On August 3, 2020 I submitted a letter to Fred Hill at RGGI about the "Investment of RGGI Proceeds in 2018" report. This attachment documents the letter and response received from RGGI on August 10, 2020.

Letter

I am writing to call your attention to what I believe are mis-leading statements in the Investment of RGGI Proceeds in 2018 report. I believe that while this report demonstrates the value of investments for energy bill savings, it mis-represents the effectiveness of the RGGI program as a CO2 reduction program and the cost efficiency of the investment proceeds for emission reductions. I think it would be in the best interests of the citizens of the RGGI states that the document be revised and re-released. The opinions expressed in this letter do not reflect the position of any of my previous employers or any other company I have been associated with, these comments are mine alone.

In particular, the document and press release both state:

> In 2018, $248 million in RGGI proceeds were invested in programs including energy efficiency, clean and renewable energy, greenhouse gas abatement, and direct bill assistance. Over their lifetime, these 2018 investments are projected to provide participating households and businesses with $2 billion in energy bill savings and avoid the emission of 4.6 million short tons of CO2.

While it is appropriate to document the lifetime energy bill savings from RGGI investments, it is mis-leading to provide the lifetime avoided emissions value.

Emissions Reductions

The first problematic statement claims that "As a whole, the RGGI states have reduced power sector CO2 pollution over 50% since 2005, while the region's gross domestic product has continued to grow". The first year of the RGGI program was 2009, when the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont emitted 108,487,823 tons of CO2. The report's comparison starting date was 2005 when the emissions from those nine states equaled 147,032,069 tons. The 50% reduction is attributed to the RGGI program but the reduction between 2005 and the start of the program was 26% so clearly something else has been going on. This report was for 2018 and those states emitted 75,177,614 tons of CO2 so my estimate of the reduction since 2005 is 49%. Data are listed in Table 1: State-Level CO2 Emissions for Nine RGGI States 2005 to 2019. I used the EPA Clean Air Markets Division Data and Maps query tool to download the emissions from all programs by state for the period 2005 to 2018 so slight differences could be due to the data used.

Table 1: State-Level CO2 Emissions for Nine RGGI States 2005 to 2019 (Based on EPA CAMD state-level, all program data)

Year	CT	DE	MA	MD	ME	NH	NY	RI	VT	Total
2005	9,645,877	6,688,310	26,290,987	31,984,008	4,587,113	8,972,027	56,018,928	2,472,078	372,739	147,032,069
2006	8,817,347	5,801,950	23,070,167	29,285,335	3,400,149	7,568,883	47,912,271	2,100,664	445,565	128,402,332
2007	8,166,280	6,786,731	25,044,476	30,063,514	3,533,199	7,845,513	49,575,411	2,417,212	470,815	133,903,150
2008	7,023,889	6,145,756	21,189,865	27,311,068	3,691,277	7,638,957	42,844,448	3,292,515	439,975	119,577,750
2009	7,322,364	3,852,379	18,661,144	26,568,683	3,643,493	6,337,056	38,295,368	3,416,783	390,554	108,487,823
2010	8,527,102	4,319,231	19,808,043	28,909,658	3,943,457	6,420,303	42,563,848	3,504,392	448,403	118,444,437
2011	7,148,159	4,310,884	15,638,213	26,631,106	3,337,460	5,996,534	37,445,417	3,946,582	390,459	104,844,813
2012	7,117,572	5,027,136	13,220,130	22,190,810	2,940,072	5,180,602	35,800,053	3,735,785	383,358	95,595,518
2013	7,456,580	4,357,955	13,679,151	19,495,159	2,612,423	4,206,390	33,991,141	2,771,105	546,095	89,115,999
2014	7,271,363	4,102,282	11,799,430	21,709,133	2,255,472	4,469,550	34,692,016	2,767,290	488,027	89,554,562
2015	8,154,364	3,536,173	12,284,140	18,781,821	1,778,346	5,025,558	33,271,716	3,075,646	474,316	86,382,080
2016	7,681,343	4,020,498	11,573,958	18,930,928	1,562,749	4,111,083	31,440,500	2,829,861	499,633	82,650,554
2017	6,832,734	3,277,742	11,153,920	13,309,577	1,069,356	3,251,166	25,302,086	3,213,211	420,519	67,830,311
2018	8,743,239	2,820,305	8,343,986	18,514,329	1,183,215	3,584,976	28,023,412	3,539,026	425,128	75,177,614
2019	8,107,905	2,007,608	6,700,436	14,178,165	804,829	3,280,960	24,901,641	3,151,489	404,611	63,537,644

The important question for the citizens in the RGGI states is how effective is this program. I believe that the real measure of RGGI emissions reductions success is the reduction due to the investments made with the auction proceeds so I compared the annual reductions made by RGGI investments. However, the report does not provide the annual RGGI investment CO2 reduction values accumulated since the beginning of the program. In order to determine the effectiveness of RGGI investments as a tool to meet CO2 reduction goals, such as New York's Climate Leadership and Community Protection Act, we have to know the annual reduction so we can compare against the emissions in the baseline year of the law. Starting in 2015 the annual investment proceeds report has failed to list the cumulative annual tons of CO2 avoided and instead just provides the annual benefits of 2015 investments.

In order to accurately assess control effectiveness, I summed the annual benefits in Table 2, Accumulated Annual Regional Greenhouse Gas Initiative Benefits, which lists the annual avoided CO2 emissions generated by the RGGI investments from four previous reports. The accumulated total of the annual reductions from RGGI investments is 3,091,992 tons while the difference between total annual 2005 and 2018 emissions is 71,854,455 tons. The RGGI investments are only directly responsible for 4% of the total observed annual reductions over the 2005 to 2018 timeframe. I believe that the average of the three years before the program started is a better baseline and using that metric there was a 52,116,796 annual ton reduction (41%) to 2018 and RGGI investments accounted for 6%.

There is another change in the reported values between the 2018 report and previous reports that is also troubling. Until this report the Benefits of RGGI Investments table listed the annual and life-time benefits of that year's investments for eight categories. The 2018 report only lists the benefits for two categories: energy bill savings and total CO2 avoided. Is there a reason for the change?

Another aspect of control effectiveness is to compare the cost per ton reduced against the Social Cost of Carbon (SCC). To RGGI's credit this report has not claimed lifetime SCC benefits. Nonetheless, because the only CO2 reduction number presented is the lifetime value anyone trying to estimate the cost per ton reduced will get the wrong answer. From the start of the program in 2009 through 2018 RGGI has invested $2,775,635,415 and reduced annual CO2 emissions by 3,091,992 tons. The cost per ton reduced result, $898 per ton reduced, an order of magnitude greater than the IWG SCC value.

I conclude that in order to accurately reflect the value of RGGI as a GHG emissions reduction program that this emissions proceeds report should provide the cumulative annual reductions from RGGI because that is the "apples to apples" comparison to policy emission targets. I think the report should be revised and re-released to provide that information.

Table 2: Accumulated Annual Regional Greenhouse Gas Initiative Benefits

Time Period	RGGI Investments ($)	Avoided CO2 (Short tons)	Electric Energy Savings (MWhr)	Energy Savings (mmBtu)
Cumulative (2008-2014)	$ 1,365,479,614.73	1,700,000	2,400,000	5,300,000
2015	$ 410,158,329.31	298,410	505,761	1,500,000
2016	$ 436,397,470.69	382,266	409,630	1,600,000
2017	$ 315,600,000.00	438,099	699,019	1,424,199
2018	$ 248,000,000.00	273,217	699,019	1,424,199
Annual Totals	$ 2,775,635,414.73	3,091,992	4,713,429	11,248,398

Cost Efficiency	($/ton)	($/MWhr)	($/mmBtu)
Cumulative (2008-2014)	$ 803.22	$ 568.95	$ 257.64
2015	$ 1,374.48	$ 810.97	$ 273.44
2016	$ 1,141.61	$ 1,065.35	$ 272.75
2017	$ 720.39	$ 451.49	$ 221.60
2018	$ 907.70	$ 354.78	$ 174.13
Annual Total	$ 897.69	$ 588.88	$ 246.76

Time Period	Source
Cumulative (2008-2014)	https://www.rggi.org/sites/default/files/Uploads/Proceeds/RGGI_Proceeds_Report_2014.pdf
2015	https://www.rggi.org/sites/default/files/Uploads/Proceeds/RGGI_Proceeds_Report_2015.pdf
2016	https://www.rggi.org/sites/default/files/Uploads/Proceeds/RGGI_Proceeds_Report_2016.pdf
2017	https://www.rggi.org/sites/default/files/Uploads/Proceeds/RGGI_Proceeds_Report_2017.pdf
2018	https://www.rggi.org/sites/default/files/Uploads/Proceeds/RGGI_Proceeds_Report_2018.pdf

Response from Frederica Hill on August 10, 2020
From: **Fred Hill** <fred.hill@rggi.org>
Date: Mon, Aug 10, 2020 at 11:38 AM
Subject: RE: Investment of RGGI Proceeds in 2018
To: Roger Caiazza <roger.caiazza@gmail.com>
Cc: Info <info@rggi.org>

Dear Mr. Caiazza,

Thank you for your interest in the Investment of RGGI Proceeds in 2018 Report. We appreciate the thoughtful feedback provided.

- While the report spotlights the impact of RGGI investments on reducing carbon emissions, these investments are part of a broader story about the leadership of the RGGI participating states in showing it is possible to grow the economy while reducing emissions. Concentrating on only the emissions reductions attributed directly to RGGI proceeds investments would be ignoring the effects of the RGGI regional cap and the market signal of a CO2 allowance price, as well as other policies in each RGGI state. The emissions reductions achieved in the RGGI states from 2005 to 2009 can be attributed to a variety of factors, as examined in a 2010 draft white paper available on the RGGI website.

- Assessing program effectiveness by totaling the "annual benefits" in prior reports would be discounting the fact that most investments continue to accrue benefits after the year in which the investment was made. (For example, a weatherization investment completed in 2015 would continue to result in avoided CO2 emissions not only in 2015 but in years to come.) The report does not include a figure for "cumulative annual emissions reduced" because taking the sum of in-year reductions in each annual report would not be an accurate figure for the lifetime CO2 reductions resulting from investments.

- In terms of the change in the report in 2018, CO2 emissions avoided and energy bill savings are the metrics that are relevant across all categories of program investment. Additional metrics associated with more detailed categories continue to be reported for relevant program categories. The reason for this change is to better tailor the metrics for relevancy. (For example, "avoided MWh" would not be a relevant metric for a program funding electric vehicles.)

- Since 2015, the reports have focused on the investments made in a single year rather than the cumulative investments. This type of reporting is more accurate given that many states continue to refine and evolve their reporting methodologies over time. As the report notes, "All-time benefits metrics may be best understood as a general indication of the cumulative benefits of RGGI-funded investments since the program's inception. Table 6 shows that the track record from all RGGI investments includes benefits on the order of billions of dollars in customer bill savings, and tens of millions of short tons of CO2 avoided. Note that as the program's track record grows longer, all-time numbers may include changes in states' methodologies from year to year."

Please note that the scope of the Investment of RGGI Proceeds report is to provide information to the public about how participating states invest RGGI proceeds and the benefits from those investments. Investment of RGGI proceeds is one of the policy mechanisms available to achieve participating states' carbon reduction or other policy goals.

Hope this response is helpful, and we welcome any additional questions.

Thanks,
Frederica Hill