DEC GHG Emission Annual Report Emissions and Value of Carbon (February 2023)

This documents the 2022 statewide GHG emissions report data.

The data used in the are available at the website: https://data.ny.gov/Energy-Environment/Statewide-Greenhouse-Gas-Emissions-Beginning-1990/5i6e-asw6. This report documents my spreadsheet that uses this information as input. There are four tables in the spreadsheet.

- Summary
  - Statewide Greenhouse Gas Emissions: Beginning 1990
- Economic Sector
  - Statewide Greenhouse Gas Emissions (MMT) by Sector: Beginning 1990
- Value of Carbon
  - New York State Value of Carbon Guidance
  - Physical Properties of Example Greenhouse Gases
  - Value of Carbon Benefits Per NYS Annual Values ($millions)
- Data
  - Data.NY.GOV export data input to this spreadsheet

The Open Data NY needs to be processed before it can reproduce the emissions report tables. I named ranges in the tab "Data" for each of the columns. This dataset includes all emissions, including excluded and net emissions in the first three columns. On the webpage details of when to use these columns are provided in the 'Columns in this Dataset' section". They are intended to allow users to properly sort for correct totals.

In my spreadsheet, the SUMIFS formula needs the qualifier: Gross, "Yes" to ensure that bunker fuels and net emissions are not included in the total. In the "Summary" tab annual totals are listed using the SUMIFS function to sum up all the mass by year, gas, and column 1 equal to yes for the two GWP categories. The resulting emissions by year are shown for both GWP 20 and GWP 100.

The "Summary" tab includes the differences for your information. For each year the difference between the two GWP accounting methods are listed. Note that the State's accounting increases emissions 41% in 2020. That difference has been increasing as the relative share of carbon dioxide decreases relative to methane and nitrous oxides. Below the main table I have added a table that shows the difference between the 2020 and 2019 inventories.

The "Economic Sector" tab breaks down the GHG emissions for both GWP approaches for six economic sectors. The Climate Act global warming potential (GWP) requirement to use a 20-year lifetime doubles the agriculture and waste sector emissions. To the far right there are % breakdowns of each sector relative to the total. The electric sector contribution is decreasing over time with buildings and transportation increasing.

The tab "Value of Carbon" in the spreadsheet lists the recommended social cost of carbon 2% discount rate values from 2020 to 2050 and the physical properties of GHG gases from the DEC guidance document and the estimated societal benefits for the 1990 baseline, the maximum emissions observed and the most recent year. The societal benefits are calculated using the carbon equivalents and social cost values for methane and nitrous oxides.