Comments on 2024 RGGI Operating Plan Amendment

Introduction

I am submitting these comments on the 2024 New York State Energy Research & Development Authority (NYSERDA) Regional Greenhouse Gas Initiative (RGGI) Operating Plan Amendment ("Amendment") for two reasons. I want to repeat my comments from last year that the Plan needs to focus its efforts and put more emphasis on programs that directly, indirectly, or potentially reduce carbon dioxide (CO_2) from the electric generating units affected by RGGI. I also want to warn the NYSERDA Board of Directors that the performance of the programs funded by the RGGI auction proceeds portends problems with the Climate Leadership & Community Protection Act (Climate Act) 2030 mandates to produce 70% of electricity from renewable sources and increasing energy efficiency from 2012 levels by 23%. In short, if there are insufficient investments for those program targets, then they simply cannot be met.

I have been involved in the RGGI program process since it was first proposed prior to 2008. I follow and write about the details of the RGGI program because its implementation affects whether I will be able to afford to continue to live in New York. I have extensive (40+ years) experience with air pollution control theory, implementation, and evaluation having worked on every cap-and-trade program affecting electric generating facilities in New York including the Acid Rain Program, Regional Greenhouse Gas Initiative (RGGI) and several Nitrogen Oxide programs. The opinions expressed in these comments 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.

Summary

I think the ultimate problem in the Amendment is that RGGI proceeds are used to support too many Climate Act programs outside of the electric sector. RGGI is an electric sector emissions reduction program, so it is inappropriate to use the auction proceeds for any program that will not materially decrease emissions directly or indirectly through energy efficiency reductions. There are multiple programs in the amendment that do not meet those criteria. Those mis-allocated funds should be transferred to programs that do affect emissions and energy efficiency.

The actions of the New York State Energy Research & Development Authority (NYSERDA) management and staff during the public stakeholder engagement process are inconsistent with a meaningful stakeholder process. Operating plan amendments are submitted to the NYSERDA Board of Directors for approval after a stakeholder process that "engages stakeholders representing the environmental community, the electric generation community, consumer benefit organizations and interested members of the general public to assist with the development of an annual amendment to the Operating Plan." There is no record that demonstrates this engagement.

Given the obvious disdain that NYSERDA has for public stakeholder input I did not expend the level of effort I did last year. These comments rely heavily on last year's analyses and are separated into two main parts. The first repeats my 2023 evaluation that described the observed New York State (NYS) emission reductions from the electric sector since 2000 and the lessons that should be learned. The second section offers my comments on the specific programs in the 2024 Amendment. Finally, I document the poor public stakeholder engagement process.

RGGI supporters claim that the RGGI funds have played a meaningful role in the observed emission reductions at RGGI sources, but that claim is exaggerated. The historical emission trends of NYS electric generating units (EGU) provide valuable insight for future emission strategies. I found that between 2000 and 2021 New York EGU emissions have dropped from 57,114,438 tons to 28,546,529 tons, a decrease of 50%. NYS EGU CO_2 emissions were 35% lower in 2022 than the three-year baseline emissions before RGGI started. However, I showed that emissions have dropped primarily because coal and oil fueled generation has essentially gone to zero. Natural gas has increased to cover the generation from those fuels but because it has lower CO_2 emission rates New York emissions have gone down.

According to Table 2 in Semi-Annual Status Report through December 31, 2022, the cumulative annual net greenhouse gas emission committed savings are 1,725,544 tons through the end of 2022. That is 9.5% of the observed reduction of 16,196,531 tons since the three-year baseline before the start of RGGI. I conclude that the primary reason for the observed electric sector emission reductions in New York was due to fuel switching and not RGGI investments.

These observations are relevant for the future of EGU emission reductions required for RGGI and the Climate Act. Fuel switching is no longer an option in New York. Coal is no longer used and oil emissions from the RGGI affected sources are as low as they are going to get without retirement of oil-fired sources. The average CO2 emissions reduction per year from RGGI investments has been 95,716 tons since 2013. New York Part 242 CO2 Budget Trading Program specifies an annual reduction of RGGI allowances of 880,493 per year starting in 2022 and continuing to 2030. That reduction is nearly ten times more than the reductions from RGGI auction proceed investments. The Climate Act is going to require even more emission reductions. Electric generating unit owners and operators have no options available for additional emission reductions other than reducing their operating times. It is incumbent upon NYSERDA to invest RGGI funds to incentivize and subsidize carbon-free generation and reduce energy use so that the RGGI sources can reduce operations and not jeopardize system reliability. If the sources are unable to reduce operations safely, then the Climate Act targets will be jeopardized.

In the second section of the comments, I evaluate the Amendment programs. These comments describe program investments for six categories. The first three categories cover programs that directly, indirectly or could potentially decrease RGGI-affected source emissions. Those programs total 33% of the investments. I also included a category for programs that will add load that could potentially increase RGGI source emissions which totals 24% of the investments. Programs that do not affect emissions are funded with 35% of the proceeds and administrative costs total another 8%. Because there is inadequate documentation, my categorizations are estimates. Even if those estimates were refined, I believe this represents an improper allocation of resources.

In order to address the need for strategies that can displace RGGI-affected source generation the RGGI Operating Plan Amendment needs to reevaluate priorities. NYSERDA must verify that other investments will provide the necessary reduction in RGGI-affected source emissions in order to justify spending more than half the RGGI proceeds on programs unrelated to RGGI emissions. My comments on specific amendments recommended that most of the unrelated programs not be funded.

I only have specific comments on one proposed program. The Climate Act is pushing the envelope of zero-emissions technology, so the Scoping Plan Implementation Research program is certainly appropriate. I recommend that this program fund projects for dispatchable emissions-free resource DEFR) requirements and the question of wind and solar resource availability during winter doldrums.

Amendment Background

The draft Amendment explains that New York State invests RGGI proceeds to support comprehensive strategies that best achieve the RGGI greenhouse gas emissions reduction goals pursuant to 21 NYCRR Part 507. The programs in the portfolio of initiatives are designed to support the pursuit of the State's greenhouse gas emissions reduction goals by:

- Deploying commercially available energy efficiency and renewable energy technologies;
- Building the State's capacity for long-term carbon reduction;
- Empowering New York communities to reduce carbon pollution, and transition to cleaner energy;
- Stimulating entrepreneurship and growth of clean energy and carbon abatement companies in New York; and
- Creating innovative financing to increase adoption of clean energy and carbon abatement in the State.

The draft Amendment notes that the initiatives described represent program activity proposed for the 2024 Operating Plan. The funding levels for each program include previously approved and the amounts proposed for FY23-24 through FY25-26.

New York State Emission Reductions

I have written multiple articles that argue that RGGI advocates mislead the public when they imply that RGGI programs were the driving force behind the observed over 50% reduction in power sector CO_2 emissions since the start of the program. In my latest evaluation I found that since 2009 RGGI funded control programs have been responsible for 6.7% of the overall observed reductions. The Investment of RGGI Proceeds in 2021 report does not directly provide the numbers necessary to calculate that estimate. I track all the reports to estimate that when the sum of the RGGI investments is divided by the sum of the annual emission reductions the CO_2 emission reduction efficiency is $927 per ton of CO_2 reduced. I do not believe that RGGI is an effective CO2 emission reduction program.

New York investments are not much better. The latest New York RGGI funding report prepared by the New York State Energy Research & Development Authority (NYSERDA) is the Semi-Annual Status Report through June 30, 2023. It states that:

> This report is prepared pursuant to the State's RGGI Investment Plan (2022 Operating Plan) and provides an update on the progress of programs through the quarter ending June 30, 2023. It contains an accounting of program spending; an estimate of program benefits; and a summary description of program activities, implementation, and evaluation. An amendment providing updated program descriptions and funding levels for the 2022 version of the Operating Plan was approved by NYSERDA's Board in January 2023.
>
> The State invests RGGI proceeds to support comprehensive strategies that best achieve the RGGI CO2 emission reduction goals. These strategies aim to reduce global climate change and pollution through energy efficiency, renewable energy, and carbon abatement technology.

I used this document and previous iterations to evaluate the effectiveness of RGGI auction proceed investments to reduce NYS electric sector emissions.

NYS Emissions Reductions – Observed Trend

The first step in evaluating the effect of RGGI on CO_2 emissions is to determine the observed trend of New York electric utility emissions. My background is in the electric generating sector and I have been involved in the reporting process for electric generating unit (EGU) continuous emissions monitoring system (CEMS) data ever since the Environmental Protection Agency (EPA) mandated these systems for the Acid Rain Program. EPA's Clean Air Markets Division maintains a data base of all the emissions data collected by every power plant in the United States since the mid-1990's. Those data are used for RGGI program compliance and are used in these comments.

The following graph shows New York State CO_2 emissions since 2000. These data are the sum of all New York units that are required to submit CEMS data to EPA for any air pollution control program. The EPA database includes supplemental information such as the primary fuel type of each generating unit and I have listed CO_2 emissions by fuel type. In 2000, New York EGU emissions were 57,114,438 tons and in 2021 they were 28,546,529 tons, a decrease of 50% (Table 1). New York 2021 CO_2 emissions are 39% lower than the three-year baseline emissions before RGGI started. The reason that emissions have dropped is because coal and oil fuels have essentially gone to zero as shown in the following graph. Natural gas has increased to cover the generation from those fuels but because it has lower CO_2 emission rates the New York emissions have gone down.

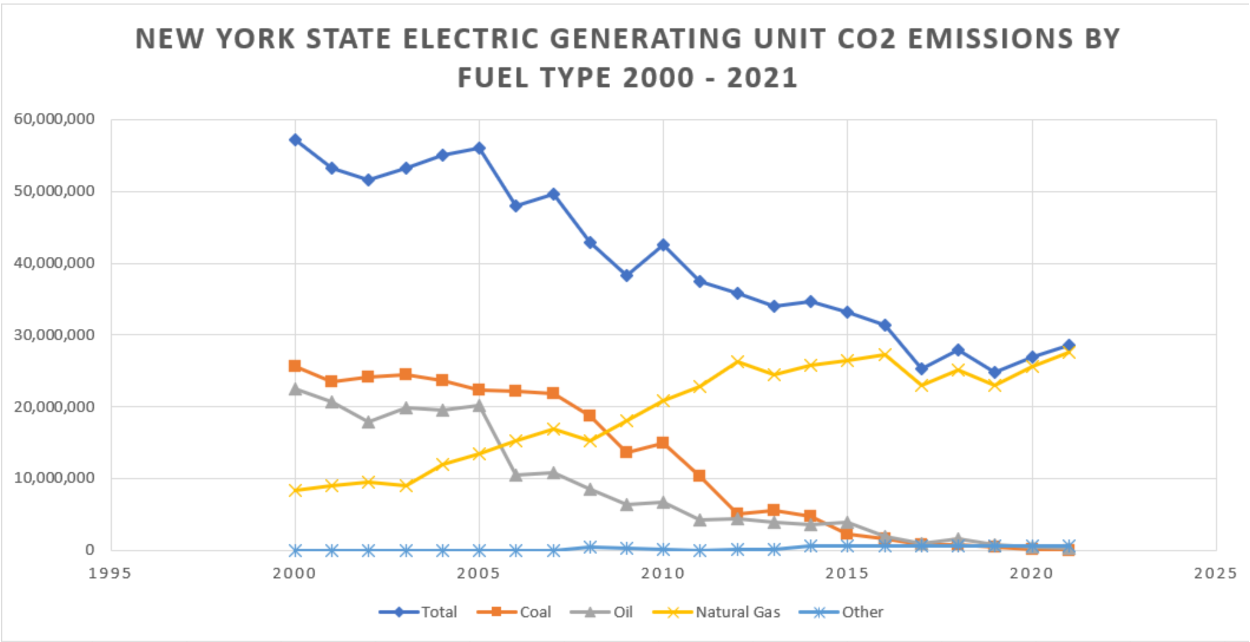

Table 1: New York State EGU CO2 Emissions

Year	CO2 Emissions (short tons) Total	Coal	Oil	Natural Gas	Other
2000	57,114,439	25,546,641	22,488,241	8,411,265	0
2001	53,195,854	23,519,892	20,636,551	9,039,411	0
2002	51,546,524	24,073,494	17,924,260	9,548,770	0
2003	53,240,989	24,491,989	19,789,015	8,959,985	0
2004	55,125,941	23,673,988	19,574,349	11,877,605	0
2005	56,018,928	22,348,515	20,163,454	13,506,959	0
2006	47,912,219	22,183,541	10,487,480	15,241,197	0
2007	49,575,411	21,884,899	10,732,639	16,957,873	0
2008	42,844,448	18,679,355	8,515,621	15,205,001	444,472
2009	38,295,368	13,637,433	6,394,482	18,055,052	208,400
2010	42,534,713	14,950,792	6,701,372	20,793,883	88,666
2011	37,420,975	10,394,280	4,201,172	22,825,522	0
2012	35,762,481	5,030,164	4,349,728	26,195,974	186,615
2013	33,943,664	5,463,637	3,871,162	24,534,203	74,661
2014	34,666,067	4,667,127	3,575,144	25,765,912	657,883
2015	33,226,652	2,229,725	3,971,812	26,425,073	600,041
2016	31,384,868	1,588,950	1,920,260	27,259,941	615,717
2017	25,268,988	763,861	921,364	22,956,907	626,856
2018	27,973,346	703,377	1,552,645	25,081,091	636,234
2019	24,868,687	471,969	853,771	22,999,224	543,723
2020	26,868,364	174,360	461,209	25,638,260	594,535
2021	28,546,529	0	313,115	27,619,633	613,781

NYS Emissions Reductions – RGGI-Funded Program Reductions

The latest New York RGGI funding report prepared by the New York State Energy Research & Development Authority (NYSERDA) is the Semi-Annual Status Report through June 30, 2023. It includes two tables that summarize the emission reduction benefits of the NYSERDA program. Table 2 is the summary of expected cumulative portfolio benefits through 6/30/23. The second table (Table 3) summarizes the expected cumulative annual program benefits through June 30, 2023. Both tables list lifetime benefits but those numbers are irrelevant to the Climate Act mandates of Section 1 of the Climate Act 12 (d): "The adoption of a state energy plan establishing clean energy goals for the year 2030 aimed at reducing greenhouse gas emission levels by 40% from 1990 levels, producing 70% of electricity from renewable sources, increasing energy efficiency from 2012 levels by 23% and the additional expressed goal of reducing 100% of the electricity sector's greenhouse gas emissions by 2040." These mandates compare annual values in the future relative to 1990 and 2012 values not lifetime values.

NYS Emissions Reductions – RGGI-Funded Emission Reductions

RGGI supporters claim that the RGGI funds have played a meaningful role in the observed emission reductions at RGGI sources, but that claim is exaggerated. The historical emission trends of NYS electric generating units (EGU) provide valuable insight for future emission strategies. I found that between 2000 and 2021 New York EGU emissions have dropped from 57,114,438 tons to 28,546,529 tons, a decrease of 50%. Total 2022 NYS EGU CO_2 emissions were 30,580,828 tons which is 35% lower than the three-year baseline emissions before RGGI started.

According to Table 2 in Semi-Annual Status Report through December 31, 2022, the cumulative annual net greenhouse gas emission committed savings are 1,725,544 tons through the end of 2022. That is 9.5% of the observed reduction of 16,196,531 tons since the three-year baseline before the start of RGGI.

Tables 2 and 3 can be used to determine the cost effectiveness of RGGI investments for reducing emissions. According to the most recent data, Semi-Annual Status Report through June 30, 2023 ,Table 2, the cumulative annual net greenhouse gas emission committed savings are 1,923.951 tons. Table 3 notes that the cumulative total investments are $945,900,000. That equates to $492 per ton removed. The 2023 Update to the NYS Value of Carbon Guidance lists the social cost of carbon dioxide, at a 2% discount rate, as $120 per short ton and $391 at a 1% discount rate. This indicates that the investments are not producing emission reductions at a rate that is less than the societal benefits which suggests a fundamental problem with the NYSERDA investment strategies.

Table 2: Summary of Expected Cumulative Portfolio Benefits through June 30, 2023

NYS RGGI Funded Program Semi-Annual Status Report through June 30, 2023 Table 1

Benefits through June 30, 2023[a]	Net Greenhouse Gas Emission Savings[b] (Tons CO_2e[c])	Total Net Fuel Savings (MMBtu)	Net Efficiency Electricity Savings (MWh)	Net Renewable Energy Generation (MWh)	Total Net Electricity Savings/Generation (MWh)	Energy Bill Savings to Participating Customers ($ Million)
Cumulative Annual Installed Savings[d]	1,807,679	11,287,321	1,277,209	645,063	1,922,273	$630.8
Cumulative Annual Pipeline Savings[e]	116,272	846,419	78,103	54,646	132,750	$31.7
Cumulative Annual Committed Savings[f]	1,923,951	12,133,740	1,355,313	699,710	2,055,022	$662.5
Expected Lifetime Total Savings[g]	34,272,535	188,967,064	26,010,920	15,070,045	41,080,965	$11,263.6

The key point of this section on NYS emission reductions is that the total CO_2 savings listed in the reports are not necessarily reductions that can be credited towards the observed emission reductions from the RGGI-affected sources. Energy efficiency programs reduce the fuel needed to heat homes and lead to direct emission reductions in the building sector if oil, gas, or propane are used for heating. Energy efficiency reductions reduce electric generating load for cooling and homes that use electric heat but trying to figure out just how much that affects RGGI emissions is not straight-forward. I have never seen a state report quantify that reduction.

NYS Emission Reduction Implications

These observations are relevant for the future of EGU emission reductions required for RGGI and the Climate Act. Coal and oil emissions from the RGGI affected sources are as low as they are going to get without retirement of oil-fired sources. The average CO2 emissions reduction per year has been 95,716 tons since 2013. New York Part 242 CO2 Budget Trading Program specifies an annual reduction of RGGI allowances of 880,493 per year starting in 2022 and continuing to 2030. That reduction is nearly ten times more than the reductions from RGGI auction proceed investments. The Climate Act is going to require even more emission reductions. Electric generating unit owners and operators have no options available for additional emission reductions other than reducing their operating times. It is incumbent upon the state to incentivize and subsidize carbon-free generation so that the RGGI sources do not have to operate. It is not clear where those reductions will come from given the poor record of RGGI-funded program investments and the lack of RGGI focus on direct emissions reduction programs.

Table 3: Summary of Expected Cumulative Annual Program Benefits through June 30, 2023

NYS RGGI Funded Program Semi-Annual Status Report through June 30, 2023 Table 2

Program	Costs (millions of dollars)		Net Energy Savings (Annual MMBtu)			Net Electricity Savings or Renewable Energy Generation (Annual MWh)			Net Greenhouse Gas Emission Savings[a] (Annual Tons CO_2e^b)			Cost Benefit Ratio ($/Ton CO_2e)	
	Total Incentives[c]	Total Associated Costs[d]	Installed Savings[e]	Pipeline Savings[f]	Total Committed Savings[g]	Installed Savings[e]	Pipeline Savings[f]	Total Committed Savings[g]	Installed Savings[e]	Pipeline Savings[f]	Total Committed Savings[g]	$/Ton CO2e Savings[h]	$/CO2e EXPECTED LIFETIME Savings[i]
Renewable Energy													
NY-Sun Statewide Customer Incentives	$30.9	$0.0	-	-	-	24,220	36,075	60,295	12,119	18,049	30,168	1,023	429
NY-Sun Community Solar/K-solar	$3.7	$0.9	-	-	-	5,108	647	5,755	2,556	324	2,879	1,582	2
NY-Sun Long Island Incentives	$53.4	$0.6	-	-	-	215,234	10,044	225,278	109,931	5,025	114,957	470	6
Renewable Heat New York	$9.0	$1.2	4,384	-	4,384	1,328	-	1,328	2,477	-	2,477	4,155	208
Community Heat Pump Systems	$10.5	$0.0	-	-	-	-	-	-	-	-	-	-	-
NYSERDA PV Incentives	$5.2	$0.1	-	-	-	96,542	-	96,542	50,796	-	50,796	-	-
Energy Efficiency													
LIPA Energy Efficiency and Renewable Energy Initiative	$289.6	$0.0	35,035	-	35,035	1,278,943	-	1,278,943	646,714	-	646,714	448	25
EmPower Plus	$82.5	$5.4	611,082	46,890	657,972	5,087	755	5,841	43,934	3,303	47,237	1,861	214
Multifamily Performance Program	$12.7	$2.1	477,253	-	477,253	20,987	-	20,987	41,430	-	41,430	357	24
Multifamily Carbon Emissions Reduction Program[j]	$5.7	$0.2	-	-	-	-	-	-	45,151	-	45,151	129	10
Solar Hot Water (Thermal) Program	$4.1	$0.1	14,217	-	14,217	22	-	22	959	-	959	4,407	220
Green Residential Building Program	$2.5	$0.3	36,548	-	36,548	1,573	-	1,573	2,798	-	2,798	981	44
Innovative GHG Abatement Strategies													
Charge NY[k]	$178.1	$3.4	5,013,894	-	5,013,894	-314,151	-	-314,151	202,162	-	202,162	898	90
Community Clean Energy													
Regional Economic Development & GHG Reduction[l]	$0.8	$9.4	-82,448	-	-82,448	79	-	79	31,918	-	31,918	321	18
Clean Energy Communities[m]	$3.8	-	1,253,297	-	1,253,297	213,891	-	213,891	178,348	-	178,348	378	25
Directed													
Clean Energy Fund[n]	$80.0	$22.7	599,554	462,505	1,062,059	88,191	74,562	162,753	94,240	61,976	156,216	658	40
Green Jobs - Green New York[o]	$173.3	$84.9	4,155,053	350,615	4,505,668	323,465	12,637	336,102	417,333	30,302	447,635	577	28
Cross-Program Overlap[p]	N/A	N/A	-830,548	-13,591	-844,139	-38,246	-1,970	-40,216	-75,186	-2,708	-77,893	N/A	N/A
TOTAL Annual Cumulative Benefits[q]	**$945.9**	**$131.2**	**11,287,321**	**846,419**	**12,133,740**	**1,922,273**	**132,750**	**2,055,022**	**1,807,679**	**116,272**	**1,923,951**	**560**	**N/A**
TOTAL Expected Lifetime Cumulative Benefits[q]	**$945.9**	**$131.2**	**172,761,053**	**16,206,011**	**188,967,064**	**38,457,758**	**2,623,207**	**41,080,965**	**31,987,917**	**2,284,618**	**34,272,535**	**N/A**	**35**

2024 RGGI Operating Plan Amendment Comments

A primary point of these comments is that direct and indirect emission reduction programs should be emphasized. Table 4 summarizes the program investments for six categories. The first three categories cover programs that directly, indirectly or could potentially decrease RGGI-affected source emissions. Those programs only total 30% of the investments. I also included a category for programs that will add load that could potentially increase RGGI source emissions which totals 24% of the investments. Programs that do not affect emissions are funded with 38% of the proceeds and administrative costs total another 8%. The documentation provided for the funding allocations is inadequate for anything but a gross characterization. In my opinion, setting priorities to ensure that investments support the Climate Act emission reduction and energy efficiency targets is important enough the NYSERDA should provide its estimate of these categories.

Against the backdrop of observed and RGGI-affected emission reductions I evaluated the programs in the Operating Amendment relative to their value for future EGU emission reductions. In the following I list the descriptions of programs in the 2024 Amendment. I include indented and italicized comments on the text and classify each program relative to six categories of potential RGGI source emission reductions listed in Table 4. Note that the previous section considered only the programs listed in the RGGI funding status reports. The Amendment includes other programs. There is a category for R&D programs that could lead to potential RGGI source emission reductions such as “Hydrogen Hubs.” I also included a category for programs that will add load such as support for Electric Vehicle charging which could potentially increase RGGI source emissions.

Amendment Comment: Environmental Justice Concerns

Before addressing the programs, I want to comment on Environmental Justice concerns. The Operating Plan amendment for 2024 notes that:

> RGGI programs have and will continue, alongside other state programs, to contribute to economy-wide greenhouse gas emissions reductions and provide benefits to New York’s historically overburdened and underserved communities. NYSERDA’s CO_2 Allowance Auction Program regulations reflect the provision of the Climate Leadership and Community Protection Act “that 40%, and no less than 35%, of the overall benefits from the investment of the [CO_2Allowance Auctions] proceeds” will be realized in disadvantaged communities.

It is entirely appropriate that there should be an emphasis on environmental justice, but I have concerns about the State’s approach.

The Climate Act and the draft Amendment emphasize support to disadvantaged communities. I agree with the concept but stress that emphasis must be targeted. Given that all other jurisdictions that have attempted to reduce GHG emissions have increased the cost of energy, it is likely that will be the case in New York too. Therefore, I think there are two priorities to reduce the regressive impact on those who can least afford those increased costs. Overall, the funding emphasis should be on the most cost-effective GHG reduction programs to lower overall costs to make the necessary reductions. The second emphasis should befor programs that directly reduce costs for anyone, regardless of location, who is living in energy poverty or has a disproportionate energy burden. I worry that the emphasis on disadvantaged communities will hurt energy paupers living outside of disadvantaged communities, particularly those in rural areas.

Table 4: 2024 Operating Plan Amendment Allocation of Funds by RGGI Reductions

		Total for Amendment					
Program	Total for Total	Direct RGGI Reductions	Indirect RGGI Reductions	Potential RGGI Reductions	Increase Generation	No Emission Reductions	Administration Costs
NY-Sun Statewide Customer Incentives	53,820,000	$53,820,000					
NY-Sun Long Island SEEF Incentives	5,000,000	$5,000,000					
Agrivoltaics	27,000,000					$27,000,000	
LIPA Efficiency and RE	80,000,000		$80,000,000				
EmPower Plus	135,000,000		$51,428,571			$83,571,429	
Disadvantaged Communities Schools and Affordable Housing	33,800,000		$16,900,000			$16,900,000	
Community Thermal Energy Networks	16,700,000				$16,700,000		
Building Retrofit and New Construction Challenges	56,000,000				$56,000,000		
Climate Resiliency Implementation Planning	20,000,000					$20,000,000	
Support for 2 Million Homes Goal	25,000,000				$25,000,000		
Innovative Finance & Risk Management	6,000,000					$6,000,000	
Clean Heat Consortium	12,000,000				$12,000,000		
Electric Vehicle/Charge NY	148,900,000				$148,900,000		
Clean Energy Business Development	5,400,000					$5,400,000	
Natural Carbon Solutions	10,000,000					$10,000,000	
Scoping Plan Implementation Research	20,000,000					$20,000,000	
Clean Energy Communities	10,000,000					$10,000,000	
Healthy New Home Design & Construction Challenge	12,050,000				$12,050,000		
Clean Energy Workforce Development	80,000,000					$80,000,000	
Clean Energy Hubs	18,000,000					$18,000,000	
Climate Action Consumer Awareness & Education	20,000,000					$20,000,000	
NYS Environmental Protection Fund	20,000,000					$20,000,000	
Electric Generation Facility Cessation Mitigation/Just Transition	24,000,000					$24,000,000	
Green Jobs-Green NY- Additional Funding	65,601,120					$65,601,120	
Federal Program Match Opportunities	130,664,544			$130,664,544			
Program Administration	80,465,000						$80,465,000
Program Evaluation	9,000,000						$9,000,000
RGGI Inc pro-rata costs	3,300,000						$3,300,000
	Totals	$58,820,000	$148,328,571	$130,664,544	$270,650,000	$426,472,549	$92,765,000
			$337,813,115				
	% of Total		30.0%		24.0%	37.8%	8.2%

Amendment Comment: Agrivoltaics
This Amendment allocates a total of $27 million during the planning period, comprised of $5 million in FY23-24, $5 million in FY24-25, $7 million in FY25-26, and $10 million in FY26-27. This will enable continued collaboration between NYSERDA, New York State Department of Agriculture and Markets, as well as higher education institutions to further promote agrivoltaics. The purpose of this effort is to advance the technological, economic, and agricultural viability of solar energy technologies responsibly co-located within active farmland. Demonstration projects results would inform NYSERDA renewable energy procurement strategies, state renewable energy incentive programs, and solar development permitting. Through partnerships with academia and industry, NYSERDA would advance research and market development of agrivoltaic technologies. Through collaboration with agricultural commodity experts, NYSERDA would identify and expand markets for commodities produced via agrivoltaic deployment. Through collaboration with NGO's, rural communities, solar developers, and people currently under-represented in farming, NYSERDA would identify and develop opportunities for new farmers to participate in agrivoltaics. These activities would be performed in concert with an expanded liaison effort with farmland protection, economic development, and local officials to identify and promote technical tools, guidance, and strategies to facilitate the responsible siting of agrivoltaics.

> *This is an appropriate project for New York due to the tremendous expected buildout of solar resources required to meet Climate Act requirements. I submitted comments on the Draft Scoping Plan that recommended a moratorium on utility-scale solar development until responsible solar siting mandates that incorporate agrivoltaics are enacted. By the time the State gets around to promoting agrivoltaics massive swaths of prime farmland will be permanently lost to agriculture but at least this program will ultimately lead to a responsible utility-scale solar siting program. This program will not affect RGGI emissions so even though it is something that needs to be done it is inappropriate for this to be funded by RGGI auction proceeds.*

Amendment Comment: Multifamily Low Carbon Capital Planning / Pathway Projects
The proposed $25 million will enable NYSERDA to support more projects participating in the Low Carbon Capital Planning (LCCP) and Low Carbon Pathways (Pathways) programs, which will enable more building electrification throughout the state. LCCP offers a 75% cost share for building and portfolio-level energy studies that include an assessment of electrification and electrification-ready measures informing building owners about the actionable steps they can take to prepare their buildings for electrification. Pathways program provides incentives for building owners that install a package of projects resulting in reduction of on-site carbon emissions. low carbon measure packages. The additional funding will prevent a disruption in service prior to 2025, due to the anticipated steady demand for the program and will support any ramp-up in demand anticipated from Local Law 97 (LL97). These investments will support electrification in both market-rate and affordable multifamily housing.

> *Building electrification is a necessary component of the net-zero Climate Act target but it could increase RGGI source emissions so it is inappropriate for this to be funded by RGGI auction proceeds until NYSERDA verifies that other investments will provide the necessary emission reductions at sources affected by RGGI.*

Amendment Comment: Building Retrofit and New Construction Challenges
This funding will support competitive challenges that demonstrate exemplary design and high performance for new construction and hard to decarbonize existing buildings. NYSERDA's investments provide funding to leverage design professionals and new technical solutions to create economically viable pathways for replicable approaches to removing emissions from existing commercial and industrial buildings and the design and construction of new buildings. RGGI funding will allow these initiatives to serve non-SBC paying customers such as buildings located in Long Island as well as buildings served by municipal electric utilities. This Amendment allocates a total of $56 million to these efforts during the planning period, comprised of $10 million in FY23-24, $10 million in FY24-25, $18 million in FY25-26, and $18 million in FY26-27.

> *Electrification of new buildings is a necessary component of the net-zero Climate Act target but it could increase RGGI source emissions. Therefore, it is inappropriate for this to be funded by RGGI auction proceeds until NYSERDA verifies that other investments will provide the necessary emission reductions at sources affected by RGGI.*

Amendment Comment: Climate Resiliency Implementation Planning
This funding will continue supporting research and analysis to perform a climate change risk assessment for clean energy and electrification assets and investments to help ensure they will remain durable solutions over time. It also includes the research and development of NYS Climate Resiliency Design Guidelines in conjunction with DEC and OGS. This work will ensure that New York State begins to develop a clear roadmap for integrating climate risks as per Executive Order 22 (signed September 20, 2022) and the Climate Act Scoping Plan. This Amendment allocates a total of $20 million to these efforts during the planning period, comprised of $5 million in FY23-24, $5 million in FY24-25, $5 million in FY25-26, and $5 million in FY26-27.

> *This allocation will not reduce GHG emissions or energy use so it is inappropriate for this to be funded by RGGI auction proceeds until NYSERDA verifies that other investments will provide the necessary emission reductions at sources affected by RGGI.*

Amendment Comment: Support for Two Million Climate Friendly Homes Initiative
This Amendment allocates a total of $25 million to these efforts during the planning period, comprised of $15 million in FY25-26, and $10 million in FY26-27, toward programs supporting building efficiency and electrification. This funding will allow program support for customers of municipal utilities and customers using delivered fuel.

> *Electrification of climate family homes is a necessary component of the net-zero Climate Act target but it could increase RGGI source emissions. Therefore, it is inappropriate for this to be funded by RGGI auction proceeds until NYSERDA verifies that other investments will provide the necessary emission reductions at sources affected by RGGI.*

Amendment Comment: Innovative Finance & Risk Management
This Amendment allocates a total of $6 million to these efforts during the planning period, comprised of $3 million in FY25-26, and $3 million in FY26-27 for applied demonstrations of insurance product prototypes complementing the current Clean Energy Fund program (i.e., Tech to Market portfolio, as part of the Novel Business Models and Offerings). This investment will seek to achieve desired outcomes of developing novel insurance product prototype solutions targeted to climate technology companies, their customers, and financiers. Approximately $1 million is targeted for continued, later-stage business acceleration services. The remaining $5 million directly supports demonstrations of novel insurance products applied to climate technology solutions where lack of appropriate insurance products has limited market access and growth.

> *This allocation will not reduce GHG emissions or energy use so it is inappropriate for this to be funded by RGGI auction proceeds..*

Amendment Comment: Clean Heat Consortium (new)
This Amendment allocates a total of $12 million to these efforts during the planning period, comprised of $2.5 million in FY24-25, $4.5 million in FY25-26, and $5 million in FY26-27. This funding will support public private partnerships to scale adoption of clean heat solutions in NYS buildings. Drawing on the success of the Clean Heat for All initiative at New York City Housing Authority and NYSERDA's Empire Building Challenge, this initiative leverages interest from building owners to work with the supply chain of manufacturers and solution providers to decarbonize through innovative new technologies such as packaged terminal heat pumps, cold climate all electric rooftop units, and heat pump domestic hot water systems with low global warming potential.

> *Electrification of heating systems is a necessary component of the net-zero Climate Act target but it could increase RGGI source emissions. Therefore, it is inappropriate for this to be funded by RGGI auction proceeds.*

Climate Action Consumer Awareness & Education
This Amendment allocates a total of $20 million to these efforts during the planning period, comprised of $6 million in FY23-24, $5 million in FY24-25, $4.5 million in FY25-26, and $4.5 million in FY26-27, to increase awareness and understanding of the critical need for and benefits of climate action in New York State. This investment will include an umbrella campaign to encourage broad engagement that is coordinated with a targeted marketing effort to impact the purchase decisions and actions that are needed to reach the State's climate goals. The targeted effort will address specific barriers across critical sectors and encourage adoption of new technologies that will improve quality of life and help decarbonize our buildings and economy.

> *There is no connection whatsoever between emissions and energy reductions for this program. Indoctrinating the public to meet the Climate Act goals is inappropriate for RGGI auction proceed funds.*

Amendment Comment: Scoping Plan Implementation Research
The Climate Leadership and Community Protection Act (Climate Act) was signed into law in 2019 as one of the most ambitious climate laws in the world, putting the State on a course to reduce greenhouse gas emissions and achieve net- zero emissions, increase renewable energy usage, and ensure climate justice. In anticipation of supporting work to realize recommendations included in the Climate Action Council's final Scoping Plan, this funding may include technical analysis to support activity requiring more detailed information, such as natural gas system planning for decarbonized future, planning an economy wide program, or support for a clean transportation standard. For the purpose of developing this proposed Operating Plan Amendment, NYSERDA assumes investment of $5 million for these initiatives during FY23-24, and $3 million during FY24-25, for a total of $8 million throughout the planning period.

> *From the standpoint of RGGI funding, it is inappropriate because this program will not affect RGGI affected sources. On the other hand, if this funding is used correctly, then it will serve a valuable need. The example projects included all address specific Climate Act Scoping Plan components. Because the net-zero transition control strategy is to electrify as much as possible using vast amounts of wind, solar, energy storage, and other new resources I think it would be more appropriate to use these funds to address two concerns. If this program addresses the dispatchable emissions-free resource requirements and the question of wind and solar resource availability during winter doldrums, then I support this program. I have provided more detail on this program as a separate section at the end of the document.*

Amendment Comment: Federal Program Match Opportunities
The Electric Generation Facility Cessation Mitigation Program was enacted at the end of the 2015 New York State Legislative Session and is designed to support the economic transition of communities reliant on power plants as a source of financial support. To date NYSERDA has provided $45 million of the $69 million authorized. NYSERDA will provide an additional $24 million by FY26-27, of which $842 thousand will be provided in FY23-24.

> *Legislative actions should be funded from the General Fund. Using RGGI funds for this purpose is inappropriate.*

Amendment Comment: Clean Energy Business Development
This Amendment allocates a total of $5.4 million in FY24-25, which will support supply chain analysis and forums, clean energy recruiting campaigns, planning assistance, and analytical work to expand NYS manufacturers and suppliers for products and solutions that reduce greenhouse gas emissions.

> *It does not appear that this program directly affects CO2 emissions or energy use. Therefore, it is inappropriate to fund with RGGI proceeds because this program will not affect RGGI affected sources.*

Amendment Comment: Clean Energy Workforce Development
in FY23-24, $19 million in FY24-25, $15 million in FY25-26, and $20 million in FY26-27, to support the just transition of fossil fuel workers as well as new entrants from disadvantaged communities to the clean energy workforce. Funding will support pre-apprenticeship programs that provide direct-entry into union apprenticeship programs, union training for apprentices and journey workers to support the transition to clean energy jobs including developing training curriculum and purchasing training equipment. Other activities will include supporting clean energy workforce development for residents that do not pay the System Benefits Charge, including Long Island residents, to allow statewide delivery; K-12 clean energy career awareness; and wrap-around support after all available resources have been exhausted for DAC residents entering the clean energy workforce to ensure these new entrants are successful in their careers (e.g., transportation stipends, personal protective equipment, access to childcare).

> *This is a transparent allocation to meet the Climate Act "Just Transition" mandates. Any connection to actual emission or energy reductions is tenuous at best. I do not support providing RGGI auction proceeds for this program.*

Amendment Comment: Community Thermal Energy Networks
Heat pump technology has become a proven decarbonization solution, providing buildings with clean thermal energy for space heating, cooling, and domestic hot water. Thermal energy networks use a network of piped water to share thermal energy among a cluster of buildings and are a key strategy for building decarbonization and to reach scale, as defined in the Climate Action Council Scoping Plan. RGGI funds will be used to support the design and implementation of thermal energy networks as part of a statewide program. RGGI funds will allow NYSERDA to support State and local government facilities, as well as affordable housing developments and accelerate the deployment of heat pump systems across the State. This Amendment allocates a total of $16.7 million to these efforts during the planning period comprised of $7.7 million during FY23-24, $3 million during FY24-25, $4 million during FY25-26 and $2 million during FY26-27.

> *I believe this is in response to concerns from the Climate Action Council regarding more widespread deployment of ground source heat pumps. It is not clear if this technology will work as envisioned so the only way to find out is try it. The question is whether this is appropriate for RGGI funds. Electrification of new buildings is a necessary component of the net-zero Climate*

Act target but it could increase RGGI source emissions. Therefore, it is inappropriate for this to be funded by RGGI auction proceeds until NYSERDA verifies that other investments will provide the necessary emission reductions at sources affected by RGGI.

Amendment Comment: Natural Carbon Solutions

Achieving a net-zero carbon economy will require reducing emissions across all sectors. The agriculture and forestry sectors are looked upon to contribute carbon sequestration (i.e., negative emissions) as well as emissions reductions. This Amendment allocates a total of $10 million to these efforts during the planning period, comprised of $3 million in FY23-24, $2 million in FY24-25, $2 million in FY25-26, and $3 million in FY26-27. These investments will help to catalyze technology and business solutions and lay the foundation for an economically self-sustaining bio-economy in New York State. By establishing a marketplace of natural emissions-lowering solutions the program will demonstrate pathways to support disadvantaged rural communities, economic development, existing agriculture, and forestry industries, while increasing jobs and revenue.

Although this program does not directly affect RGGI source emissions it is intended to reduce GHG emissions so funding this with RGGI auction proceeds is appropriate.

Amendment Comment: Equity and Climate Transformation Research

The amendment proposes an allocation of $1.8 million over FY23-26 to establish an Equity and Climate Transformation Research Program. While the techno-economic pathways for decarbonization have been mapped out in the literature and in analysis for the Climate Action Council, less is known about the social and institutional dimensions of this deep and rapid transformation. This program would establish an engaged, participatory research framework to study the social dimensions of an equitable and inclusive transition in a manner that centers the lived experiences of underserved and overburdened communities and prioritizes beneficial outcomes for disadvantaged communities. This initial funding would provide the investment necessary to develop both formal proposals for long-term funding as well as pilot initiatives. These pilot initiatives would aim to 1) test initial research hypotheses, 2) engage with a diverse set of NYS communities to understand how they would most benefit from this research and how they can be most effectively engaged in the process and 3) convene academics. The creation of an Equity and Climate Transformation Research Agenda would support scientifically rigorous inquiry that also advances transformative, inclusive solutions to climate action challenges in New York State. The work would inform strategies for effective climate awareness and consumer education initiatives.

This is a transparent allocation to meet the Climate Act mandates for supporting disadvantaged communities. Any connection to actual emission or energy reductions is tenuous at best. I do not support providing RGGI auction proceeds for this program.

Amendment Comment: Healthy New Home Design & Construction Challenge

This Amendment allocates a total of $12.05 million to these efforts during the planning period, comprised of $3.05 million in FY23-24, $3 million in FY24-25, $3 million in FY25-26, and $3 million in FY26-27, to support creating a healthy home builder and developer network to encourage builders to design and offer carbon neutral homes. Funding will also be used for a healthy Neighborhood Design Challenge to support all-electric sub-divisions and planned communities, as well as promote the benefits of healthy homes. This program intends to accelerate the pivot to the decarbonization of residential new construction and build market capability across the state (i.e., focus on Long Island area to complement existing activities already using Clean Energy Funds elsewhere in the state), which will support requiring decarbonized new construction via code and regulations on an accelerated 5-year track.

There appear to be overlapping programs. There is no apparent difference between this and "Support for two million homes." Moreover, while electrification of homes is a necessary component of the net-zero Climate Act target, this program could increase RGGI source emissions. Therefore, it is inappropriate for this to be funded by RGGI auction proceeds.

Amendment Comment: Clean Energy Hubs: Community and Stakeholder Engagement

NYSERDA will continue building local capacity within disadvantaged communities and improve stakeholder engagement. This Amendment allocates a total of $18 million to these efforts during the planning period, comprised of $3 million in FY23-24, $3 million in FY24-25, $6 million in FY25-26, and $6 million in FY26-27, to increase engagement of residents and communities in New York City and Long Island, support the participation of community-based and advocacy organizations in stakeholder meetings, and support local projects. This will leverage the more than $40 million for Clean Energy Hubs supported by the Clean Energy Fund. In 2022, NYSERDA launched this network of 12 Community Energy Hubs, one in each region of the state and three serving New York City. The Hubs build on the success of the Community Energy Engagement Program, wherein community and locally-based organizations across New York State provided outreach and education services to help low-income residents and small businesses make informed energy choices and access incentives and other resources to implement clean energy projects. The Hubs are enhancing community-level engagement and capacity building by supporting clean energy concierge services and helping residents understand different clean energy solutions and apply for relevant programs. These services will be provided to residents, small businesses, nonprofits, and multifamily building owners in disadvantaged and underserved communities to increase awareness and adoption of clean energy programs and solutions, with the focus of creating a more inclusive clean energy economy. In addition, NYSERDA will increase the ability for community-based organizations and DAC residents to engage as subject matter experts in NYSERDA's clean energy policy and program design by compensating for their time and support local planning in disadvantaged communities. Funds allocated will allow for statewide activities alongside efforts supported through the Clean Energy Fund.

This is a transparent allocation to meet the Climate Act mandates for supporting disadvantaged communities. It is simply paying politically connected constituencies to provide indoctrination for the program. Any connection to actual emission or energy reductions is tenuous at best. I do not support providing RGGI auction proceeds for this program.

Amendment Comment: Climate Action Consumer Awareness & Education

This Amendment allocates a total of $20 million to these efforts during the planning period, comprised of $6 million in FY23-24, $5 million in FY24-25, $4.5 million in FY25-26, and $4.5 million in FY26-27, to increase awareness and understanding of the critical need for and benefits of climate action in New York State. This investment will include an umbrella campaign to encourage broad engagement that is coordinated with a targeted marketing effort to impact the purchase decisions and actions that are needed to reach the State's climate goals. The targeted effort will address specific barriers across critical sectors and encourage adoption of new technologies that will improve quality of life and help decarbonize our buildings and economy.

There is no connection whatsoever for emissions and energy reductions for this program. Indoctrinating the public to meet the Climate Act goals is inappropriate for RGGI auction proceed funds.

Amendment Comment: NY-Sun Initiative
The NY-Sun initiative is driving the growth of the solar industry and makes solar technology more affordable for all New Yorkers. The program provides declining incentives for the installation of systems and works to reduce solar electric balance-of-system costs through technology advancements, streamlined processes, and customer aggregation models. This Amendment allocates a total of $53.8 million during the planning period, comprised of $6.97 million during FY23-24, $20 million during FY24-25, $17.85 million during FY25-26, and $9 million during FY26-27. This funding allows customers of Upstate municipal utilities and the New York Power Authority (NYPA), who do not pay Clean Energy Fund (CEF) surcharges, to receive NY-Sun incentives. It is expected to primarily fund NY-Sun incentives for solar installations on New York City public schools and other New York City public buildings that are served by NYPA, but will also fund NY-Sun incentives for residential and commercial installations in areas served by municipal utilities in Upstate NY.

> *This program will directly reduce RGGI emissions by supporting renewable generating electricity that will directly displace electricity from RGGI affected sources. This program should be funded.*

Amendment Comment: NY-Sun Long Island SEEF Incentives
This program, previously known as NY-Sun Community Solar / K-Solar, will provide Solar Energy Equity Framework (SEEF) incentives to Long Island Power Authority (LIPA) customers that do not pay into the System Benefits Charge. The NY-Sun SEEF supports solar projects benefiting low-to-moderate income households, disadvantaged communities, and affordable housing. This Amendment allocates a total of $5 million during the planning period, comprised of $1 million during FY24-25, $3 million during FY25-26, and $1 million during FY26-27.

> *This program will directly reduce RGGI emissions by supporting renewable generating electricity that will directly displace electricity from RGGI affected sources. This program should be funded.*

Amendment Comment: LIPA Energy Efficiency and Renewable Energy
These funds enhance the portfolio of clean energy activities for energy consumers on Long Island, as approved by the LIPA and administered by PSEG-Long Island. Funding and reporting requirements are established through a Memorandum of Understanding between NYSERDA and LIPA, which ensure that RGGI funds meet the requirements of the RGGI regulations that funds are used to support energy efficiency and clean energy activities, as well as advancing the goal of benefits of investments in disadvantaged communities. NYSERDA is working with LIPA to maintain the level of market activity designed with the previous RGGI allocations. With this funding re-allocation, as well as additional funds, the Amendment allocates a total of $80 million during the planning period, comprised of $20 million per calendar year through the planning horizon. The LIPA Board of Trustees approves an annual energy efficiency program plan, which details the activities that these funds will support.

> *This program could lead to indirect RGGI emission reductions, so it is appropriate for this to be funded by RGGI auction proceeds.*

Amendment Comment: EmPower+: Energy Efficiency and Clean Heating and Cooling for Low- and Moderate-Income Households
These funds will maintain support for low-to-moderate-income (LMI) customers statewide to provide energy efficiency and electrification incentive. RGGI funds allow inclusion of customers of municipal utilities and customers using delivered fuel, which cannot be funded through the Clean Energy Fund. These customers will be able to access incentives through Empower+, which provides comprehensive energy efficiency services programs for low- and moderate-income-qualified households in existing one-to-four family homes. This Amendment allocates a total of $135 million to these efforts during the planning period, comprised of $30 million in FY23-24, $30 million in FY24-25, $45 million in FY25-26, and $30 million in FY26-27.

> *The comprehensive energy efficiency programs described could lead to indirect RGGI emission reductions so it is appropriate for this to be funded by RGGI auction proceeds. However, there also is funding for electrification upgrades that could increase RGGI source emissions. Therefore, it is inappropriate for that to be funded by RGGI auction proceeds. This operating amendment does not differentiate between the funding for the two applications so I used the 2023 shares in my apportionment analysis.*

Amendment Comment: Disadvantaged Communities Schools and Buildings
These funds will support high performance energy efficiency and electrification projects in schools located in disadvantaged communities as well as affordable housing.

NYSERDA's Clean Green Schools Initiative helps public schools that traditionally lack resources to invest in infrastructure improvements become healthier, more productive learning environments. This Initiative aims to improve the environmental sustainability of those schools by reducing school energy loads, decarbonizing their building portfolio, improving indoor air quality, and providing clean energy educational opportunities. This funding will be used in conjunction with existing Clean Energy Fund and Bond Act funds to support competitively selected clean heating and cooling installations and/or other capital projects that move schools towards decarbonization.

NYSERDA has partnerships in place with NYS Homes and Community Renewal (HCR), NYC Housing Preservation and Development (HPD) and the New York City Housing Authority (NYCHA) and seeks to continue supporting decarbonization projects with these agencies. In particular, this funding will allow HCR-regulated affordable housing located in non-SBC territories, including municipal electric territory or Long Island, to access building decarbonization grant funding as part of HCR's financing processes and provide training, technical assistance, and strategic planning resources to support NYC HPD's development of a long-term portfolio-wide decarbonization strategy. Additionally, this initiative will support work with public housing authorities, like NYCHA, to decarbonize buildings with an emphasis on advancing packaged heat pump systems to develop clean heat for all.

This Amendment allocates a total of $33.8 million to these efforts during the planning period comprised of $17.3 million in FY23-24, $6.5 million in FY24-25, $5 million in FY25-26, and $5 million in FY26-27. These investments continue to fund high-performance energy efficiency and electrification in schools located in disadvantaged communities as well as affordable housing.

> *I assumed a 50-50 mix of funding in my allocation to Table 4. The energy efficiency programs described could lead to indirect RGGI emission reductions so it is appropriate for this to be funded by RGGI auction proceeds. However, the electrification upgrades could increase RGGI source emissions. Therefore, it is inappropriate for that to be funded by RGGI auction proceeds until NYSERDA verifies that other investments will provide the necessary emission reductions at sources affected by RGGI.*

Amendment Comment: ChargeNY
ChargeNY has been pursuing four strategies to promote plug-in electric vehicle (PEV) adoption by consumers across New York. First, NYSERDA implemented the Drive Clean Rebate program for PEVs in March 2017, accelerating purchases of PEVs by reducing upfront costs, which continues to be a focus of

investment. Second, NYSERDA will continue to invest in marketing and awareness-building activities to build interest in PEVs among the public. A focus on building greater public knowledge and awareness of the capabilities of PEVs is essential to spur more private investment in PEV purchases and PEV charging stations. This work may also include other market development activities, such as policy and business model development studies that support new ways for critical stakeholders, including utilities, local governments, and car dealers, to get involved in the PEV market. Third, NYSERDA will also support the installation of PEV charging stations at workplaces, multi-family buildings, and targeted public locations – location types that have been seen to be effective drivers for PEV adoption based on usage data reported from previous installations – and work with the site owners to further promote PEV adoptions. Fourth, NYSERDA will support the planning and demonstration of shared electric mobility and transit options with a focus on disadvantaged communities and underserved areas. This work will address community-identified needs that expand access to public transportation and improve equitable access to PEVs and other electric mobility systems in a replicable and scalable way. This Amendment allocates a total of $148.9 million to these efforts during the planning period, comprised of $23 million in FY23-24, $45.9 million in FY24-25, $40 million in FY25-26, and $40 million in FY26-27. These funds will be used to support continuation of current and additional ChargeNY strategies to ensure effective engagement with the market to build scale and ensure a focus on a just transition into future years.

> *Promoting plug-in electric vehicle (PEV) adoption will increase electric energy use. It is inappropriate to use RGGI funds for this purpose.*

Amendment Comment: Climate Mitigation and Resilience Research

The proposed allocation of $0.5 million over FY23-26 seeks to support additional work done by the Climate Action Council Integration Analysis team and leverage current research investment to expand on energy and environmental analyses. This would include additional sensitivity analyses on land-use and climate change impact scenarios. This research would map out the risks and vulnerabilities related to climate change impacts for both the business-as-usual energy system and the carbon neutral energy system.

> *This allocation will not reduce GHG emissions or energy use, so it is inappropriate for this to be funded by RGGI auction proceeds. Note that there is another similar program proposed called "Climate Resiliency."*

Amendment Comment: Clean Energy Communities

The statewide Clean Energy Communities program, which is also supported through the CEF, provides local governments with a common platform and the coaching, facilitation, technical assistance, and expertise for implementing the local-level policies, planning and activities needed to drive a future clean energy market. These local-level actions roll-up and help to deliver the regional sustainable growth strategies encouraged by the Cleaner Greener Communities program, consistent with the regional sustainability and economic development plans. This Amendment allocates a total of $10 million to these efforts during the planning period, comprised of $3 million in FY23-24, $3 million in FY24-25, $2 million in FY25-26, and $2 million in FY26-27 to continue supporting communities in LIPA territory.

> *This allocation will not reduce GHG emissions or energy use, so it is inappropriate for this to be funded by RGGI auction proceeds.*

Amendment Comment: NYS Environmental Protection Fund

The New York State Budget for FY23-24 directed NYSERDA to transfer $5 million in RGGI funds to the Environmental Protection Fund (EPF). This Amendment assumes annual funding to support EPF programs that advance New York's leadership in reducing greenhouse gas emissions such as Climate Smart Communities, Smart Growth, and Greenhouse Gas Management. This Amendment assumes NYSERDA will be similarly directed for the upcoming fiscal years, and therefore allocates a total of $20 million during the planning period, comprised of $5 million in each year from FY23-24 through FY26-27.

> *This is a perfect example of New York State's misuse of RGGI auction proceeds. This fund should be funded from the Budget. It is no less egregious a use of funds than the NYS Budget Transfer debacle when the State raided the RGGI proceeds to politically doctor the State's budget. This allocation will not reduce RGGI CO_2 emissions or energy use, so it is inappropriate for this to be funded by RGGI auction proceeds.*

Amendment Comment: Green Jobs Green NY Additional Funding

The Green Jobs-Green New York (GJGNY) Program, created under the Green Jobs-Green New York Act of 2009, provides New Yorkers with access to energy assessments, installation services, low interest financing, and pathways to training for various green-collar careers. The GJGNY program was originally funded with $112 million of RGGI funds for program initiatives, and NYSERDA's Board has subsequently approved approximately $184.6 million of additional RGGI funds through FY22-23 to provide low interest financing for residential energy efficiency improvements, residential solar photovoltaic systems and other renewable technologies.

This Amendment allocates a total of $65.6 million to these efforts during the planning period, comprised of $14.3 million in FY23-24, $14.8 million in FY24-25, $16.5 million in FY25-26, and $20 million in FY26-27. These investments will continue GJGNY residential financing, including making 15-year unsecured financing at market or below- market interest rates available to consumers living in federal census block groups, where more than 50 percent of households have household income less than 120% of area median income (and allowing consumers living outside of these communities to qualify for this rate if they meet this income threshold), and also offering access to financing for consumers who may not qualify under traditional unsecured loan underwriting criteria but who meet NYSERDA's "Tier 2" underwriting criteria. This additional funding will also support energy audits for commercial buildings.

> *There is a very weak link between this program and potential RGGI emissions reductions. The $645 cost per ton of CO_2 removed for all the programs listed under this category in the Semi-Annual Status Report through June 30, 2022 is not cost-effective. The description does not explain whether the investments are for energy efficiency that could reduce the need for RGGI generation or electrification that could increase the need for RGGI generation. This allocation will not effectively reduce GHG emissions or energy use, so it is inappropriate for this to be funded by RGGI auction proceeds.*

Amendment Comment: Transfer to(from) Clean Energy Fund

Through the Clean Energy Fund (CEF) and its portfolios, NYSERDA is advancing the goals of the Climate Act. As approved by the Commission, the CEF delivers on its primary goals to reduce greenhouse gas emissions, increase renewable energy generation, increase energy efficiency, and attract greater private investment in clean energy, with investment portfolios that are designed to achieve scale in clean energy markets. These key CEF objectives dovetail with the RGGI investment parameters, creating a unique opportunity to leverage CEF and RGGI funds to help achieve New York's broader Climate Act and clean energy objectives. In designing the CEF, NYSERDA planned to dedicate $250 million in RGGI funds to the CEF portfolio over 10 years, supporting the $3.42 billion Market Development and Innovation and Research activities.

In keeping with this plan, while accounting for new revenue and commitment projections, NYSERDA will allocate to the CEF approximately $68 million throughout the planning period from FY23-24 through FY25-26, thus fulfilling the $250 million commitment noted above.

> *Because this program's primary goals are to reduce greenhouse gas emissions, increase renewable energy generation, and increase energy efficiency I classified this as having potential RGGI emission reductions. This program should be funded.*

Amendment Comment: Program Evaluation

This Amendment allocates a total of $9 million to program evaluation during the planning period, comprised of $2 million in FY23-24, $2 million in FY24-25, $2 million in FY25-26, and $3 million in FY26-27, to continue funding Market Impact and Evaluation studies, which assess how RGGI-funded programs are having lasting impacts in the market and to assess technology performance. Studies assessing stand-alone RGGI programs will be undertaken, as well as studies that support programs funded through RGGI and other funding portfolios (e.g., Clean Energy Fund). RGGI Semi-annual Status Reports will summarize findings from these completed studies.

> *This administrative cost program is necessary, but it will not affect emission reductions from RGGI-affected sources.*

Amendment Comment: Anticipated Future Administrative Funding Allocations

Table 1 in the Amendment presents the projected revenues and program funding allocations. Three program administration and evaluation cost programs are included: ongoing RGGI, Inc. costs, State Cost Recovery Fees, and program administration. The Amendment states that there is an increase in program administration funding, which reflect the projected increased need to support additional activities anticipated due to new program activity.

> *These administrative cost programs are necessary, but they will not affect emission reductions from RGGI-affected sources.*

Amendment Comment: Scoping Plan Implementation Research

The Climate Act is pushing the envelope of zero-emissions technology, so research is certainly appropriate. Unfortunately, the program description describes three programs that support recommendations included in the Climate Action Council's final Scoping Plan rather than addressing the fundamental feasibility of a zero-emissions electric system by 2040. The natural gas system planning for decarbonized future, planning an economy wide program, or support for a clean transportation standard program examples are much less of a priority than programs that meet the dispatchable emissions-free resource DEFR) requirements and the question of wind and solar resource availability during winter doldrums.

The Final Scoping Plan Appendix G: Integration Analysis Technical Supplement (uses the term zero-carbon firm resource to describe DEFR) explains how DEFR was treated in the Integration Analysis:

> In Scenarios 1, 2, and 4, the "zero-carbon firm resource" represents a combination of existing and new combustion-based resources (i.e. combustion turbines and combined cycle gas turbines) that convert to utilizing hydrogen as a zero-carbon fuel. In Scenario 3, firm zero-carbon capacity represents a combustion-free resource, modeled as hydrogen fuel cells.

The NYISO 2021-2040 System Resource Outlook states:

> DEFRs that provide sustained on-demand power and system stability will be essential to meeting policy objectives while maintaining a reliable electric grid. While essential to the grid of the future, such DEFR technologies are not commercially viable today. DEFRs will require committed public and private investment in research and development efforts to identify the most efficient and cost-effective technologies with a view towards the development and eventual adoption of commercially viable resources. The development and construction lead times necessary for these technologies may extend beyond policy target dates.

As part of the Department of Public Service Proceeding 15-E-0302 a technical conference was held on December 11 and 12, 2023 entitled Zero Emissions by 2040. The conference focused on characterization of the potential "gap" discussed in the May 14, 2023 Order. The gap is expected because "renewable energy resources may not be capable of meeting the full range of electric system reliability needs that will arise as fossil generation is replaced."

There is no question that a not yet commercially available resource is needed to address the gap. The important point is that these resources need to be developed. If a viable DEFR technology is not available when needed, the schedule of the Climate Act transition cannot be met without risking catastrophic blackouts.

The net-zero transition plan described in the Scoping Plan depends on massive amounts of solar, wind, and energy storage resources. In my comments on the Draft Scoping Plan I explained why an accurate and detailed evaluation of renewable energy resource availability is crucial to determine the generation and energy storage requirements of the future New York electrical system. I explained that in order to ensure electric system reliability for an energy system that depends on renewable generators and energy storage, the resources available during worst-case periods of low wind and solar energy production must be known. To date, many studies do not consider the importance of worst-case conditions on reliability planning, and I believe that the Integration Analysis also fails to address this issue adequately. My comments showed that there is a viable approach that could robustly quantify the worst-case renewable energy resources and provide the information necessary for adequate planning. I recommend that such a study be considered in consultation with the New York State Reliability Council Extreme Weather Working Group as part of the Scoping Plan Implementation Research Program.

Opportunities for Other Allocations

New York has some of the most ambitious clean energy and decarbonization policies in the country, and NYSERDA has planned several initiatives and programmatic activities that are commensurate with the goals put forward in those policies.

In the event that future auction proceeds exceed the budgets presented in Table 2, NYSERDA intends to allocate additional funding to the "Electric Vehicles / ChargeNY" program and "EmPower+". Neither of these programs directly or indirectly reduce RGGI source emissions. The document also mentioned that additional proceeds can also be allocated to emerging or expanded programs focused on serving consumers in disadvantaged communities and low-to-moderate income households. If those programs are used to reduce energy use, then I endorse them.

NYSERDA Stakeholder Responsiveness

This section documents my concerns with the stakeholder process. The NYSERDA Use of Auction Proceeds website states:

> Similar to other programs that NYSERDA administers, stakeholder input is important to us. On an annual basis, the Authority engages stakeholders representing the environmental

community, the electric generation community, consumer benefit organizations and interested members of the general public to assist with the development of an annual update to the Operating Plan. NYSERDA seeks feedback on the design and implementation of programs described in the Operating Plan to help us maximize the effectiveness of RGGI funded programs.

It is apparent that NYSERDA does not take this obligation seriously. A proper stakeholder process demonstrates appreciation of the obligation by responding to the comments. There must be some indication that someone read them, considered the points made, and took the stakeholder input into account. The 2023 Operating Plan amendment review process showed no sign of that.

Last year I spent a lot of time preparing detailed comments on the 2023 Operating Plan Amendment. The NYSERDA Planning Committee approved the 2023 RGGI Operating Plan at their January 25, 2023 meeting. The proposed revisions to the Regional Greenhouse Gas Initiative Operating Plan was presented to the Committee by John Williams, Executive Vice President for Policy and Regulatory Affairs. His opening statement reflects the perfunctory nature of the approval and includes the only acknowledgement and response to stakeholder comments:

> Thank you Shere and everybody. We'll move this one along pretty quickly. We're here with our annual routine RGGI approval process. So the, the Members have received both the three year plan that we're proposing as well as a memo of summarizing all that. Just some high points here for awareness. You know, we did engage our annual process to come up with our proposal and present that to stakeholders. And on December 12th we held a webinar for receipt of stakeholder input on that. So some participation there and some exchange of thoughts happening at that December 12th webinar. The proposal was also open for written public comments through January 6th, and we did receive a couple of comments there. The proposal you have was you know, does take those public feedback into account.

It is very easy to say the proposal takes public feedback into account but actions speak louder than words. There is no available documentation explaining what feedback was included, what feedback recommendations were excluded, or why those decisions were made. In fact, there is no indication of how any feedback was addressed. NYSERDA staff should prepare a report that lists all the points made in the comments with recommendations on how they should be handled for management review and approval. Williams's response mentions a memo but there is no indication of what it included and it is not available as part of the record. I think that it should be part of the record and that it should contain the summary of stakeholder comments and the NYSERDA responses.

This year's stakeholder process actively discouraged public involvement. The Amendment and stakeholder meeting announcement were posted on December 1. The Operating Plan Stakeholder Meeting was held on December 8, 2023. The opportunity to join the meeting by phone or webinar required the use of a password that was not provided. There is no indication in the meeting recording that any participant figured out that nobody outside of NYSERDA joined the webinar. The video of the 12/8/23 meeting was not put online until December 15, 2023. To NYSERDA's credit a separate webinar to offer the public an opportunity to ask questions was held on December 20. However, they only allocated a half an hour. I submitted questions before the webinar and time ran out before they responded to all of them. The video recording of the Q&A meeting was provided on 12/27/23. Comments are due by the close of business on December 29, 2023. Expecting meaningful comments two weeks after the posting of the video with the Christmas holiday in between is not realistic. In fact, it seems to be a deliberate attempt to squelch input.

Given the lack of responsiveness to those comments and the dismissive approach taken to the stakeholder process this year I saw no value in spending as much time on this operating amendment as I did last year. I did not update all the analyses to use the most current data. In order to be sure that the NYSERDA Board members had at least had the opportunity to see my comments I have copied them in my submittal.

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