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Pace Energy and
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ELIZABETH HAUB SCHOOL OF LAW

Voluntary Renewable Energy and the Regional Greenhouse Gas Initiative (RGGI): Solutions for Positive Interactions and Greater Impact

Executive Summary

Prepared for the Pace Energy and Climate Center

Updated September 11, 2017

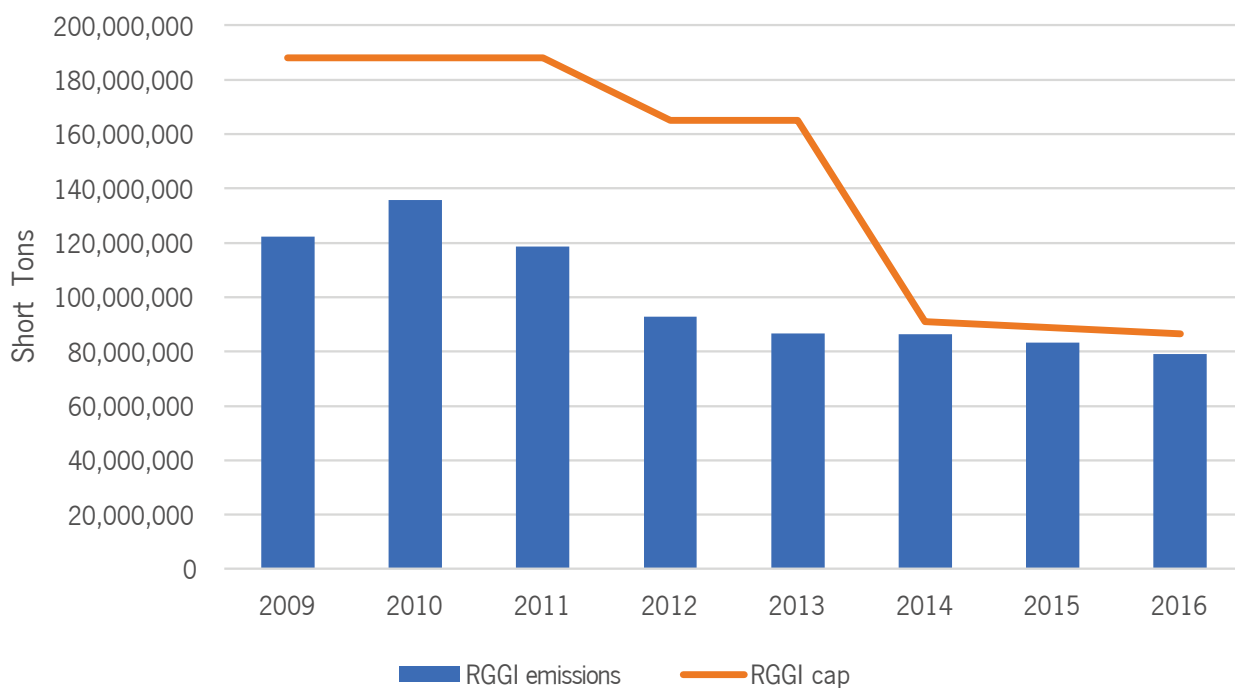
Overview

Carbon regulations and regional cap-and-trade programs like the Regional Greenhouse Gas Initiative (RGGI) interact with renewable energy markets in important ways that are often not well understood by policymakers, regulators, and even buyers. In most RGGI states, renewable energy growth complements greenhouse gas (“GHG”) strategies. And the voluntary renewable energy market also provides incremental GHG reduction benefits where allowance set-aside mechanisms preserve the emissions

benefits of voluntary renewable energy. Set-aside mechanisms under the GHG cap set aside and retire allowances on behalf of the voluntary market. There is an opportunity now to both expand and strengthen these mechanisms, benefitting both the voluntary market and RGGI.

As the country’s first regional cap-and-trade system for carbon dioxide (CO₂), RGGI is a landmark program. But its cap is not currently driving renewable energy development.

Figure 1. Emissions in RGGI States Relative to the RGGI Cap (2009–2016)



Challenges

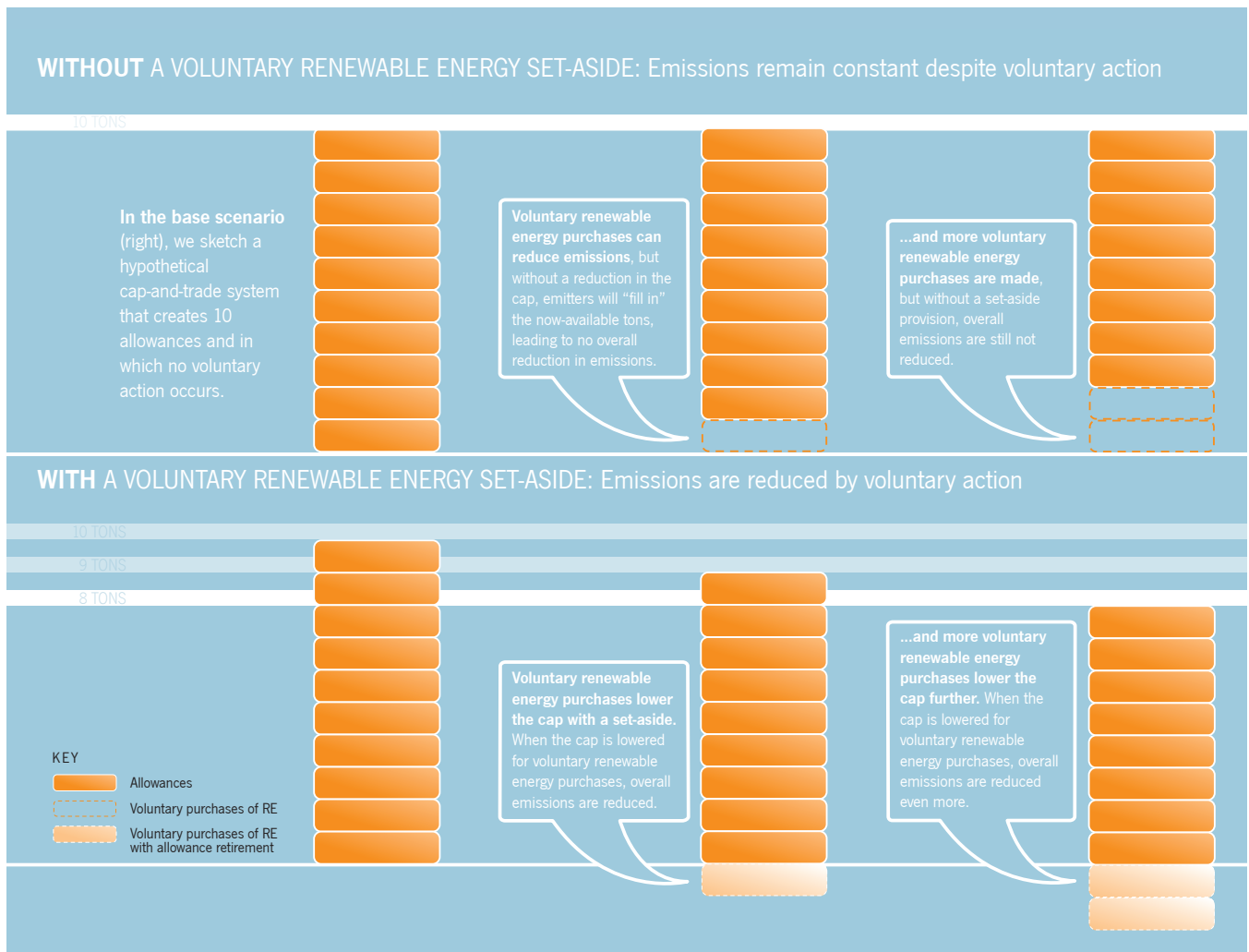
Voluntary renewable energy generation should translate into GHG cap reductions. Where this does not happen, voluntary renewable energy does not actually reduce emissions over and above regulation, and instead only serves to help regulated entities comply with existing regulatory requirements. There is weak demand for voluntary renewable energy that does not affect statewide GHG emissions. RGGI set an important precedent in establishing the first allowance set-aside mechanism for voluntary renewable energy. If the set-aside can be increased in line with the economic and environmental value that voluntary renewable energy brings to the region, it could also increase the impact of RGGI.

Solutions

There are several ways to improve RGGI's current renewable energy set aside. First, it can be modified to retire allowances for

in-state generation, rather than in-state sales. This may be simpler to administer, and would allow for generation to be sold outside of RGGI with full emissions benefits and Green-e certification. Second, Delaware can adopt the set-aside provision—it is currently the only state in RGGI opting out. Third, automated reporting can capture all voluntary renewable energy sales for all products and programs, and not just Green-e certified. Fourth, state regulators may consider requiring that all voluntary renewable energy sales, products, and programs use the set-aside in order to maintain statewide uniformity in voluntary product quality. Finally, RGGI can introduce an allowance retirement mechanism for non-compliance entities within the RGGI CO₂ Allowance Tracking System (COATS), to allow voluntary buyers located outside of RGGI purchase renewable energy from RGGI states with full emissions benefits. •

Figure 2. Voluntary Renewable Energy Set-Aside





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Voluntary Renewable Energy and the Regional Greenhouse Gas Initiative (RGGI): Solutions for Positive Interactions and Greater Impact

Prepared for the Pace Energy and Climate Center

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Carbon regulations and markets, like the Northeast's Regional Greenhouse Gas Initiative (RGGI), interact with renewable energy markets in complex ways that are often not well understood by policymakers, regulators, and even buyers. Carbon and renewable energy markets affect both the electricity sector and one another. In most RGGI states, the markets are complementary, with the voluntary renewable energy market incremental to the carbon market, given the presence of allowance set-aside mechanisms that preserve the emissions benefits of voluntary renewable energy under the cap. There is an opportunity now to both expand and strengthen the current voluntary renewable energy set-aside mechanisms, benefitting both the voluntary market and RGGI.

The RGGI cap is not currently driving renewable energy development.

As the country's first regional cap-and-trade system for carbon dioxide (CO₂), RGGI is a landmark policy initiative. But it is difficult to demonstrate that the cap has driven either emissions reductions or new renewable energy development.

RGGI is over-supplied. Since the beginning of the program in 2009 and through 2016, emissions from RGGI states did not reach the level of the cap and there have been excess CO₂ allowances in the market, as shown in Figure 1.¹ Compliance entities must still purchase allowances for their emissions, but there is little evidence that this is driving emissions reductions. In fact, after a period of growth due to the cap adjustment in 2014, in June 2017

RGGI allowance prices fell to their lowest level since December 2012, \$2.53/ton, as shown in Figure 2.² This works out to a price advantage of about \$1.86/MWh for renewable energy, which alone is unlikely to incentivize development.³ Allowance prices are projected to fall further to the 2017 reserve price of \$2.15/ton and remain at or near that price through 2030.⁴ The last time prices were this low, they stayed at those levels for a period of 14 auctions, until the cap was adjusted.

Allowances can be banked and used in future compliance periods, which can reduce emissions if the cap is tighter, but it is unclear when this may be the case. Though caps through 2020 are now being adjusted downward based on allowances banked between 2009-2013,⁵ a new bank of allowances is building up as emissions continue to fall below the cap.⁶ Market consensus is that state Renewable Portfolio Standards (RPS), not the RGGI price signal, are the drivers for renewable energy development in RGGI states.

RGGI is set to expire in 2021. A recently proposed extension would reduce emissions by an additional 30% between 2020 and 2030—the 2030 cap would be approximately 65% lower than the 2009 cap. Setting a tight cap that drives emissions reductions may encounter resistance—states typically have not accepted caps that

1. RGGI cap numbers: www.rggi.org/design/overview/cap; RGGI emissions numbers: RGGI CO₂ Allowance Tracking System, "Summary Level Emissions Reports," rggi-coats.org/eats/rggi/.

2. RGGI, "Auction Results," www.rggi.org/markets/co2_auctions/results.

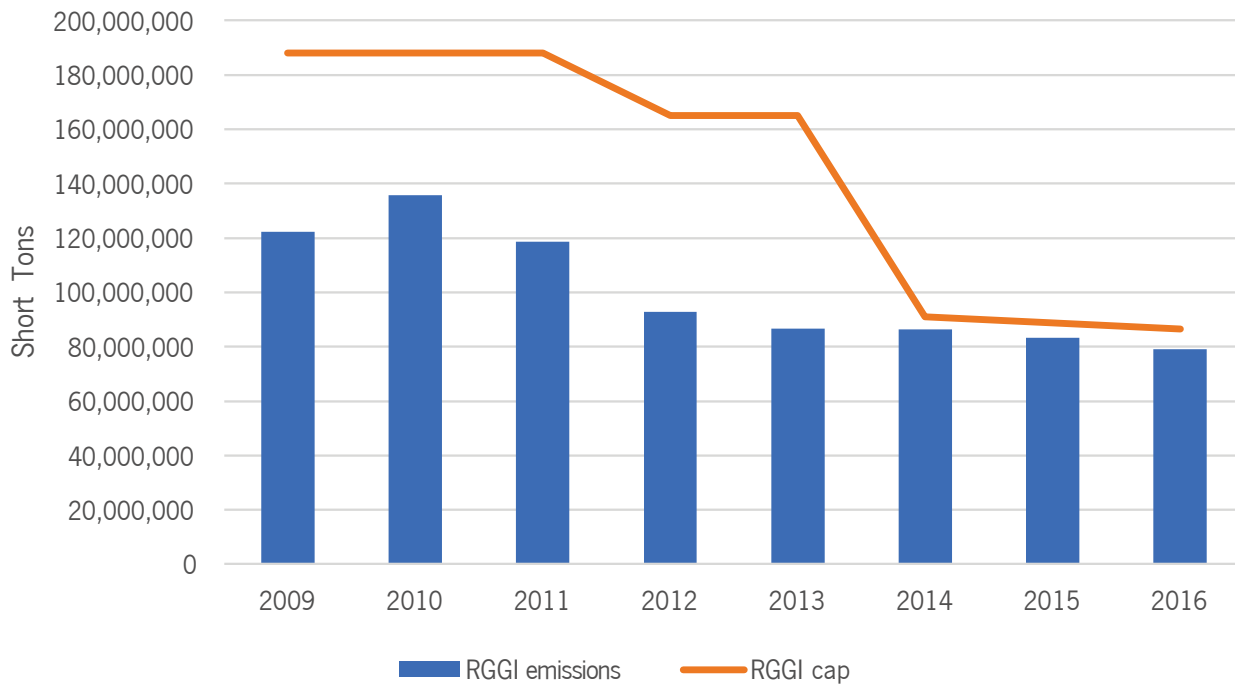
3. Using the highest non-baseload output CO₂ emissions rate in the region, 1472 lbs/MWh for RFCE, from the EPA's eGRID database, www.epa.gov/sites/production/files/2017-02/documents/egrid2014_summarytables_v2.pdf.

4. ICF International, Draft 2017 Reference Case Overview (Apr. 20, 2017), www.rggi.org/docs/ProgramReview/2017/04-20-17/Draft_IPM_Reference_Case_Results_04_20_17.pdf, at slide 16.

5. See www.rggi.org/docs/SCPIABA.pdf.

6. Acadia Center. (2016). *Regional Greenhouse Gas Initiative Status Report; Part II: Achieving Climate Commitments*. Pg. 8-9. Available at: acadiacenter.org/wp-content/uploads/2016/08/Acadia-Center_RGGI-Report-2016_Part-II.pdf.

Figure 1. Emissions in RGGI States Relative to the RGGI Cap (2009–2016)



would lead to significant cost increases even if it means significant economic benefits for renewable energy.

Voluntary renewable energy generation should reduce the RGGI cap.

Figures 3 and 4 show sales of and supply for (respectively) Green-e certified sales of voluntary renewable energy in RGGI states.⁷

Under a cap-and-trade program without a renewable energy set-aside (explained below), CO₂ emissions within the electricity sector are fixed—determined by the number of allowances issued. Once the cap is in place, the only way to reduce emissions in the capped sector is to retire allowances. When renewable energy is generated, generation and emissions from emitting plants on the grid are reduced, but the level of emissions and number of allowances that have been issued remain fixed. As a result, renewable energy generation does not affect emissions in the capped state or region, and neither does anything else that

reduces emissions or emitting generation, like energy efficiency, within the capped sectors. Rather, such activities free up room under the cap for more emissions to occur.

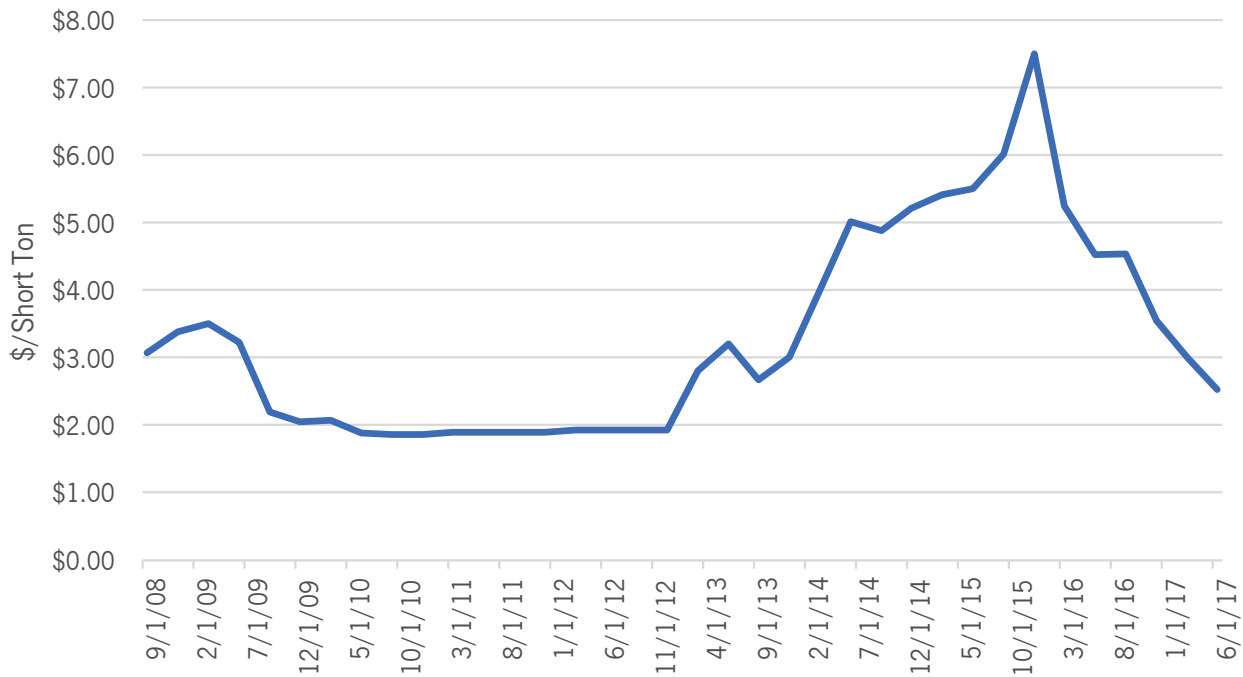
This is true whether the renewable energy is used for the RPS or to meet voluntary demand. However, while RPS generation is often intended to be complementary to cap and trade, voluntary renewable energy is treated differently (see Fig. 4). Companies and individuals that purchase and invest in renewable energy voluntarily are not trying to reduce costs for regulated entities, but instead want to move the needle on climate change, to go beyond policy and make a difference with their investment. This difference is often referred to as “regulatory surplus.”

Where voluntary renewable energy generation does not reduce the cap, it cannot be considered surplus. The motivation—the demand—for voluntary purchases may be lost, and the state loses the additional environmental benefit that voluntary investments in renewable energy can create. Reducing the cap for renewable generation could increase the impact of RGGI immediately.

RGGI set an important precedent in establishing the first allowance set-aside mechanism for voluntary renewable energy in a cap-and-trade or emissions trading program. A similar mechanism was later adopted in California.

7. Green-e sales and supply reflect generation from facilities built within the last 15 years. Green-e sales (Figure 3) reflects sales to customers in RGGI states based on customer location reported by Green-e participants. This can be the customer’s headquarters and the customer may separately allocate their purchases to facilities and operations in other states. Green-e annual supply (Figure 4) includes generation that can occur in that year, the back half of the previous year, or the first quarter of the following year.

Figure 2. RGGI Allowance Clearing Prices (2008–2017)



Under the RGGI Model Rule’s optional voluntary renewable energy market set-aside provision, the state regulatory agency allocates a certain number of tons from the CO₂ Budget to a voluntary renewable energy market set-aside account for each compliance period. The number of tons is based on the voluntary renewable energy purchases in one or more RGGI states by customers in the state during the period.⁸ The agency then retires the allowances in the account at the end of the compliance period (Fig. 5). Delaware is the only RGGI state that does not include a voluntary renewable energy set-aside provision in its regulation.

When the market is oversupplied, retiring allowances may not represent actual emissions reductions. But the set-aside nevertheless restores regulatory surplus and avoided grid emissions for voluntary renewable energy.

Without a set-aside, voluntary renewable energy purchasers would have to pay the price of carbon (by independently buying and retiring an allowance) to achieve regulatory surplus and restore their emissions benefits, which would represent a significant increase in the price of voluntary renewable energy.

Voluntary demand for renewable energy could suffer due to either a loss of emissions benefits or the increase in cost of renewable energy that contains emissions benefits (i.e. RECs + allowances).

As a result, the benefits of voluntary renewable energy in both cases could disappear. Voluntary demand could also simply shift to other regions—voluntary buyers in RGGI states may choose to purchase renewable energy from outside of RGGI, where renewable energy generation can affect emissions directly. In this case, RGGI states again lose the environmental and economic benefits of voluntary renewable energy as buyers purchase outside of the region. An effective voluntary renewable energy set-aside therefore provides a pathway for voluntary demand to be met by resources and investment in the region.

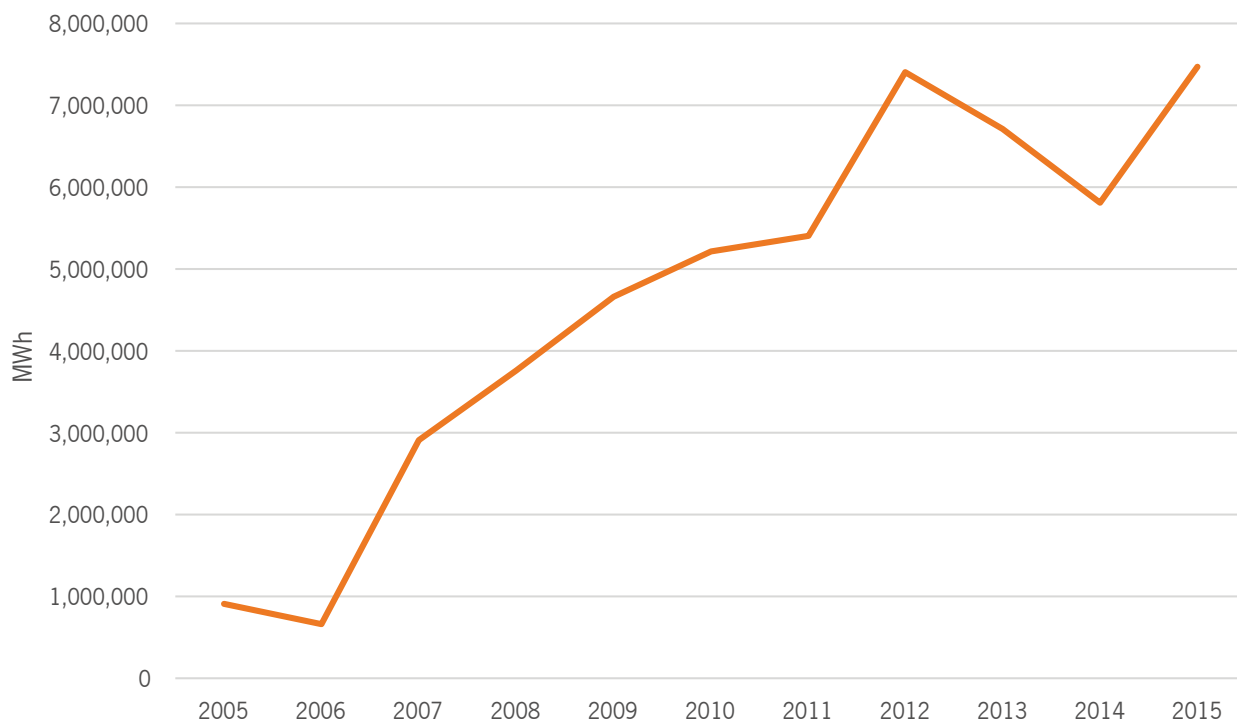
The voluntary renewable energy set-aside benefits the region itself by tightening the cap without significant impact on compliance costs. As shown in Figure 6, the cost of the set-aside is insignificant for compliance entities because while the decrease in overall allowances raises the price, this increase is offset by the decrease in demand for allowances due to voluntary renewable energy generation.⁹

Green-e, the leading standard and certification for voluntary renewable energy in the U.S. and Canada, requires that all sales

8. See Section XX-5.3(j) of the RGGI Model Rule, revised 12/23/13. Available online at: www.rggi.org/docs/ProgramReview/_FinalProgramReviewMaterials/Model_Rule_FINAL.pdf.

9. While this describes (and Figure 6 depicts) decreases in supply and demand that are 100%, offsetting the actual cost of the set-aside will depend on the amount of renewable energy generation, the conversion factor used relative to actual displaced emissions, and other details.

Figure 3. Sales of Green-e Certified Voluntary Renewable Energy in RGGI States (2005–2015)



and purchases of certified renewable energy from within RGGI use the set-aside to have allowances retired on their behalf.

RGGI's voluntary renewable energy market set-aside provision can be improved to reduce complexity and expand the amount of voluntary renewable energy reducing the cap.

Even with existing voluntary renewable energy retirements, the RGGI cap is still too loose (see Table 1). Additional retirements would further tighten the cap and help to drive reductions.

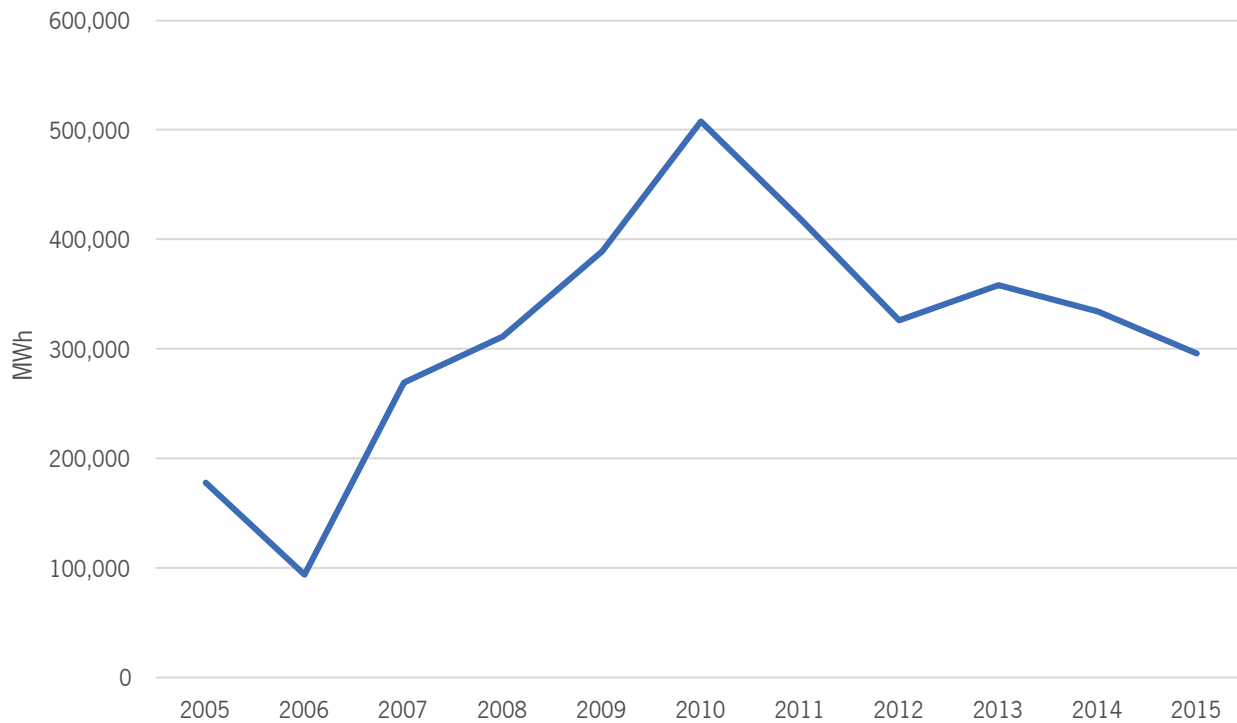
First, RGGI's set-aside can be modified to retire allowances for in-state generation, rather than in-state sales. Currently supply from within the RGGI footprint must apply to the set-aside in the RGGI state in which the voluntary *sale* was made. As a result, the RGGI set-aside only allows retail voluntary market sales of renewable energy generated and sold within RGGI (other than Delaware) to have CO₂ emissions allowances retired. This approach limits the market for RGGI generation outside the region, because that generation has no avoided emissions benefit and cannot be Green-e certified. Delaware renewable can be certified for sales into other RGGI states where their set-asides are used. But it has no avoided emissions benefit and cannot be Green-e certified if sold within the state or outside of RGGI.

In California, by contrast, the set-aside applies to any in-state or imported generation. The California approach—retirement in the state of generation rather than the state of sale—may be simpler. It would also allow for RGGI renewable energy to be sold outside the region with full emissions benefits and Green-e certification.

Second, Delaware can adopt the set-aside provision. This would recognize the value of voluntary action, create more renewable energy and reduce emissions, and remove a barrier to investment in Delaware. Without the set-aside, customers in Delaware cannot buy Green-e certified renewable energy from Delaware or other RGGI states, and Delaware cannot sell Green-e certified renewable energy to in-state customers. This means that voluntary buyers in Delaware must get their certified renewable energy from outside of the RGGI region. In 2014, Green-e certified over 104,000 MWh in sales to over 1,160 retail customers in Delaware. This shows strong demand for voluntary renewable energy in the state. Adoption of the set-aside would allow for this demand to be met by resources in Delaware and RGGI—allowing Delaware to capture the private investment dollars currently going elsewhere. Other RGGI states would also benefit because their generation could then be sold in Green-e certified products to customers in Delaware.

Third, retirements through the set-aside can be increased beyond Green-e certified sales to all voluntary buyers and sellers (including non-Green-e certified sales and onsite consumption) by increasing awareness of the set-aside and streamlining—if not automating—reporting of voluntary renewable energy sales.

Figure 4. Supply for Green-e Certified Voluntary Renewable Energy in RGGI States (2005–2015)



Though Green-e requires it, all voluntary sellers and buyers should be using the set-aside in order to ensure that generation used to meet voluntary demand lowers the cap, including onsite solar and other distributed generation where the RECs are retained by the consumer. Onsite solar users keeping the RECs may not know about the set aside or how to use it. In addition, non-Green-e certified voluntary programs may not know about the set aside, apply for it, or inform their participants of the benefits. Additional

outreach may be needed to the local solar community and retail suppliers with voluntary programs about how the set-aside works and the benefits it provides to voluntary buyers.

RGGI and states can consider more streamlined approaches to voluntary renewable energy allowance retirement. Rather than requiring buyers and sellers to apply and submit their sales and purchases, states can use tracking systems like NEPOOL-GIS,

Table 1. Voluntary Renewable Energy Set-aside Allowance Retirements for Green-e Certified Sales by RGGI State (short tons CO₂) (2009–2015)

State	2009	2010	2011	2012	2013	2014	2015	Total
CT	965	502	0	0	2,386	1,860	2	5,715
ME	1,590	0	1,631	0	0	305	0	3,498
MD	128	0	0	0	0	0	4,523	4,651
MA	21,373	21,373	21,876	17,805	14,840	12,703	7,458	116,249
NH	24	0	0	0	0	760	733	1,447
NJ	1,831	962	958	0	0	0	0	3,752
NY	82,415	155,854	233,378	171,977	158,685	137,087	124,508	1,051,180
RI	0	0	0	0	0	152	2	154
VT	0	0	0	0	0	0	0	0
Total	98,272	178,690	257,843	189,782	175,911	152,868	137,226	1,186,631

Figure 5. Voluntary Renewable Energy Set-Aside

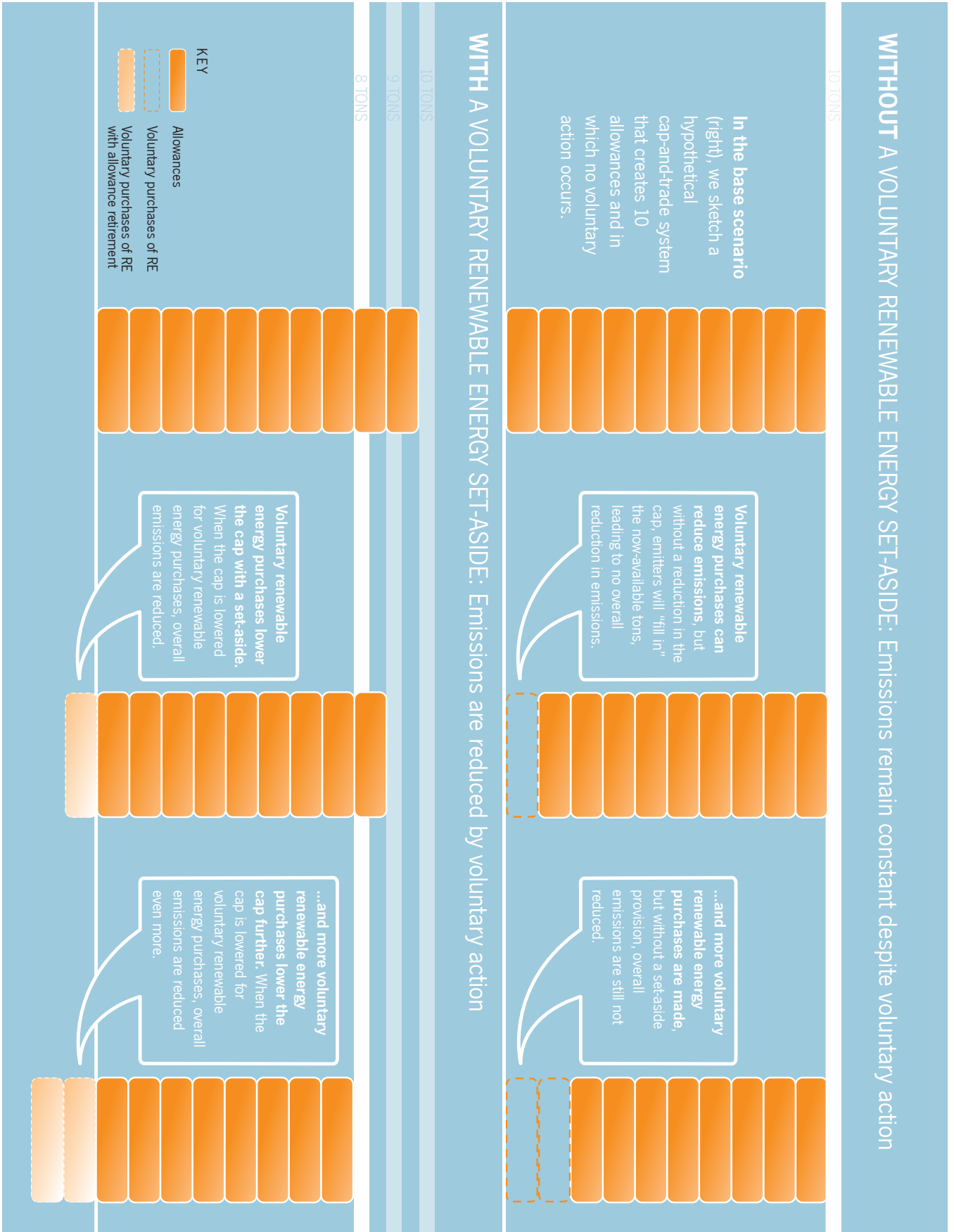
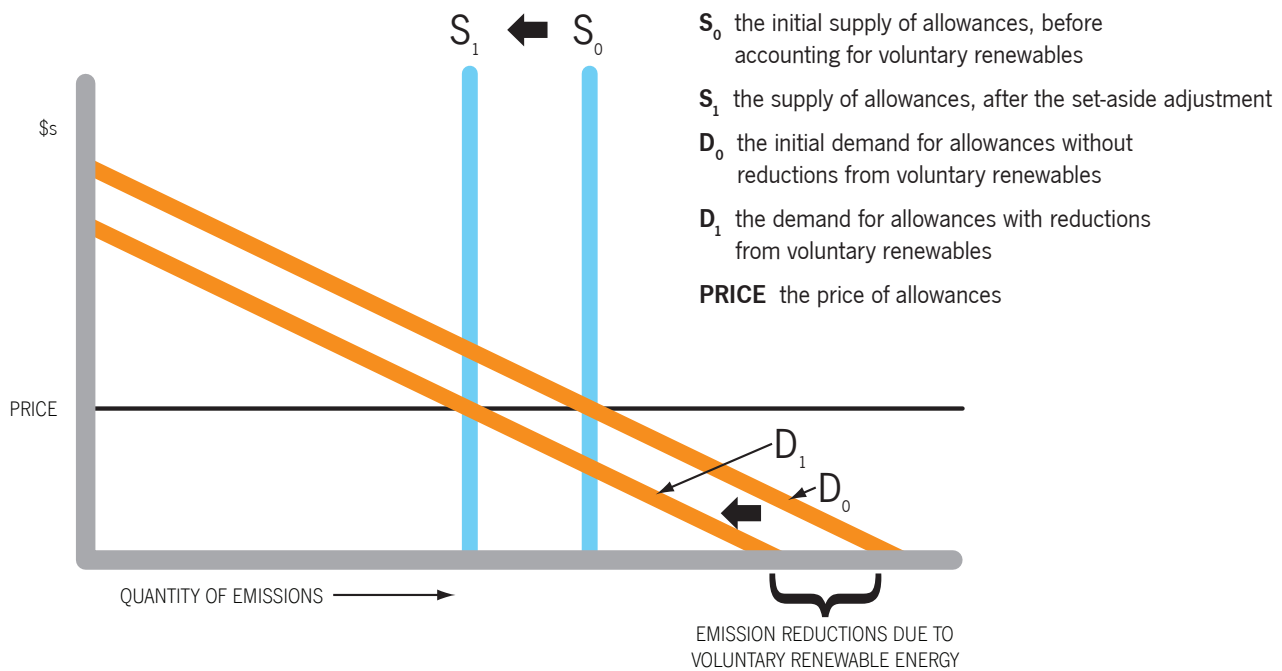


Figure 6. Illustration of the Effect of the Voluntary Renewable Energy Set-Aside on Allowance Prices



PJM-GATS, and NYGATS to identify voluntary REC retirements. The tracking systems can communicate that information to the state RGGI administrator for voluntary renewable energy set-aside allocations and retirements.

Fourth, state regulators can require that voluntary renewable energy sales, products and programs use the set-aside. To the extent that suppliers are already making carbon claims to their customers, this could fall within the purview of state regulators to provide basic consumer protection. Marketing voluntary renewable energy that is not surplus to regulation and does not affect grid emissions without disclosure of these reduced benefits may be considered deceptive. Though the U.S. Federal Trade Commission (FTC) has not specifically addressed this situation, it may generally fall within its purview to review and could be considered in future revisions to its environmental market guidelines.¹⁰

Fifth, RGGI can introduce an allowance retirement mechanism for non-compliance entities within the RGGI CO₂ Allowance Tracking System (COATS). At this time, there is no way for voluntary participants to retire allowances. Rather, “retirement” of allowances can only occur through compliance accounts and allowance set-asides. The voluntary renewable energy set-aside mechanism in RGGI does not help voluntary buyers located outside of RGGI purchase renewable energy from RGGI states.

There is currently no allowance retirement mechanism for these buyers, and they cannot voluntarily retire RGGI allowances for their renewable energy. Renewable energy products for customers outside of RGGI that are supplied with renewable energy from RGGI also cannot be certified by Green-e. If RGGI were to create an allowance retirement mechanism for voluntary participants in COATS, voluntary renewable energy purchasers outside RGGI would be able to voluntarily retire a RGGI allowance with their renewable energy, and renewable energy in RGGI states could be sold to voluntary buyers outside RGGI, fostering the development of the voluntary market. This same functionality could also allow entities in other states to procure and retire RGGI allowances for compliance with other state requirements, if permitted.

RGGI includes a mechanism to protect the benefits of voluntary renewable energy. The same mechanism can be expanded and strengthened to increase the impact of RGGI on emissions reductions and renewable energy development in the region. •

10. See U.S. Federal Trade Commission (FTC). (2012). *Guides for the Use of Environmental Marketing Claims; Final Rule*. Sec. 260.15. Available at: www.ftc.gov/sites/default/files/documents/federal_register_notices/guides-use-environmental-marketing-claims-green-guides/greenguidesfrn.pdf.

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