Question for Nathaniel Gilbraith

Because I do not have any feel for the magnitude of carbon charge costs and the upstate/downstate differences I prepared a version of the Example: Load Ratio Share Allocation table in Mr. Gilbraith's Carbon Charge Residuals: Allocation Options slides for next Monday's meeting that uses the EPA Clean Air Markets Division data for July 19, 2017 at hour 17, the peak load for summer 2017. I think these numbers are valuable information for all stakeholders but I have questions that need to be resolved. In particular I could not figure out the source of one value in the example table and I would like to know the order of magnitude costs NYISO thinks we are dealing with for the possible carbon charge.

Input Data Methodology

This section describes the methodology I used. There are significant limitations to this approach that limit the application to no more than an order of magnitude approximation. If you have any questions please let me know.

The attached spreadsheet is based on EPA Clean Air Markets Division data for July 19, 2017 at hour 17. Tab "Raw" is simply the data from EPA and tab "Data" lists the parameters I was interested in. I added a column for the NYISO zones and manually entered that data. After years of dealing with NYS emissions data from this source I have a pretty good idea of the location of sources and I did use the Gold Book to confirm zones. There are some emissions questions however. I assumed that the RED-Rochester, LLC-Eastman Business Park, Momentive Performance Materials, and Lehigh Northeast Cement Company sources listed in the EPA data base do not provide electricity to the grid (cells are highlighted in orange). I could not find the following sources in the Gold Book (apparently EPA and NYISO label them differently): Bayswater Peaking Facility, Edgewood Energy, Nissequogue Energy Center, and Riverbay Corp. - Co-Op City. I assumed that all the cells highlighted in yellow are in Zone K. If they need to be corrected simply enter the correct zone and the final numbers will be corrected. Finally, there are small combustion turbines that do not report CO_2 to EPA so no values were listed. I estimated a CO_2 value for those sources (highlighted in green) using the reported heat input and the average CO_2 mass emissions rate (CO_2/mmBtu) for the EF Barrett combustion turbines (highlighted in blue).

There also are some load questions. In the first place the EPA load data is gross load so it is not the load that is sold to NYISO. For this back of the envelope analysis I assumed that this would be close enough. The EPA data base also includes units that do not report hourly load in MW. Instead they report steam (1000 lbs per hour). I assumed that all those sources do not generate load to the grid or at least not all of it. For those sources, I manually copied the CO_2 value to another column and set the CO_2 values used to zero and highlighted them in red.

The "Summary" tab lists the total Gross load, CO_2 mass and other emission parameters for the State and by zone for the peak hour of the summer of 2017. I also calculated totals for Downstate (Zones J and K) and Upstate (everything else).

Load Ratio Share Allocation Table

Tab "IPPTF" mimics the Example: Load Ratio Share Allocation table from the presentation and uses the EPA data to estimate the order of magnitude of costs and emissions. I copied the presentation slide

data in columns A-F and substituted the EPA data in columns H-J. I think I figured out all the data except the Total Dollars to Allocate in row [6] column [c]. The most important question I have is where does that number come from? I noticed that the LSE Gross Carbon Payments Dollars (row [5] column [c]) was the same order of magnitude as the Total Dollars to Allocate and that the LSE Gross Carbon Payments Dollars presentation values were 1,000 times less than the LSE Gross Carbon Payments Dollars calculated using EPA data so I made the wild assumption that the total dollars to allocate should also be 1000 times greater. In order to correct that just enter the appropriate value in cell J13.

Frankly my main interest was the magnitude of carbon charge costs and that is not dependent upon my wild assumption. The good news is that this the peak load hour so the values are the greatest but it appears that we are talking about a couple of hundred thousand dollars every hour. There are 8,760 hours a year so we are approaching $2 billion a year if you assume that the average load is 50% of this peak. Is this the order of magnitude NYISO is projecting?

Thank you.

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