Doubling Down on Climate Progress

The Benefits of a Stronger Regional Greenhouse Gas Initiative

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Executive Summary

To tackle the climate crisis, we need to quickly shift away from dirty fossil fuels and towards 100 percent renewable energy. The Northeast and Mid-Atlantic states are leading the way with the best regional clean air and climate protection program in the country: the Regional Greenhouse Gas Initiative. Since 2009, this program has helped cut dangerous pollution from power plants while generating billions in funding for clean energy programs, delivering major benefits.

As good as this program is, we can make it even better. Doubling its strength in the coming decade would cut more pollution, bring healthier air for our families, and show the rest of the country and the world that our region is committed to doing what it will take to address global warming.

The Regional Greenhouse Gas Initiative is delivering major benefits for Northeast and Mid-Atlantic states. So far, in the participating states, the program has:

- Helped to cut carbon dioxide pollution from power plants in half since 2005 (the year the policy was finalized), the equivalent of retiring 22 dirty coal-fired power plants.[1]
- Helped to clean our air – saving 600 lives over six years, preventing 9,000 asthma attacks, and averting respiratory illnesses that otherwise would have caused 43,000 lost work days.[2]
- Generated $2.6 billion for states to invest in clean energy, energy efficiency and consumer benefit programs, driving more local clean energy projects and strengthening communities across the region.[3]
- Helped to reduce electricity consumption by 5 percent since 2005- even as the regional population grew by 7 percent, and the economy grew by 10 percent.[4]
- Given a boost to clean energy, helping to increase solar power generation by more than 75 percent since 2012 and helping to more than double wind power since 2008.[5]
- Locked in more than $4.6 billion in savings on energy bills for citizens and businesses over time – an incredible return of $3.50 in energy bill savings for every dollar spent on clean energy.[6]
- Boosted the regional economy by almost $3 billion and created more than 30,000 jobs.[7]

As good as the Regional Greenhouse Gas Initiative is, we can make it even better. Doubling the strength of the program beginning in 2020 would:

- ***Cut carbon dioxide pollution in half*** below current levels by 2030. We could prevent twice as much pollution as compared to keeping the program on its current trajectory of carbon emissions. Over a decade, that would add up to an

additional 100 million tons of pollution avoided – or the equivalent of making more than 1 million homes run entirely on solar power.[8]

- ***Invest $18.7 billion in clean energy*** over the decade from 2020 to 2030 – enough to weatherize more than 7 million homes, or almost every household in New York state.[9] In total, this report estimates that doubling the strength of the cap on pollution would generate on the order of $18.7 billion over ten years – $4 billion more than if the states keep the program at its current strength.
- ***Help states achieve climate goals***. A comprehensive analysis by Synapse Energy Economics showed that doubling the strength of the Regional Greenhouse Gas Initiative is part of the most cost-effective pathway to achieving our 2030 goals for slashing global warming pollution across our entire economy.

States should double the strength of the Regional Greenhouse Gas Initiative to accelerate our progress in the fight against global warming, and magnify the important benefits that come from reducing pollution. Additionally, states should act to close loopholes that could undermine the effectiveness of the program. Finally, additional states should join the program to accelerate progress in cleaning up dangerous pollution from power plants and fighting climate change.

Introduction: Leadership on Climate Change

The Northeastern and Mid-Atlantic states understand the serious risks posed by global warming.

No event drove the point home stronger than Hurricane Sandy. That storm – with strong winds, heavy rainfall and a huge storm surge – caused more than $70 billion in damage across more than a dozen states.[10] The destruction was much worse than it otherwise would have been because global warming has caused the oceans to rise by about a foot over the last century.[11] Because of sea level rise, the risk of coastal flooding on the scale caused by Hurricane Sandy has doubled over the last 60 years.[12]

If the world continues to emit unchecked amounts of global warming pollution, average temperatures across most of the United States will be as much as 10° F hotter by the end of this century.[13] Warming on that scale would have terrible consequences – including making it harder to grow the food we need, disrupting ecosystems, increasing the frequency and devastation caused by coastal flooding, and making damaging events like Hurricane Sandy even more likely.

To reduce the risks we face, our states are working to cut the dangerous pollution that is changing our climate. We have set ambitious goals for reducing emissions and are accelerating our shift away from dirty and dangerous fuels like coal and gas. We have a citizenry that is solidly behind taking even more ambitious action on clean energy and climate protection.[14] And we have political leaders with a bi-partisan history of acting to cut pollution.

We understand that leadership is not simply about our states doing their part. It is also about inspiring others to take action. By going bigger and farther, we are helping to show the rest of the country and the world what is possible. We are opening the door to a world economy that runs on 100 percent clean energy, without harming our health or environment.

The Regional Greenhouse Gas Initiative, also known as RGGI, is one of the best examples of our climate leadership. This program, created by a bi-partisan group of governors in 2005, is the nation's first multi-state policy to cut dangerous carbon pollution from power plants and generate revenue to fund clean energy programs. It works by limiting dangerous carbon pollution from electric power plants. And by making power plant owners pay to emit pollution, it generates revenue that states largely re-invest in energy efficiency, clean energy and other programs to benefit the environment and consumers.[15]

The program works, and works well. It is proving that not only can we cut pollution – but we can also cut it faster than anyone anticipated, and in ways that bring widespread benefits – for our health, our communities and our families.

In 2017, the nine states that participate in the Regional Greenhouse Gas Initiative (Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island and Vermont) have an important opportunity to take another step forward in the fight against climate change. These states are currently debating whether and how much to strengthen the program after 2020.

This report makes the case that we can make this great program work even better by doubling its strength. First, the report reviews the impressive results the program has delivered over the last decade. Then we estimate some of the benefits we could achieve by doubling its strength through 2030.

We know that our climate can't wait for Washington, D.C., to lead. It is time to build on what we've learned since RGGI was created in 2005 and take the next step forward. Together we can build a renewable energy future – and deliver clean air and a safe, healthy climate for us all.

The Regional Greenhous Gas Initiative program works, and works well. It is proving that not only can we cut pollution – but we can also cut it faster than anyone anticipated, and in ways that bring widespread benefits – for our health, our communities and our families.

The Regional Greenhouse Gas Initiative Is Delivering Major Benefits

The Regional Greenhouse Gas Initiative is delivering major benefits for our region. It is helping to cut pollution from power plants. It is generating funding for clean energy programs. It is driving improvements in energy efficiency and saving people money on their energy bills. It is accelerating the deployment of clean energy in local communities. And it is helping to clean up our air and improve our health.

Less Pollution from Power Plants

By limiting climate-changing pollution from power plants in a clear and predictable way over time, the Regional Greenhouse Gas Initiative is sending a market signal to power plant owners to invest more in cleaner forms of energy. Coupled with other environmental rules and changing energy technology, that has helped to dramatically drive down emissions of dangerous carbon pollution over the last decade.

Since RGGI was finalized in 2005, carbon dioxide pollution from power plants across the participating states has fallen by just over half.[16] That is the equivalent of retiring 22 dirty coal-fired power plants.[17] (See Figure 1.)

Figure 1. Carbon Pollution from Power Plants Has Fallen Dramatically Since RGGI Was Created in 2005.[18]

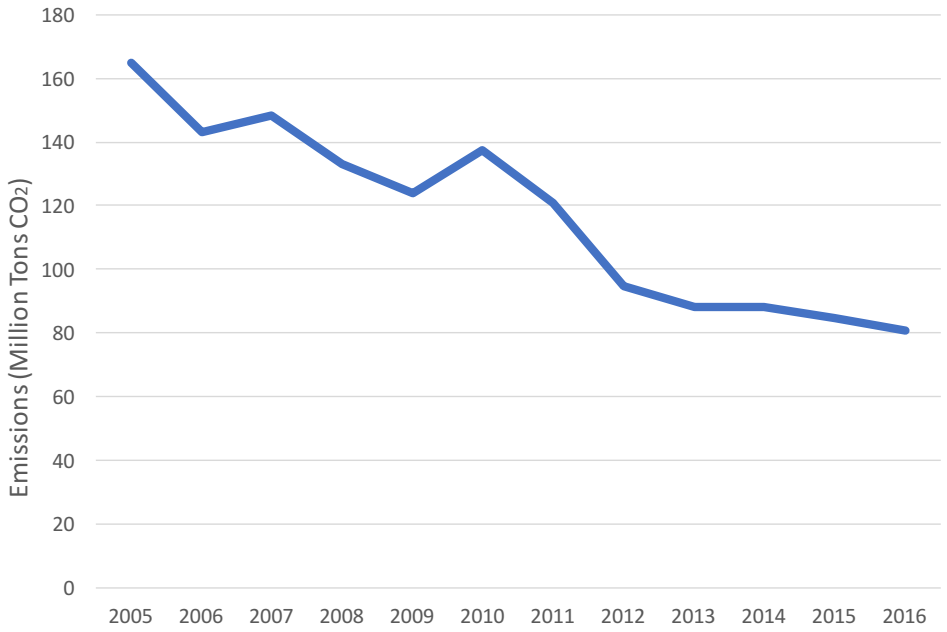


Table 1. State Carbon Dioxide Emissions from Electric Power Plants covered by the Regional Greenhouse Gas Initiative, 2005 and 2016 (million tons)[19]

State	2005 Emissions	2016 Emissions	Percent Decline
Connecticut	12.74	7.68	-40%
Delaware	8.20	4.04	-51%
Maine	6.15	1.56	-75%
Maryland	35.47	18.90	-47%
Massachusetts	29.66	11.56	-61%
New Hampshire	9.25	3.05	-67%
New York	60.58	31.19	-49%
Rhode Island	2.87	2.83	-1%
Vermont	0.01	0.00	-67%
All States	**164.94**	**80.83**	**-51%**

More Funding for Clean Energy Programs

The Regional Greenhouse Gas Initiative has generated $2.6 billion in revenues for participating states through 2016. (That includes more than $110 million generated for New Jersey before the state withdrew from the program in 2011.) States have invested more than half of those funds into programs that increase energy efficiency. With the remainder, states have promoted renewable energy, funded programs to directly cut global warming pollution, assisted consumers with their energy bills and trained clean energy workers.[20] (See Table 2.)

Table 2: Funding Generated by the Regional Greenhouse Gas Initiative through 2016[21]

State	Funding Generated (Millions)	Main Use of Funds through 2014
Connecticut	$173	Efficiency
Delaware	$97	Efficiency
Maine	$84	Efficiency
Maryland	$544	Bill Assistance
Massachusetts	$436	Efficiency
New Hampshire	$116	Efficiency
New York	$998	Efficiency
Rhode Island	$56	Efficiency
Vermont	$20	Efficiency
New Jersey*	$113	Efficiency, Clean Energy *(stopped participating in 2011)
Total	$2,637	

Photo: Wikimedia user DanielPenfield, CC BY-SA 3.0

The Sibley Square Building in Rochester, NY, will be undergoing energy efficiency renovations using RGGI funds. These upgrades are expected to reduce carbon dioxide emissions by 1,458 metric tons annually.[23]

These funds have greatly helped participating states reduce pollution and accelerate the deployment of clean energy.

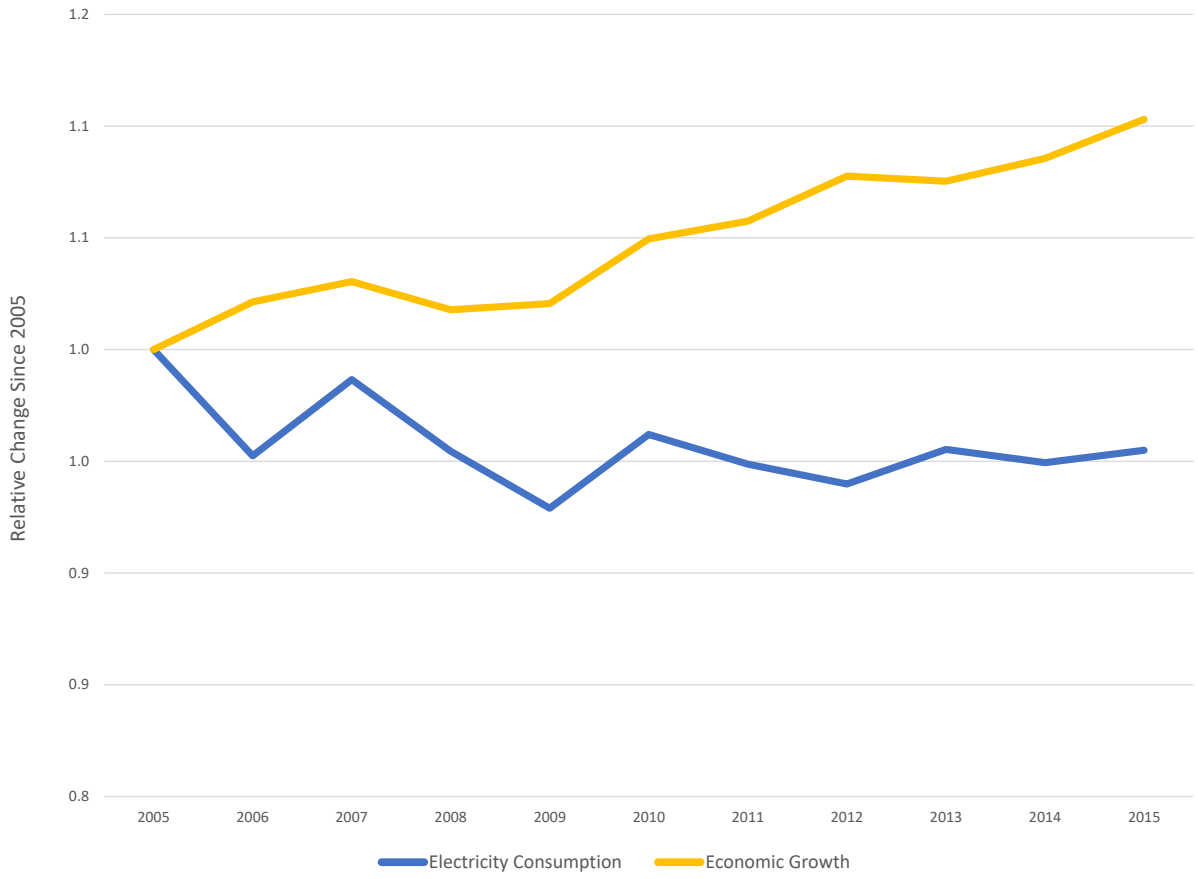
Improved Energy Efficiency

Funding for energy efficiency programs has delivered major improvements in energy use and savings on energy bills.

Six of the states that participate in the Regional Greenhouse Gas Initiative rank among the top 10 states for energy efficiency, according to the American Council for an Energy Efficient Economy.[22] The additional funding for efficiency programs generated by this program is an important reason why.

Overall, electricity consumption in the states participating in the Regional Greenhouse Gas Initiative dropped by 5 percent from 2005 to 2015 – even as the population grew by 7 percent, and the regional economy grew by 10 percent.[24] (See Figure 2.) Every state reduced its electricity consumption

Figure 2: Electricity Consumption Declined, even as the Economy Grew[25]



over this period – with Connecticut and Maryland leading the charge. (See Table 3.)

For every dollar invested in energy efficiency, clean energy and consumer benefit programs, energy customers have saved $3.50 on their energy bills over time.[27]

Overall, clean energy program spending through 2014 has locked in $4.6 billion in lifetime energy bill savings for citizens, businesses and industries across the region.[28] (See Figure 3.) Program activity in 2015 and 2016 has locked in hundreds of millions of dollars in additional savings.

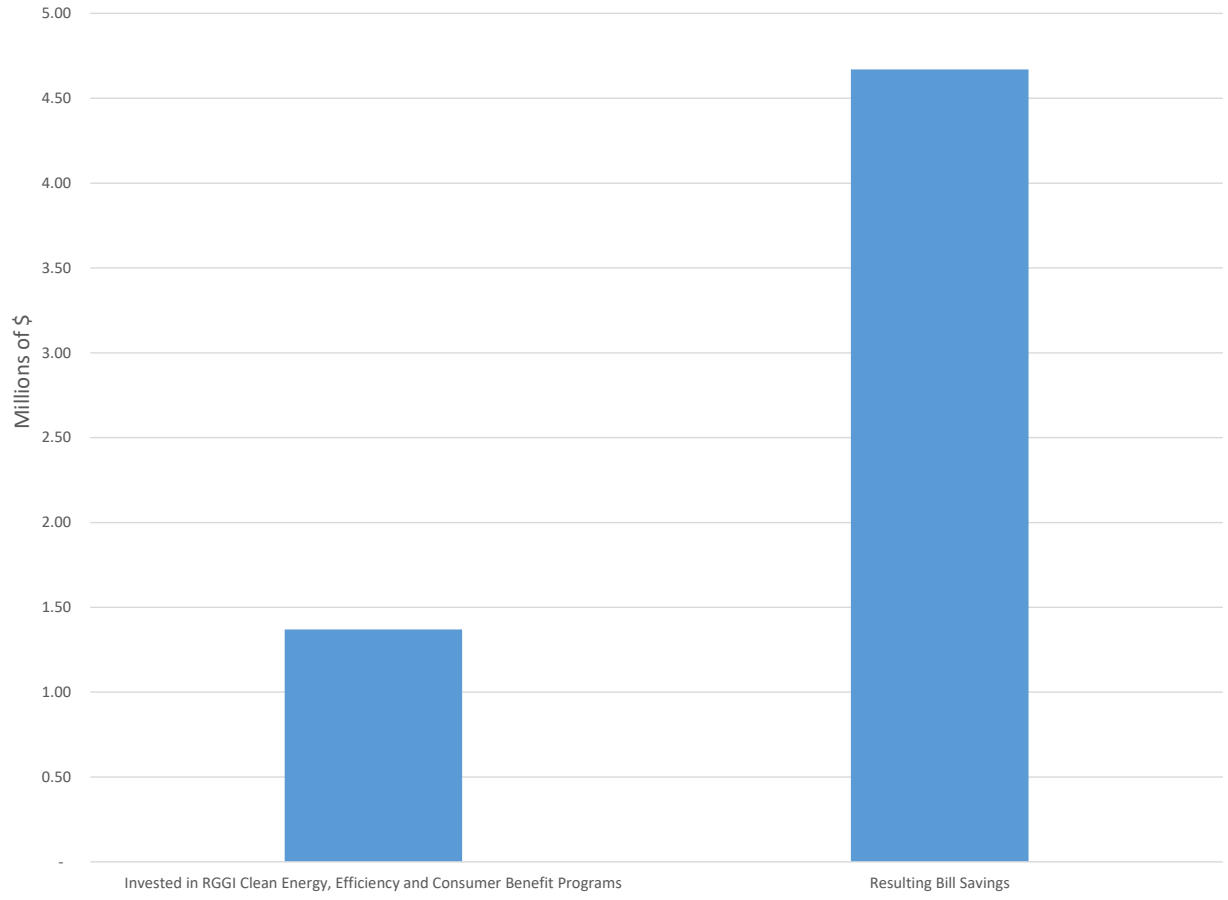
More Renewable Energy

The Regional Greenhouse Gas Initiative has helped to accelerate the deployment of clean energy in our region as part of a system of many policies that require more clean energy, make it more economi-

Table 3: Decline in Electricity Consumption; Economic Growth by State, 2005-2015[26]

State	Decline in Electricity Consumption	Economic Growth (Inflation-Adjusted)
Connecticut	11%	-2.6%
Delaware	5%	5.7%
Massachusetts	5%	-0.6%
Maryland	10%	12.9%
Maine	4%	15.6%
New Hampshire	2%	6.3%
New York	1%	12.1%
Rhode Island	5%	-0.6%
Vermont	6%	4.5%
All States	**5%**	10.3%

Figure 3. Lifetime Bill Savings Resulting from Investment of Auction Revenues into State Clean Energy, Energy Efficiency and Consumer Benefit Programs, 2009-2014[29]



cally attractive, and/or fund programs that help local governments, businesses or individuals install solar panels or other clean energy measures. Since 2005, when RGGI was approved, the region has made major progress in retiring dirty energy and replacing it with clean technology. Generation from dirty fuel oil and coal is down by more than 70 percent and continuing to decline.[30]

Solar photovoltaics and wind turbines have fallen in price by 80 percent and 30-40 percent, respectively, since 2009. Installed solar capacity in RGGI participating states grew more than 75 percent from 2012 to 2015.[31] Wind power has witnessed similar growth; since the beginning of 2008, installed wind capacity has more than doubled across the region.[32] And the door to a brand-new industry – offshore wind power – is now open. In summer 2016, Deepwater Wind finished construction on the nation's first offshore wind energy facility, the Block Island Wind Farm in Rhode Island.[33]

Cleaner Air and Better Health

In addition to global warming pollution, electric power plants emit other dangerous air pollutants, including nitrogen oxides, which contribute to the formation of smog and particulate matter, otherwise known as soot. By accelerating our transition away from dirty fuels, the Regional Greenhouse Gas Initiative is helping to reduce these pollutants and as a result is improving health of residents throughout the Northeast.

According to a 2017 study by Abt Associates, in the first six years of the program, between 300 and 830 lives were prolonged as a result of reduction in emissions. Improved air quality also resulted in an estimated 9,000 avoided asthma attacks and avoidance of 260,000 days of restricted activity, such as inability to exercise outdoors, caused by poor air quality.[34]

The Regional Greenhouse Gas Initiative has saved the region an estimated $5.7 billion in hospital

Table 4. Health Benefits Delivered by the Regional Greenhouse Gas Initiative, 2009-2014[36]

State	Lives Prolonged	Asthma Attacks Avoided	Work Loss Days Avoided	Restricted Activity Days Avoided	Total Value of Health Benefits (Millions)
Connecticut	20	400	2,000	12,000	$250
Delaware	20	300	1,400	8,200	$190
Maine	10	200	770	4,700	$110
Maryland	60	1,000	5,000	30,000	$580
Massachusetts	60	900	4,500	27,000	$580
New Hampshire	10	200	870	5,300	$110
New York	130	2,000	11,000	64,000	$1,300
New Jersey	100	2,000	7,700	46,000	$970
Rhode Island	10	100	730	4,400	$100
Vermont	5	80	390	2,400	$49
Other nearby states	150	2,900	13,400	81,000	$1,800
Total	600	9,000	43,000	260,000	$5,700

bills and additional productivity at work. New York saw savings of about $1.3 billion, and New Jersey (despite the fact that it withdrew from the program in 2011) saved $970 million.[35] Air pollution doesn't respect state boundaries, so states that clean up their emissions help their neighbors, too.

Stronger Economy

By improving energy efficiency, and keeping more of our energy dollars in the local economy rather than exporting them to other states to buy dirty fuels, the Regional Greenhouse Gas Initiative is helping to boost the regional economy. When people have more money in their pockets, they tend to spend it on local goods and services.

According to research by the Analysis Group, in its first six years (2009-2014), the Regional Greenhouse Gas Initiative:[37]

- Boosted the regional economy by almost $3 billion; and
- Created more than 30,000 jobs (defined as full time work for one year)

Table 5: Economic Benefits of the Regional Greenhouse Gas Initiative, 2009-2014[38]

State	Economic Value Added (millions)	Jobs Created (work-years)
Connecticut	$245	2,172
Maine	$214	2,031
Massachusetts	$741	6,509
New Hampshire	$84	1,041
Rhode Island	$86	762
Vermont	$37	372
New York	$712	9,083
Delaware	$170	1,487
Maryland	$341	3,845
New Jersey	$151	1,772
Total	**$2,908**	**30,290**

Doubling the Strength of the Program Would Magnify the Benefits

As good as the Regional Greenhouse Gas Initiative is, we can make it even better.

In 2017, states participating in the Regional Greenhouse Gas Initiative have an opportunity to strengthen the program. Every four years, the states hold a public process to review how well the program is working and discuss possible improvements.

During the last formal review in 2012 and 2013, the states decided to reduce the cap on power plant carbon pollution by 45 percent, to account for the fact that power companies had cut pollution faster than officials had initially expected was possible.[39] Since 2005, power plant carbon pollution has fallen by about 5 percent per year on average.[40] During 2016, emissions fell by 4.8 percent.[41]

This time around, the challenge is to ensure that that level of momentum continues. As currently designed, the limit on carbon pollution set by the Regional Greenhouse Gas Initiative goes down by 2.5 percent every year from 2014 to 2020.[42] By doubling the strength of the cap, so that it declines by 5 percent of 2020 emission levels per year from 2020 through 2030, we can continue the impressive pace at cutting pollution that power companies have achieved so far.[43]

This section of the report assesses the potential benefits of doubling the strength of the program.

Cut Pollution in Half Again

If states were to double the strength of the Regional Greenhouse Gas Initiative, carbon dioxide emissions from power plants would continue to fall dramatically. We could cut pollution in half again below current levels by 2030. That would prevent twice as much pollution as compared to keeping the program at roughly its current strength.[44] Over a decade, a stronger cap would avoid more than an additional 100 million tons of pollution – or the equivalent of making more than 1 million homes run entirely on solar power.[45]

To guarantee this level of reduced pollution, states could close loopholes in the program. Specifically, states would need to adjust the cap downward to account for excess pollution allowances that companies have "banked" when they were unneeded for use in the future. States should also eliminate the "offsets" feature of the program, which allows for the limited use of "offsets" (emission reductions taking place elsewhere in the economy) to substitute for emission reductions at power plants. States should also modify the cost containment reserve to prevent the cap from

Table 6. Potential State Carbon Dioxide Emissions of Electric Power Plants under the Regional Greenhouse Gas Initiative Under a 5 Percent Cap (million short tons)[46] (Assuming proportional reductions by state)

State	Actual 2015 CO_2 Emissions	Estimated 2030 CO_2 Emissions
Connecticut	8.15	3.83
Delaware	3.52	1.65
Maine	1.78	.84
Maryland	18.05	8.49
Massachusetts	12.28	5.77
New Hampshire	3.82	1.79
New York	32.52	15.29
Rhode Island	3.08	1.45
Vermont	0.00	0.00
All States	**83.20**	**39.11**

inflating unnecessarily if allowance prices exceed a certain threshold. (See "Policy Recommendations".)

Assuming that the cuts in pollution through 2030 happen in all states proportionally (which is not guaranteed under the market-based structure of the program), and assuming that power companies use all allowable emissions permits, Table 6 shows what 2030 carbon pollution levels could look like by state under a double-strength cap.

Invest Billions More in Clean Energy Programs

Making the Regional Greenhouse Gas Initiative twice as strong would help the states invest nearly twice as much in clean energy programs. This report estimates that revenues under a double-strength cap that declines by 5 percent of 2020 emissions levels per year from 2020 to 2030 would generate an additional $4 billion in revenue compared to keeping the program going at approximately its current strength (with a cap declining at 2.5 percent per year).

Even though a stronger program would have fewer allowances up for sale, those allowances would command a higher price at auction. Modeling done by the states so far in the review process suggests that the increase in allowance prices would outweigh the lower volume of sales and increase the ability of the program to generate important funding for energy efficiency, clean energy, worker training and other consumer benefit programs.[47]

The amount of additional money available under a double-strength program would be significant. The amount is difficult to anticipate precisely, since there are so many factors that can influence the price of a pollution allowance at auction, and many assumptions that go into predicting future market conditions. In modeling presented in June 2016, a cap that declines by 5 percent resulted in allowance prices that rose from $21 per ton (nominal dollars) in 2020, to almost $41 per ton in 2030. The 2030 price was 53 percent higher than that resulting from a cap that declines by 2.5 percent, and 30 percent higher than a cap declining at 3.5 percent.[48]

At those prices and emissions levels, a cap that is reduced by 5 percent of 2020 emission levels annually would generate on the order of $18.7 billion in revenue from 2020 through 2030 – money that states could invest in further accelerating our transition to 100 percent clean energy. Investing that much in clean energy could accomplish a lot. For example, with those additional resources, states could weatherize more than 7 million homes – or almost every household in New York State.[49] In comparison, keeping the program running as-is would generate on the order of $14.6 billion.[62]

These estimates are based on simple extrapolation from modeling the states have done to predict how different changes to the configuration of the program would affect the price of emissions permits.[50] (See Methodology.)

Assuming that permit revenues are allocated among states at the same proportion they were in 2017, the $18.7 billion would go towards each state as listed in Table 7.

Achieve Climate Goals

Doubling the strength of the Regional Greenhouse Gas Initiative will better position states in the region to succeed in delivering targeted cuts in global warming pollution.

All the states that participate in the program have either statutory requirements or goals to limit global warming pollution, with benchmarks for 2030, 2050 or both. (See Table 8.)

Moving quickly to clean up power plants is a critical strategy in achieving these economy-wide

Table 7. Estimated Auction Revenues from 2020-2030, Under a Double-Strength Cap (annual decline of 5% of 2020 emission levels), plus Home Weatherization Equivalents[51]

State	Total Estimated Revenues from 2020-2030 (millions)	Equivalent Number of Homes that Could Be Weatherized
Connecticut	$1,207.82	470,000
Delaware	$853.75	330,000
Maine	$671.83	260,000
Maryland	$4,235.43	1,600,000
Massachusetts	$3,010.81	1,200,000
New Hampshire	$973.53	380,000
New York	$7,262.79	2,800,000
Rhode Island	$300.32	120,000
Vermont	$138.44	53,000
All States	**$18,654.71**	**7,200,000**

Table 8: State Targets for Reducing Global Warming Pollution, 2030 and 2050[52]

State	2030 Target	2050 Target
Connecticut	35-45% below 1990	80% below 2001
Delaware	36% below 1990	No target
Maine	35-45% below 1990	75-80% below 2003
Maryland	35% below 1990	Up to 90% below 2006
Massachusetts	35-45% below 1990	80% below 1990
New Hampshire	35-45% below 1990	80% below 1990
New York	40% below 1990	80% below 1990
Rhode Island	35-45% below 1990	80% below 1990
Vermont	35-45% below 1990	75% below 1990

climate targets. Clean electricity is the key to unlock progress in other parts of our economy, such as from cars and trucks.[53] A comprehensive analysis by Synapse Energy Economics showed that doubling the strength of the Regional Greenhouse Gas Initiative is part of the most cost-effective pathway to achieving our region's economy-wide pollution targets for 2030.[54]

We can achieve our climate goals – and more. For example, a recent study showed that the United States can cut power plant pollution by more than 80 percent in the next 15 years using existing technology, including wind turbines, solar panels and long-distance power lines.[55] Our region has more than enough clean energy resources to meet all of our energy needs for all purposes with zero pollution.[56]

Policy Recommendations

The Regional Greenhouse Gas Initiative has helped the Northeastern and Mid-Atlantic states accelerate our transition to a clean energy future. The program is succeeding at cutting global warming pollution, cleaning our air, improving energy efficiency, supporting the deployment of renewable energy, improving our health, and boosting our economy.

Making it stronger will provide even more benefits to the region.

Double the Strength of the Program

Participating states should double the strength of the Regional Greenhouse Gas Initiative, accelerating the rate of decline of the emissions cap from its current level of 2.5 percent per year to 5 percent of 2020 cap levels per year between 2020 and 2030. This would make the cap more closely match the overall pace of pollution cuts the region has achieved since 2005, when pollution levels were twice as high as today.

Close Program Loopholes

Participating states can also make the program stronger – and increase the certainty of future progress in cutting dangerous global warming pollution – by closing several loopholes that have the potential to weaken progress. Specifically, the region should:

- ***Retire excess allowances.*** Emissions have consistently fallen below the cap, allowing an excess bank of allowances to build up. The states should adjust future cap levels downward to fully absorb this excess bank of allowances.
- ***End the sale of carbon dioxide offsets.*** Currently, owners of electric power plants can purchase offsets in exchange for developing a project in one of five categories, including landfill methane capture.[57] These offsets shift investment away from measures that directly reduce power plant pollution, delay our transition to clean energy, and potentially dilute the local benefits of the program. States should clean up these other sources of emissions, but do so with direct programs focused on those sources, rather than with offsets from the Regional Greenhouse Gas Initiative.
- ***Eliminate or reform the Cost Containment Reserve.*** The participating states have established a reserve of additional carbon allowances that are introduced for auction only if carbon prices exceed a certain level. This artificially inflates the cap on emissions and allows power plants to exceed the emissions cap in any given year – undermining the program's success in protecting the region from global warming. If the feature is retained, the price threshold should be raised so that it can only be triggered by a truly unexpected cost shock. Furthermore, the amount of extra allowances should decline as the overall cap declines, and the extra allowances should come from a future year's allocation to prevent overall emissions from increasing above the cap.

- ***Prevent the build-up of excess allowances if annual emissions fall below the cap.*** The states have discussed implementing a novel policy idea called an Emissions Containment Reserve to retire extra allowances in the event that prices and demand fall below certain thresholds. States should move forward and design this feature to maximize its benefit for our climate, environment and health.

Expand the Program to Include Other States, Including New Jersey

New Jersey participated in the Regional Greenhouse Gas Initiative for the first two years of the program before withdrawing in 2011. Even in that short time, the state received $113 million in auction revenues for investment in state programs.[58]

New Jersey has a statutory requirement to cut global warming pollution across its entire economy. The state should rejoin the Regional Greenhouse Gas Initiative and work with other states to cut carbon pollution and protect the region against the worst impacts of global warming.

Ultimately, the entire United States must take more ambitious action. Other states outside the Northeast should participate in the program or create their own policies to limit carbon pollution from power plants, transportation and other sources.

Methodology

Estimating Carbon Dioxide Emissions Avoided from 2020 to 2030

To estimate the additional avoided carbon dioxide emissions if the Regional Greenhouse Gas Initiative were strengthened, we developed a scenario in which the RGGI cap is reduced by a fixed 5 percent of 2020 levels (a reduction of 3.9 million tons) per year beginning in 2021. For simplicity, we assume that emissions follow the trajectory of the cap; that is, that "flexibility mechanisms" built into the program do not allow emissions to increase above the level of the nominal cap. We compared the results of our 5 percent scenario to a fixed 2.5 percent annual reduction in the emissions cap, approximately the trajectory of the current program.

To project the state-by-state emissions under a 5 percent cap, we divided the regional emissions total calculated in the previous step among the states based on each state's percentage of the region's emissions in 2015, per the Regional Greenhouse Gas Initiative Inc.'s COATS emissions database.[59]

To arrive at a total figure for additional regional emissions avoided under a 5 percent cap versus a 2.5 percent cap, we subtracted the annual emissions cap under the 5 percent scenario from the annual emissions under the 2.5 percent scenario, and then summed the differences from 2020-2030 to arrive at 107.2 million metric tons of additional avoided carbon dioxide.

Projecting Auction Revenues Raised in 2020-2030

To estimate auction revenues under a 5 percent cap we multiplied annual carbon allowance price forecasts from modeling done by ICF Consulting for RGGI Inc. by the total annual emissions in our 5 percent reduction scenario. To determine how these revenues might be distributed among the states, we multiplied the regional total by the 2017 allocation of auction allowances among participating states.[60] This assumes the distribution among states will remain similar to 2017 allocation for all of 2020-2030.

In order to compare what revenues under a 5 percent cap would look like compared to a 2.5 percent cap, we used June 2016 modeling of future carbon allowance prices provided by RGGI Inc.[61] These models only included projected carbon prices for every third year in the 2020-2030 range. We used linear interpolation to arrive at the interim years' carbon price levels.

While we are aware that the states are currently revising many of the assumptions that went into the original modeling based on new information – and that those updates in assumptions and policy design elements will affect the absolute value of forecast allowance sales – comparison of the two scenarios in this report provides useful information to help the public and decision-makers compare the impacts of potential future directions for the program.

Notes

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