

Battery Park City 2020 and 2021 Greenhouse Gas Inventory Update



Battery Park
City Authority

April 2023



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2020 and 2021 GHG Inventory Update

Battery Park City and Battery Park City Authority (BPCA) greenhouse gas (GHG) emissions for 2020 and 2021 are presented below organized by sector, as well as relevant scopes per the Global Protocol for Community-Scale Greenhouse Gas Inventories (GPC) framework. This protocol is used for calculating and reporting emissions from community activities and sources from seven greenhouse gases: Carbon dioxide (CO₂), Methane (CH₄), Nitrous oxide (N₂O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), Sulfur hexafluoride (SF₆) and Nitrous trifluoride (NF₃). GHG emissions from BPC activities are reported by sector (energy, transportation, and waste) and by scope (scope 1, 2, or 3).

- **Scope 1** emissions are direct emissions produced from activities and sources within the neighborhood boundary such as fossil fuel combustion or internal combustion vehicles.
- **Scope 2** emissions are generated from the use of grid-supplied electricity, heat, steam, and/or cooling within the neighborhood boundary such as building electricity use or EV charging.
- **Scope 3** emissions occur outside of the neighborhood boundary due to activities that take place within the neighborhood boundary such as wastewater treatment or public transit.

These inventories follow the GPC framework and the BPC methodology used for the baseline 2017 GHG Inventory and the 2019 GHG Inventory. The following memo details the 2020 and 2021 inventories separately and provides a comparison of all BPC inventory years (2019, 2020, & 2021) to the baseline year of 2017.

2020 GHG Inventory

In 2020, about 88% of emissions for Battery Park City came from the stationary energy sector where most was allocated to grid electricity consumption, then split relatively evenly by fossil fuel consumption and district steam/chilled water. Transportation contributed 10% of total BPC emissions and waste contributed 2% of the total. Battery Park City Authority emissions were 97% due to stationary energy, with the remaining 3% made up of 2% from waste and 1% from transportation.

Further breakdown of the 2020 emissions inventory is provided in Table 1 and in Figures 1, 2, and 3.

Table 1: 2020 Inventory Results for BPC & BPCA by Scope and Sector

Sector	Scope	BPC 2020 Emissions (tCO ₂ e)	BPCA 2020 Emissions (tCO ₂ e)
Energy		138,071	1,723
Fossil Fuel Combustion	Scope 1	25,840	311
Grid Electricity	Scope 2	85,748	1,354
District Steam/Chilled Water	Scope 2	26,483	58
Transportation		16,577	24
BPCA Vehicle Fleet	Scope 1, 2	24	24
Passenger Vehicles	Scope 2, 3	6,655	-
Public Transit	Scope 3	9,898	-
Waste		2,940	29
Landfilled Waste	Scope 3	2,720	20
Biologically Treated Waste	Scope 1	7	6
Wastewater Treatment	Scope 3	213	3
Total		157,588	1,776

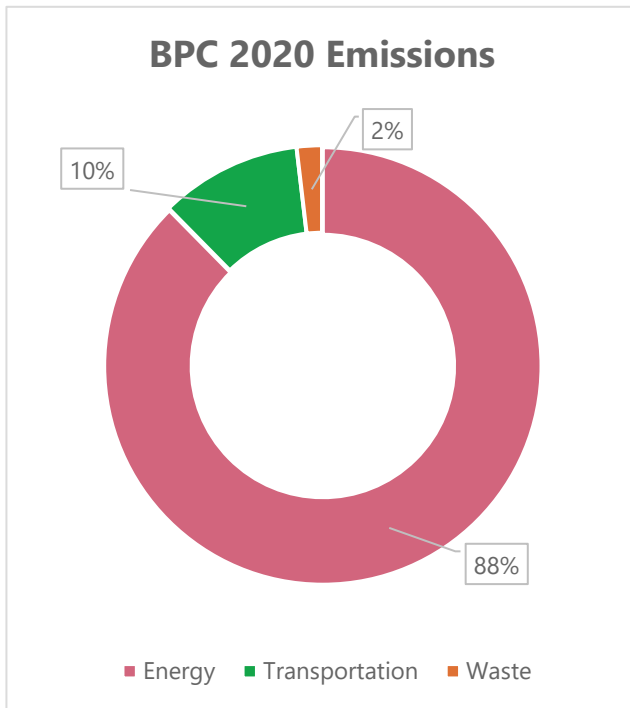


Figure 1: Battery Park City 2020 Emissions by Sector

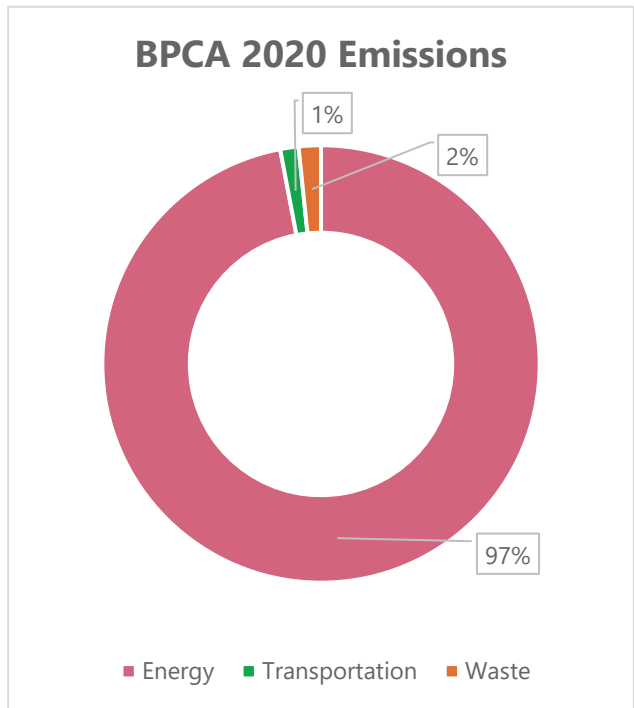


Figure 2: Battery Park City Authority 2020 Emissions by Sector

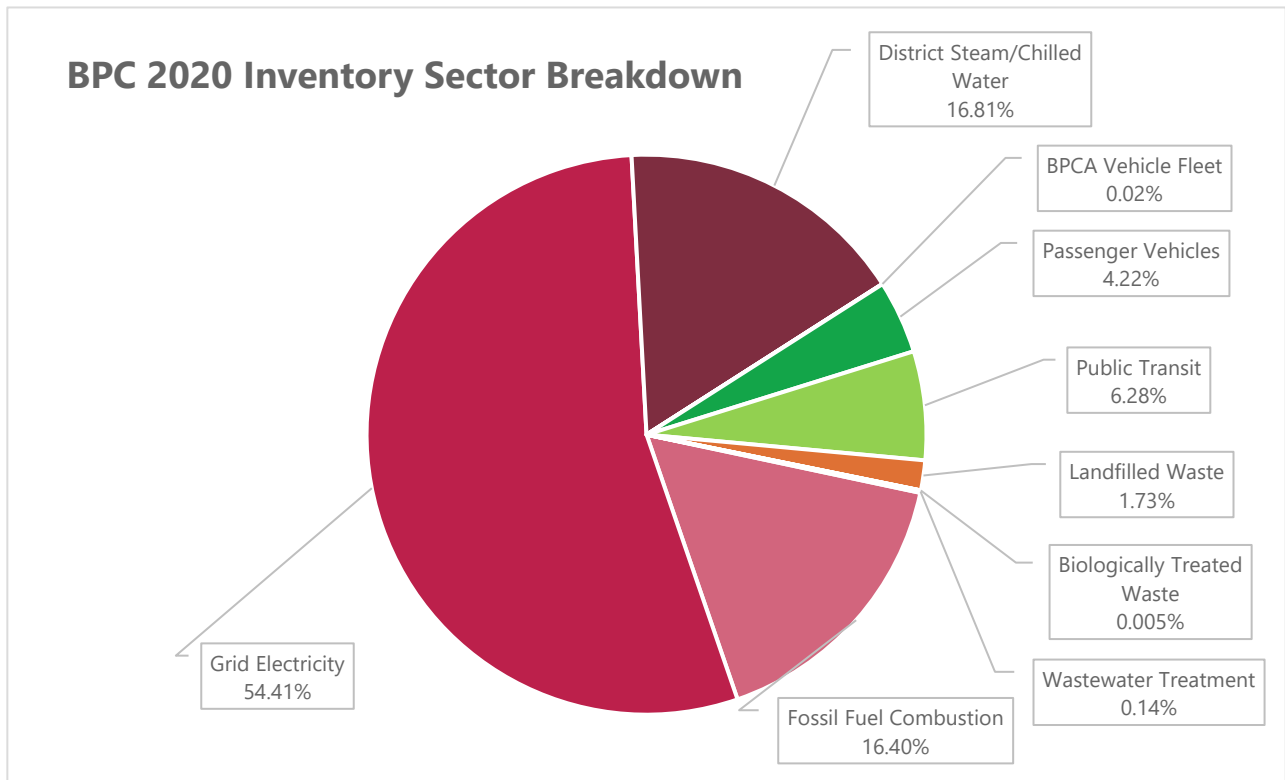


Figure 3: Battery Park City 2020 Inventory Breakdown by Sector

2021 GHG Inventory

In 2021, about 86% of emissions for Battery Park City came from the stationary energy sector where most was allocated to grid electricity consumption, then split relatively evenly by fossil fuel consumption and district steam/chilled water. Transportation contributed 12% of total BPC emissions and waste contributed 2% of the total. Battery Park City Authority emissions were 97% due to stationary energy, with the remaining 3% made up of 2% from waste and 1% from transportation.

Further breakdown of the 2021 emissions inventory is provided in Table 2 and in Figures 4, 5, and 6.

Table 2: 2021 Inventory Results for BPC & BPCA by Scope and Sector

Sector	Scope	BPC 2021 Emissions (tCO ₂ e)	BPCA 2021 Emissions (tCO ₂ e)
Energy		147,883	1,898
Fossil Fuel Combustion	Scope 1	24,638	330
Grid Electricity	Scope 2	95,918	1,510
District Steam/Chilled Water	Scope 2	27,327	58
Transportation		21,787	24
BPCA Vehicle Fleet	Scope 1, 2	24	24
Passenger Vehicles	Scope 2, 3	8,423	-
Public Transit	Scope 3	13,340	-
Waste		2,959	29
Landfilled Waste	Scope 3	2,754	18
Biologically Treated Waste	Scope 1	11	9
Wastewater Treatment	Scope 3	194	2
Total		172,629	1,952

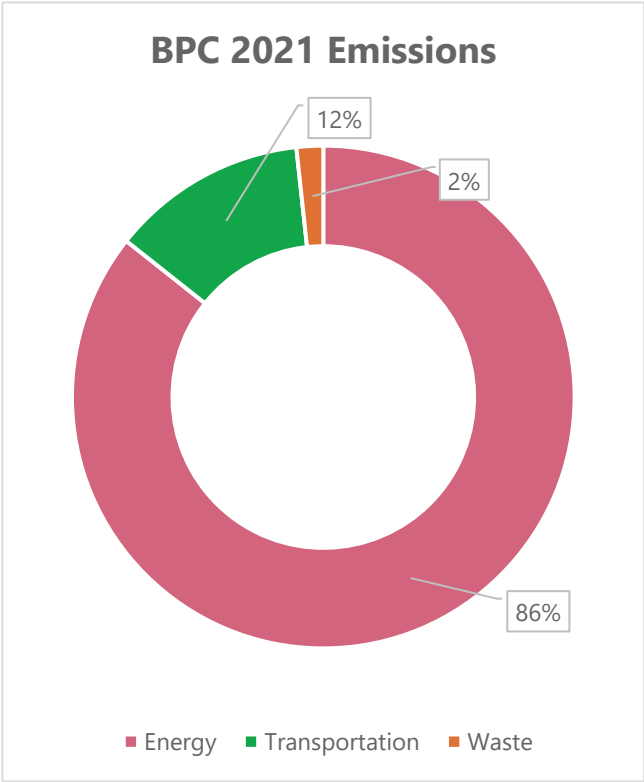


Figure 4: Battery Park City 2021 Emissions by Sector

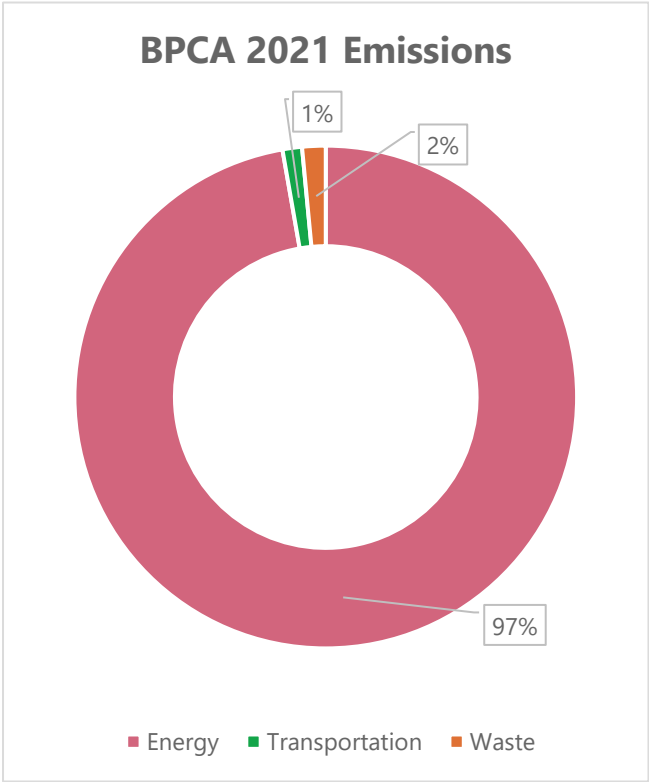


Figure 5: Battery Park City Authority 2021 Emissions by Sector

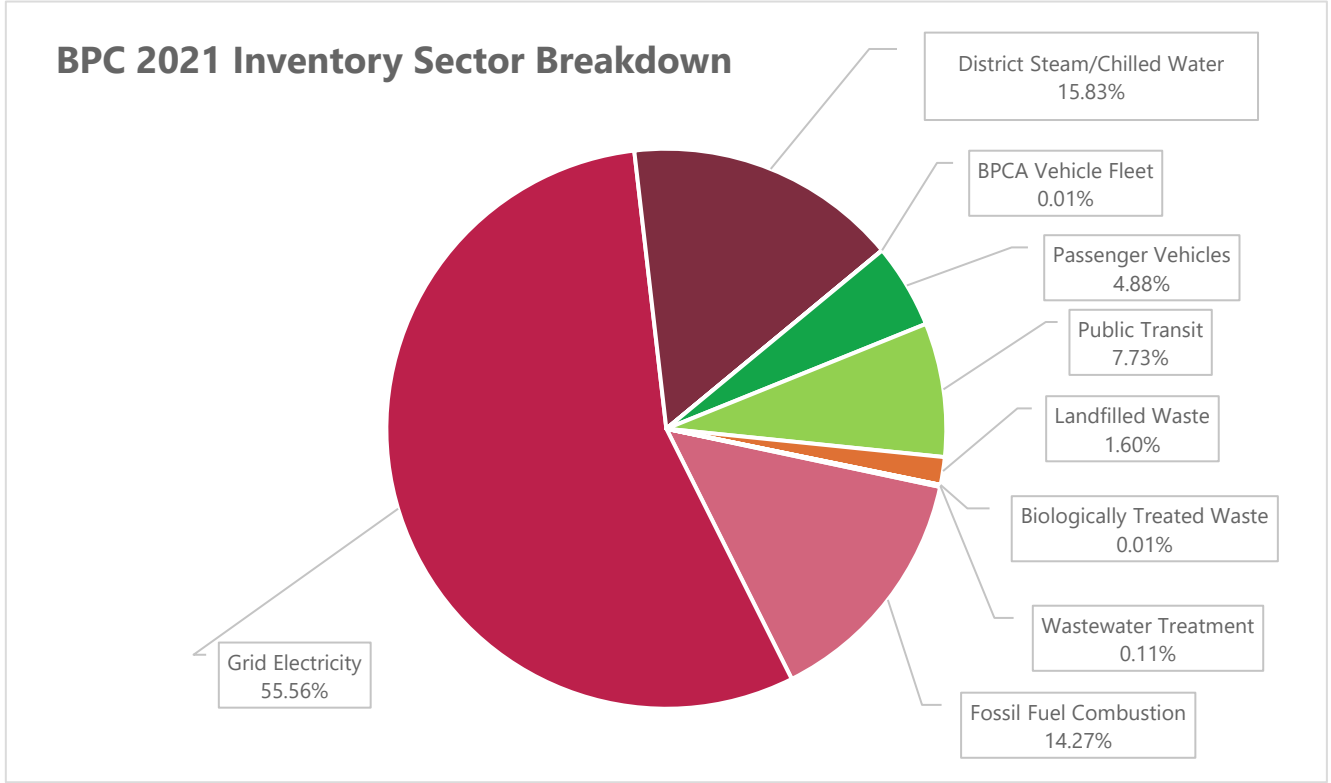


Figure 6: Battery Park City 2021 Inventory Breakdown by Sector

BPC GHG Inventory Comparison (2017-2021)

Results Comparison

Regular GHG inventory updates and reporting help to keep BPC on track towards its goal of carbon neutrality by 2050. With the 2020 and 2021 inventories, BPC now has four complete inventory years for comparison. Figure 7 shows total Battery Park City Emissions from 2017-2021, and Figure 8 shows Battery Park City Authority Emissions from 2017-2021; both exclude the year 2018 as there is no inventory calculated for that year. For Battery Park City, there was a 5% increase, 7% decrease, and 2% increase for years 2019, 2020, and 2021 respective to the baseline year of 2017. For Battery Park City Authority, there was a 3% increase, 5% decrease, and 5% increase for years 2019, 2020, and 2021 respective to the baseline year of 2017.

The 2020 and 2021 inventories show unique changes due to the Covid-19 pandemic beginning in early 2020 and disrupting business as usual operations through 2021 (and likely onwards). BPC emissions decreased 11.6% from 2019 to 2020, and then rose back up 9.5% between 2020 and 2021. This is largely due to decreased stationary energy use during the height of the pandemic, when most commercial spaces were not in operation. Changes in transportation modes in New York City were also a large contributor, with a much higher proportion of residents working from home instead of commuting into the office. The total emissions in 2021, around 172,000 mtCO₂e, are still lower than pre-pandemic levels in 2019, when the total emissions were around 178,000 mtCO₂e.

There was also a significant change in wastewater emissions for Battery Park City from 2019 to 2020 and 2021; the initial drop from 2019 to 2020 was from 932 mtCO₂e to 213 mtCO₂e, which is a 77% change. This is likely in part due to reductions in commercial water use during the pandemic but could also be due to a change in Local Law 84 reporting methodology for building water usage. Prior to 2020, building water use was reported as a separate volumetric quantity. However, for 2020 and 2021, only building water use intensities were reported, and hence had to be scaled by building square footage to estimate annual water usage.

Another major trend of note is the increase in New York City's electricity grid emission factor due to the Indian Point nuclear power plant being shut down and the resulting energy demand being met with natural gas. Though electricity usage was lower in 2020 and 2021 than in 2019, the overall BPC emissions from electricity were higher, due to a higher magnitude of emissions being associated with each kilowatt-hour (kWh) used. This can be seen in the emission trends from electricity used in buildings as well as for the subway as a mode of transportation; there was an overall reduction in kilowatt-hours used in buildings and passenger miles travelled on the subway over time since 2017, and yet a steady increase in emissions from both sources.

The 2020 and 2021 inventories show notable changes for Battery Park City Authority as well. BPCA emissions decreased 8% from 2019 to 2020, and then rose back up 9% between 2020 and 2021. The decrease in total BPCA emissions in 2020 was due to similar reasons outlined for BPC, such as decreased stationary energy use in BPCA spaces due to lack of use, and a slight decrease in use of the BPCA vehicle fleet. However, unlike Battery Park City as a whole, the Authority's emissions in 2021 were higher than its pre-pandemic emissions in 2019. This is due to a slight increase in fossil fuel usage in BPCA spaces from use of natural gas, and due to the increase in emissions intensity of electricity from the aforementioned nuclear power plant closure. Transportation emissions in 2021 were still lower than in all previous years, due to decreased fuel consumption, but were not significant enough to offset increases in stationary energy-based emissions.

For both BPC and BPCA, emissions from landfilled waste increased over time, despite varying levels of waste being generated. This can be partially attributed to the waste emissions accounting methodology used for calculations.

Emissions from landfilled waste were estimated using the IPCC First Order Decay (FOD) model where the full decomposition time (beyond one inventory year) is accounted for. This approach results in cumulative emissions being accounted for as waste decomposes in landfills over time. There has also been a slight increase in emissions from biologically treated waste, due to an increase in the amount of organic waste being composted at BPC.

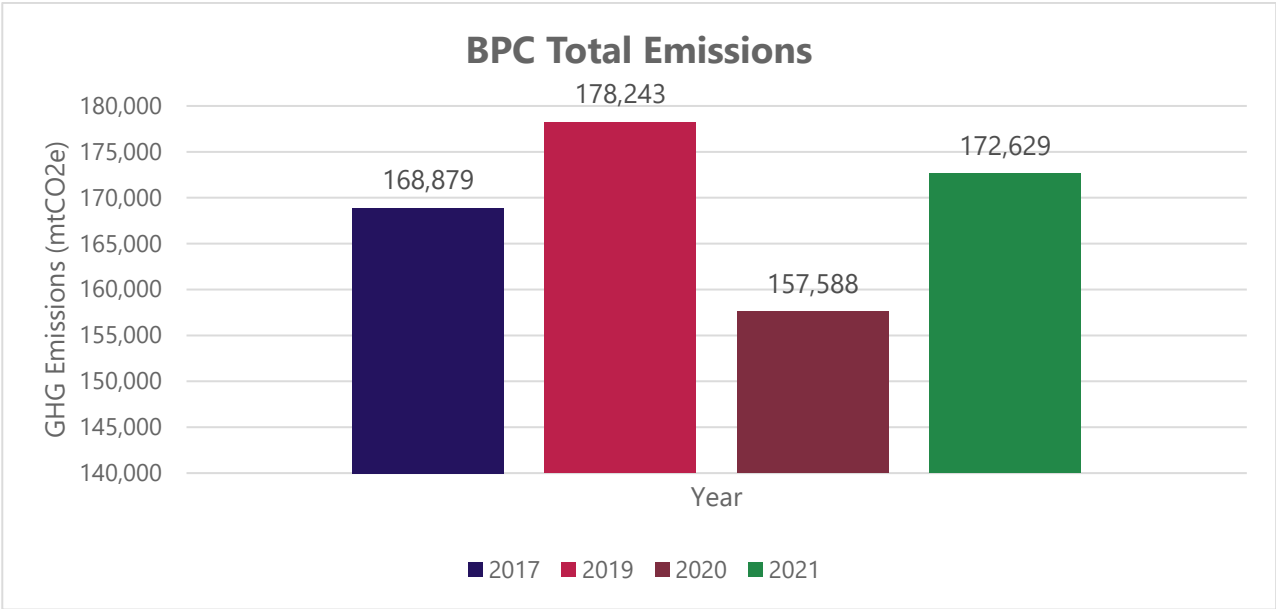


Figure 7: Battery Park City Total Emissions (2017, 2019-2021)

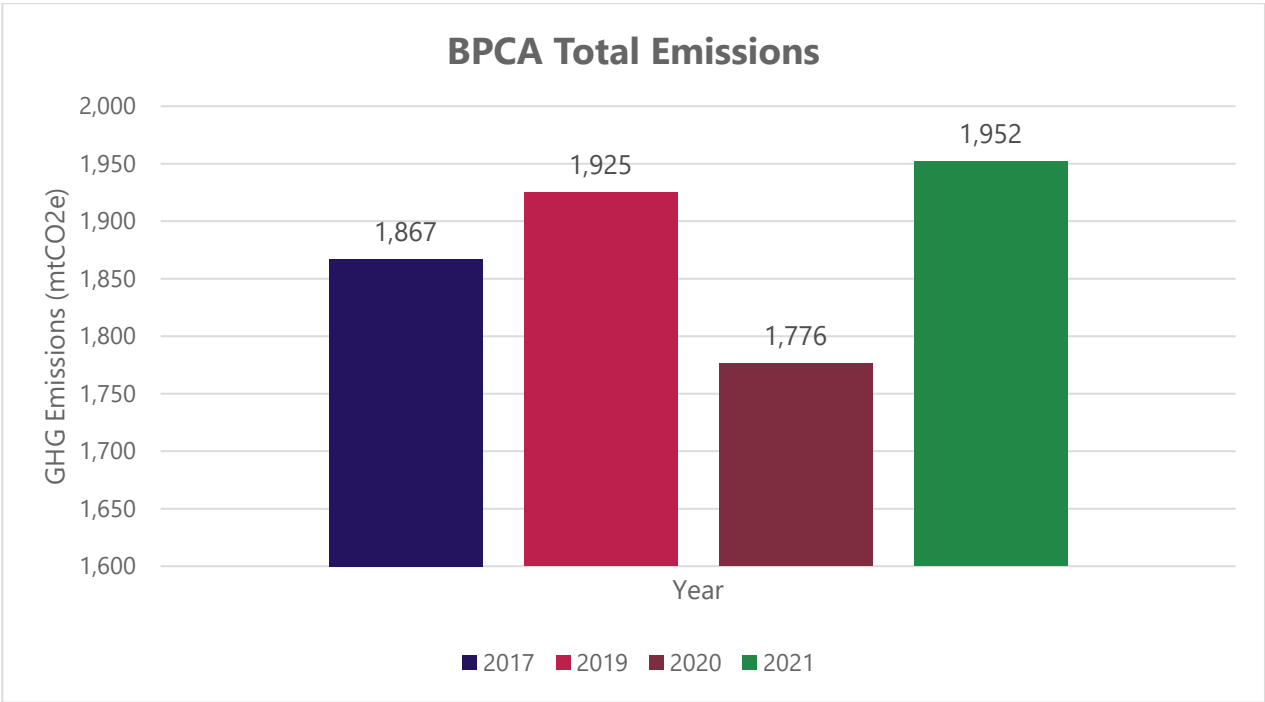


Figure 8: Battery Park City Authority Total Emissions (2017, 2019-2021)



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