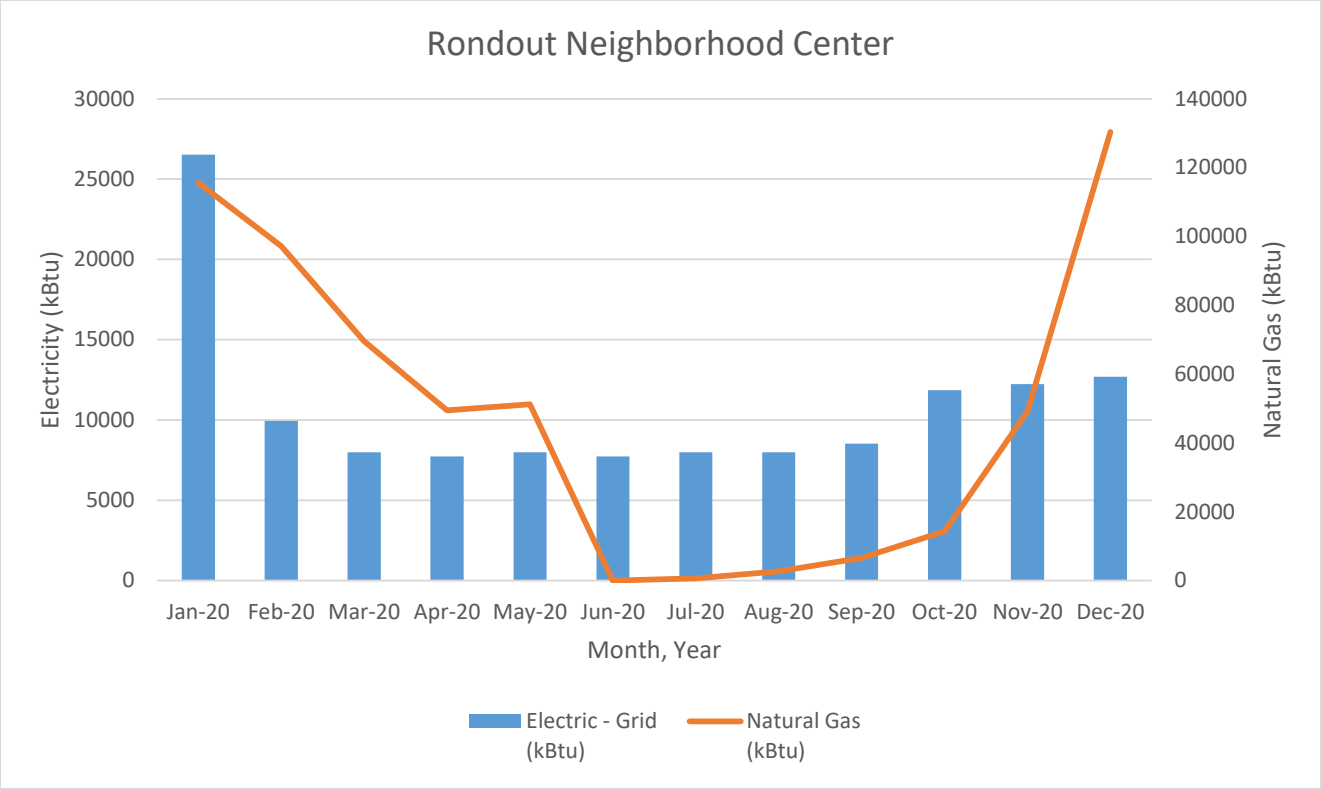
Police Station and Courthouse, Electricity and Natural Gas



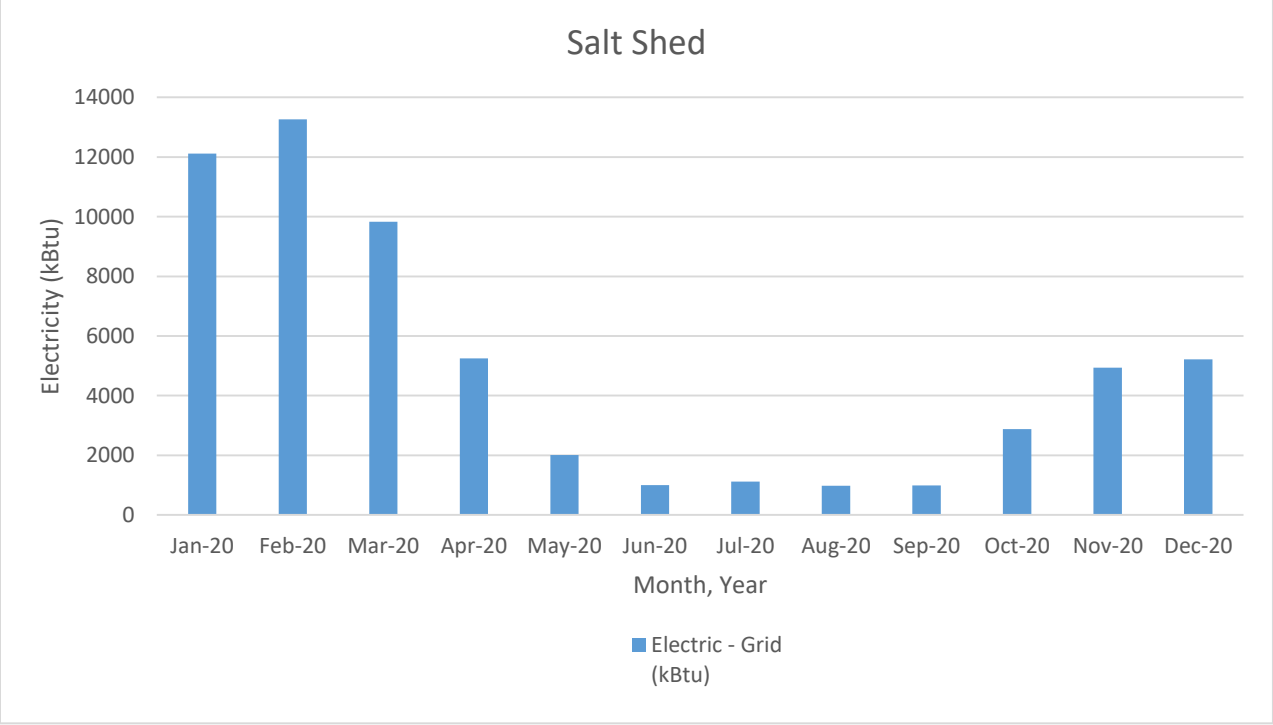
Rondout Fire Station, Electricity and Natural Gas



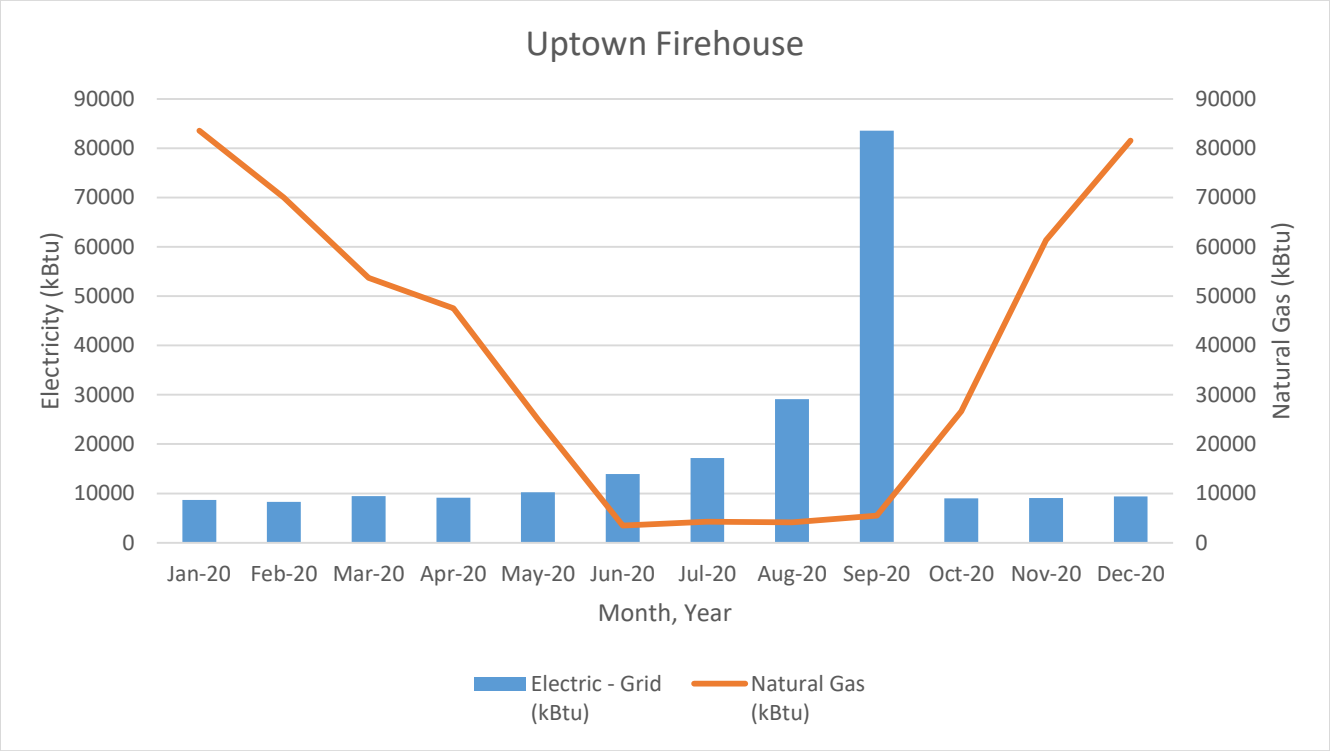
Rondout Neighborhood Center, Electricity and Natural Gas



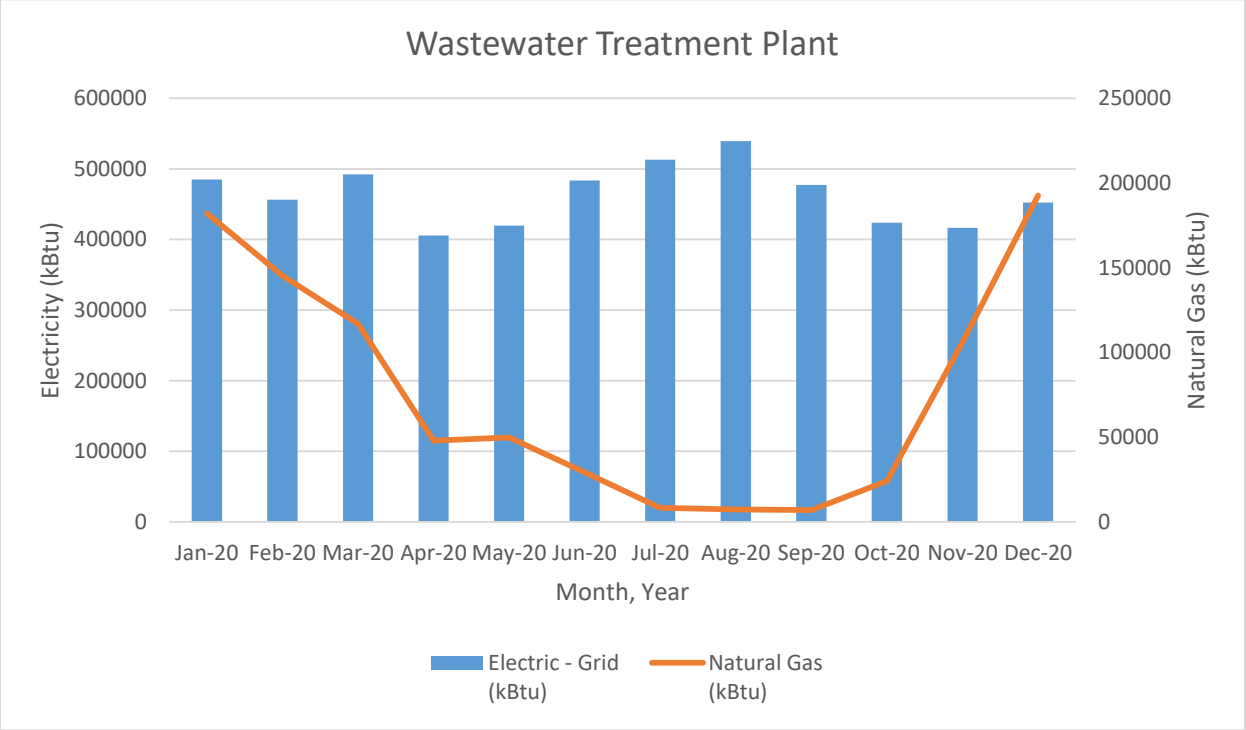
Salt Shed, Electricity



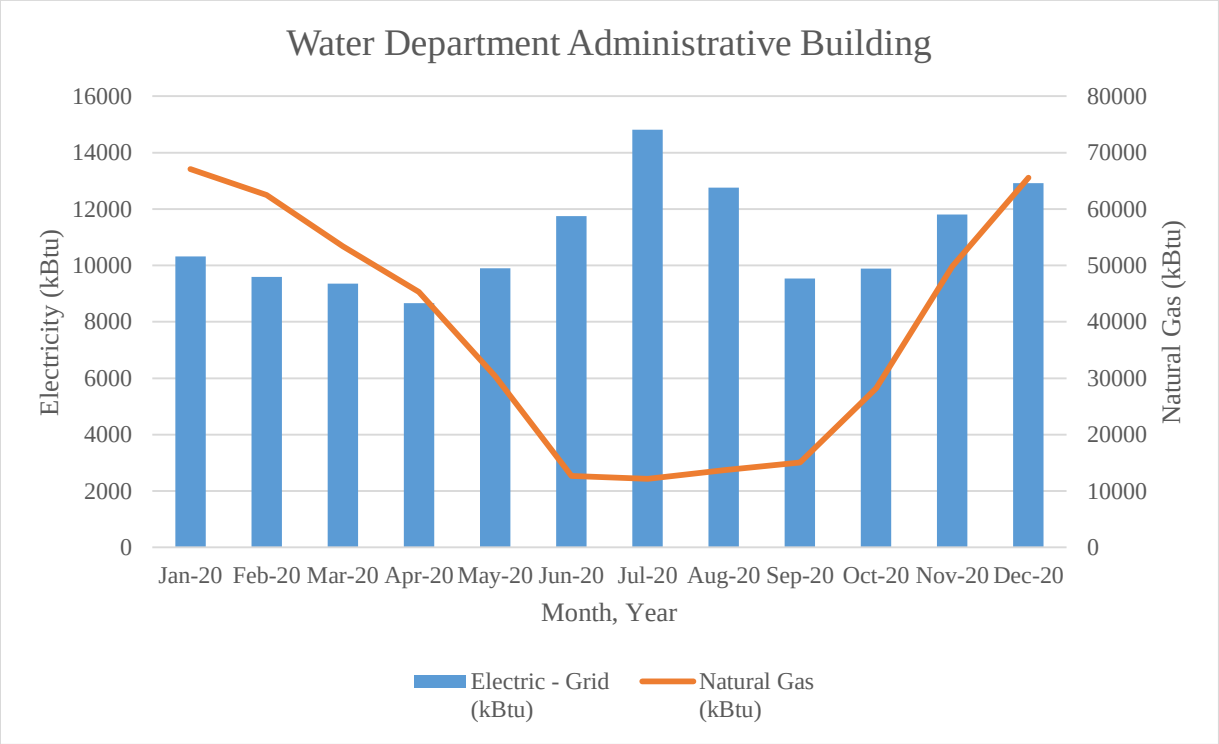
Uptown Firehouse, Electricity and Natural Gas



Wastewater Treatment Plant, Electricity and Natural Gas

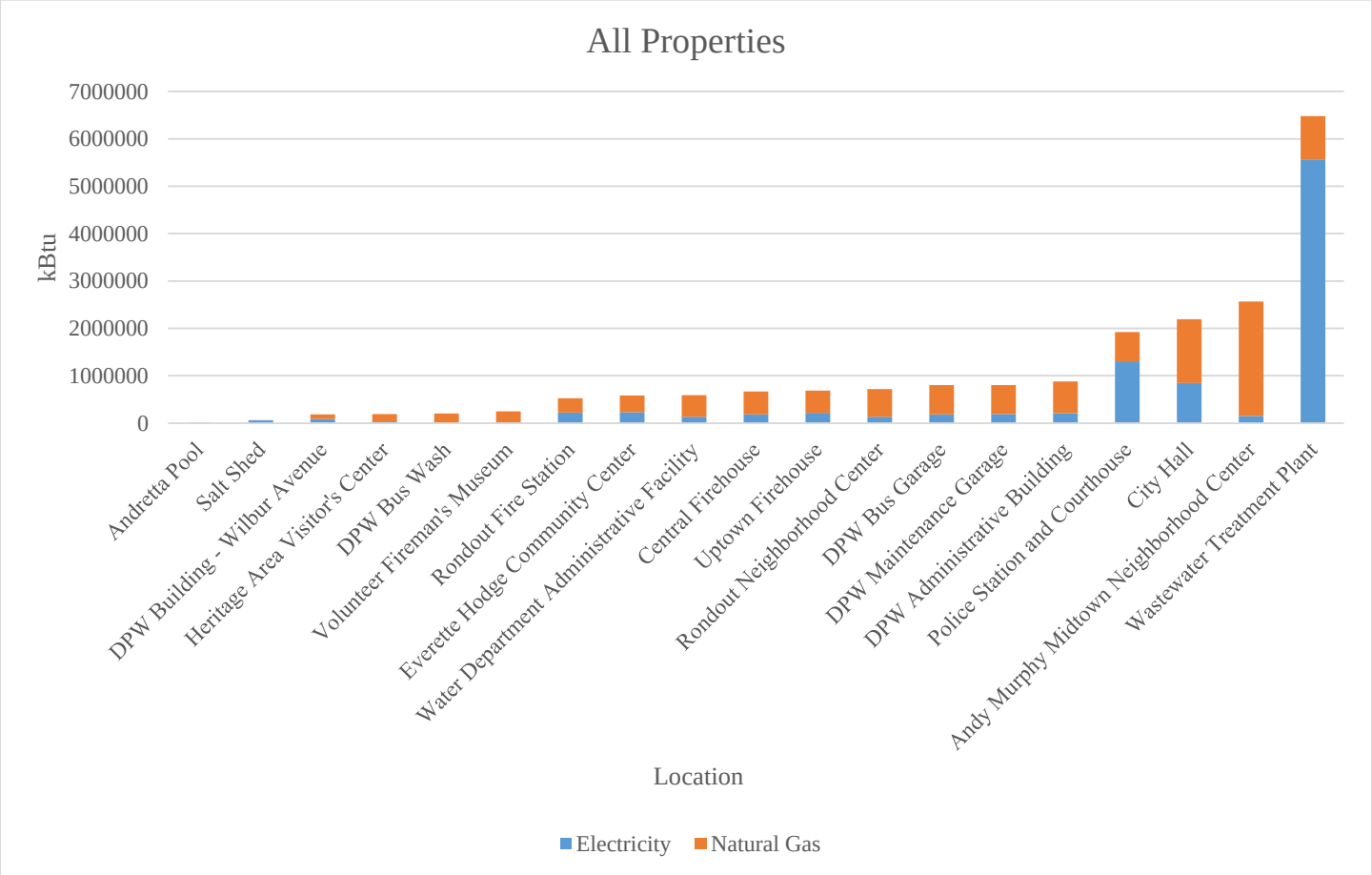


Water Department Administrative Building, Electricity and Natural Gas



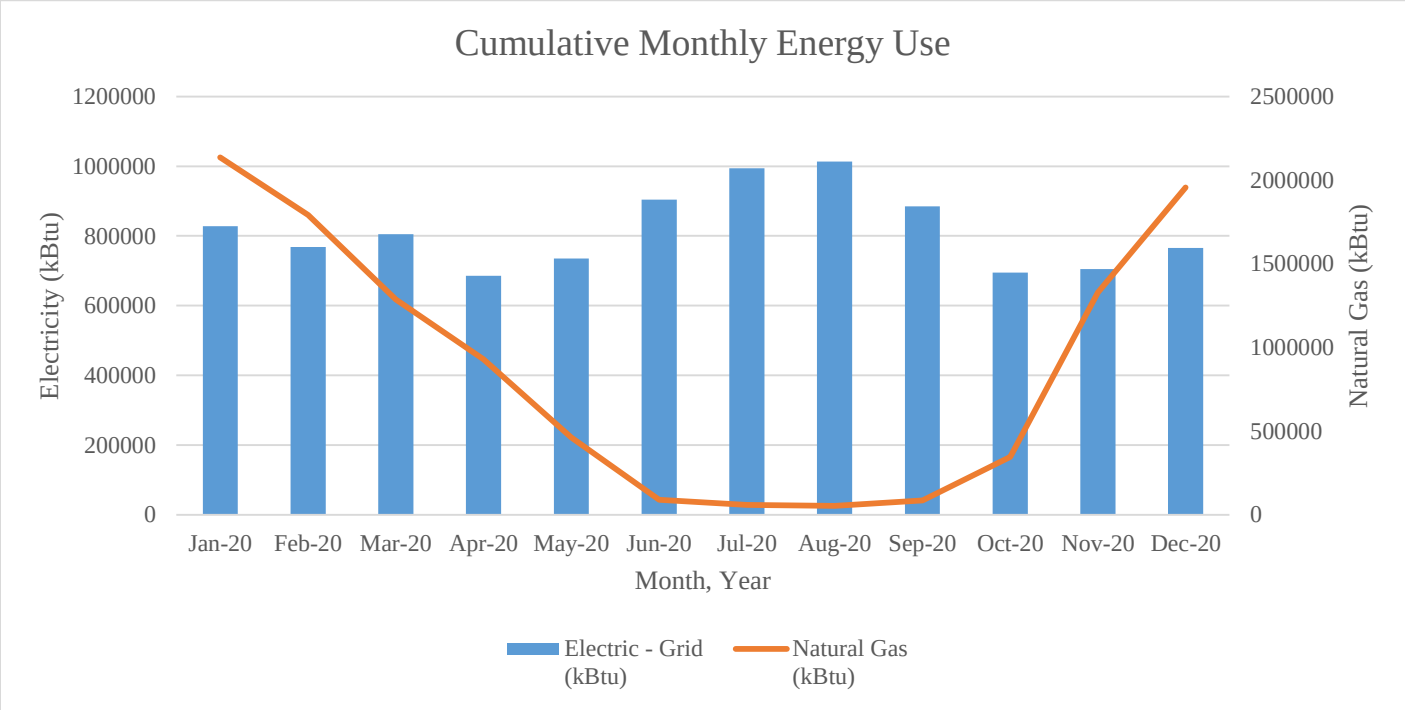
Cumulative Data:

The graph below details total energy use per building with combined metrics, represented from lowest energy user to highest energy user. All figures are represented in Kilo British Thermal Units (kBtu).



Cumulative Data:

The graph below is a representation of the cumulative monthly energy use information for every building in this report. As with the individual graphs, the left axis is scaled to electricity data, while the right axis is scaled to natural gas data. All figures are represented in Kilo British Thermal Units (kBtu).



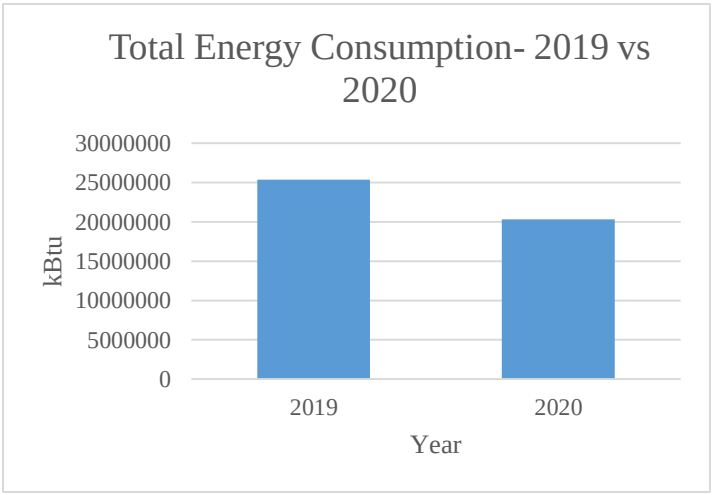
The graphs above represents the largest energy user as the Wastewater Treatment Plant at **6,480,754.14 kBtu** over the twelve month period, followed by the Andy Murphy Neighborhood Center and City Hall, with totals amounting to **2,562,479.9 kBtu** and **2,193,662.07 kBtu** respectively.

2019 vs 2020

Between 2019 and 2020, a number of sustainability initiatives were brought to completion that resulted in energy savings for the City of Kingston.

Several municipal buildings received LED Lighting Upgrades, including high energy users such as the Wastewater Treatment Plant, Central Firehouse, and the Rondout Neighborhood Center.

Further, City Hall received energy saving storm window installations to protect the building from heat loss in the wintertime, usage of which result in lower natural gas waste.



The energy savings from these and other projects have resulted in a downward trend in overall usage for benchmarked buildings.

In 2019, benchmarked buildings consumed 25,343,051 kBtu of combined electricity and natural gas. In 2020 benchmarked buildings consumed 20,304,836 kBtu combined electricity and natural gas.

Conclusions

Municipal electricity use exhibits minor fluctuations with slightly decreased use during spring months. Natural gas use exhibits major fluctuations, with minimal use during summer months, and substantial use during winter months. August is the month with greatest electricity use and January is the month with greatest natural gas use. Electricity use for August 2020 was **1,013,428.5 kBtu**. Natural gas use for January 2020 was **2,135,343.8 kBtu**.

By identifying the largest consumers of energy within the City of Kingston's benchmarked facilities, the City can focus efforts to continue a downward trend in overall energy use. By identifying the Wastewater Treatment Plant, the Andy Murphy Neighborhood Center, and City Hall as the three buildings with the highest overall usage the City should continue to focus energy efficiency efforts on these buildings to further reduce their overall impact.

It is forecasted that energy use in benchmarked buildings in the City of Kingston will continue to decrease. This is due to continued sustainability efforts and energy efficiency projects designed to reduce the City of Kingston's environmental impacts. Furthermore, the 2030 Climate Action Plan will include more ambitious goals to be achieved for reductions in energy use, as well as strategies to reach those goals.

Cost and energy use data from this report provides the City of Kingston with the information necessary to increase operational efficiently, effectively use taxpayer resources, and inform further energy conservation policy and program development. The City of Kingston continues to set progressive targets for energy reduction through strategic efforts focusing on energy conservation and sustainable operations.

For more information on these and other sustainability initiatives in the City of Kingston please visit: https://www.kingston-ny.gov/Sustainability