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Voluntary and Corporate Renewable Energy in the Northeast United States: Barriers and Opportunities for Growth

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Thousands of businesses and millions of individuals voluntarily buy green power each year.¹ Their purchases directly support renewable generators and green power suppliers, and reflect billions of dollars of investment in renewable energy capacity.² The benefits of voluntary renewable energy also extend to the states. States can benefit from the voluntary market's ability to leverage private, non-ratepayer funding to support renewable energy resources and development; create renewable energy demand that can reduce local environmental and health impacts of electricity generation; and can help states meet their energy, climate, and economic goals.

A state's approach to the voluntary market depends on its goals.

Voluntary demand that drives private investment beyond existing regulatory policy can help meet state energy, climate, and economic-policy goals. In-state voluntary supply can also lower the costs and increase the speed of Renewable Portfolio Standard (RPS) implementation by increasing installed renewable capacity that can supply voluntary and RPS markets.

States should also support a broader regional or even national voluntary market if their goals include increasing overall development of renewable energy, making renewable energy cheaper and more available for in-state consumers, and/or reducing price disparities between states.

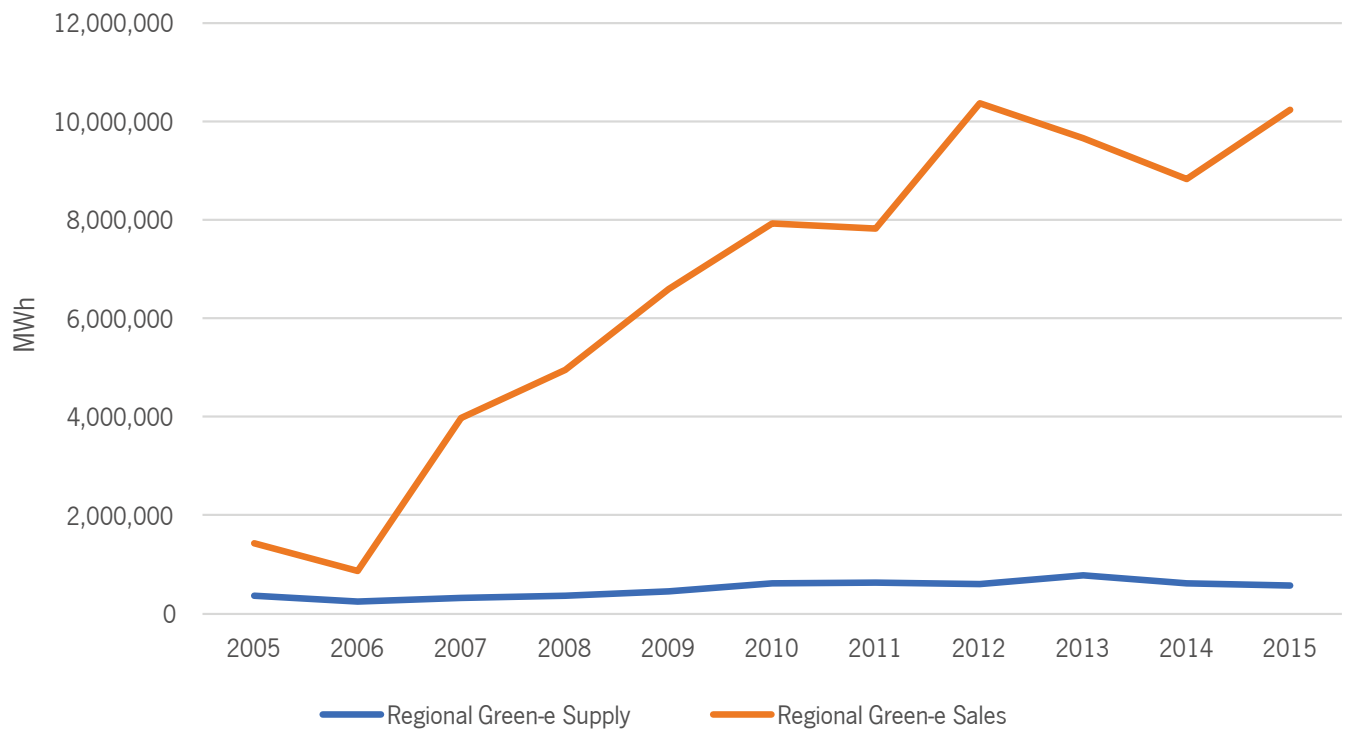
Additionally, there are benefits that a strong voluntary market brings to all states regardless of the location of generation, including regulatory and tracking infrastructure, data aggregation and quality, and functional support tools that can serve multiple markets. Voluntary markets enable leadership, foster innovation, and build technical expertise that can bring other solutions to scale and lower transaction costs across markets. Voluntary markets complement and reinforce good policy by standardizing and synchronizing accounting rules and measurement, reporting, and verification (MRV) practices that can mitigate leakage. Voluntary markets increase liquidity for environmental benefits, increasing the number of transactions, increasing competition, and creating a common currency and market rules.

The Northeast United States buys a large volume of voluntary green power, but does not supply much of it (as shown in Figures 1 and 2). This suggests an opportunity to capture private investment dollars and emissions reductions that are currently leaving the region.

1. See the National Renewable Energy Laboratory's (NREL's) market analysis at www.nrel.gov/analysis/market_green_power.html.

2. 78 million MWh of annual voluntary consumption, using an approximate capacity factor of 34.7% for wind from EIA (available at: www.eia.gov/electricity/monthly/epm_table_grapher.cfm?t=epmt_6_07_b) and a capacity-weighted average installed project cost for wind of \$1,690/kW from the U.S. Department of Energy (DOE) 2015 Wind Technologies Market Report, pg. ix (available at: emp.lbl.gov/sites/all/files/2015-windtechreport.final_.pdf).

Figure 1. Supply for and Sales of Green-e Certified Voluntary Renewable Energy in the Northeast U.S. (2005–2015)



This disparity between sales and supply in the region highlights the low impact of voluntary demand on renewable energy development in the Northeast. However, renewable energy generators in the Northeast can participate in both RPS and voluntary markets for renewable energy, and there are many examples of facilities that currently supply both. Generators can move between markets, which allows them to maximize prices and manage volatility. In 2015, 24 wind facilities representing over 2,000 MW of capacity in the Northeast, most of which are in New York and Pennsylvania, supplied both RPS programs and Green-e certified voluntary sales.

The main barrier to local voluntary renewable energy in the Northeast is high REC prices driven by supply-constrained RPS programs.

Renewable Energy Certificate (REC) prices in the Northeast United States are the highest in the country, and there is significant price volatility, as shown in Figure 4.

High prices are due to a number of factors, including limited supply (from resource availability or quality limitations), high cost of development, transmission capacity limitations, and project siting and permitting challenges. Strong compliance demand in the region also contributes to high prices. Every state in the region has an RPS, many that include “carve outs” (or sub-quotas) for different types of resources. In fact, combined RPS targets in the region

have historically surpassed actual eligible generation.³ This trend of tight compliance markets in the region is expected to continue as compliance targets increase.

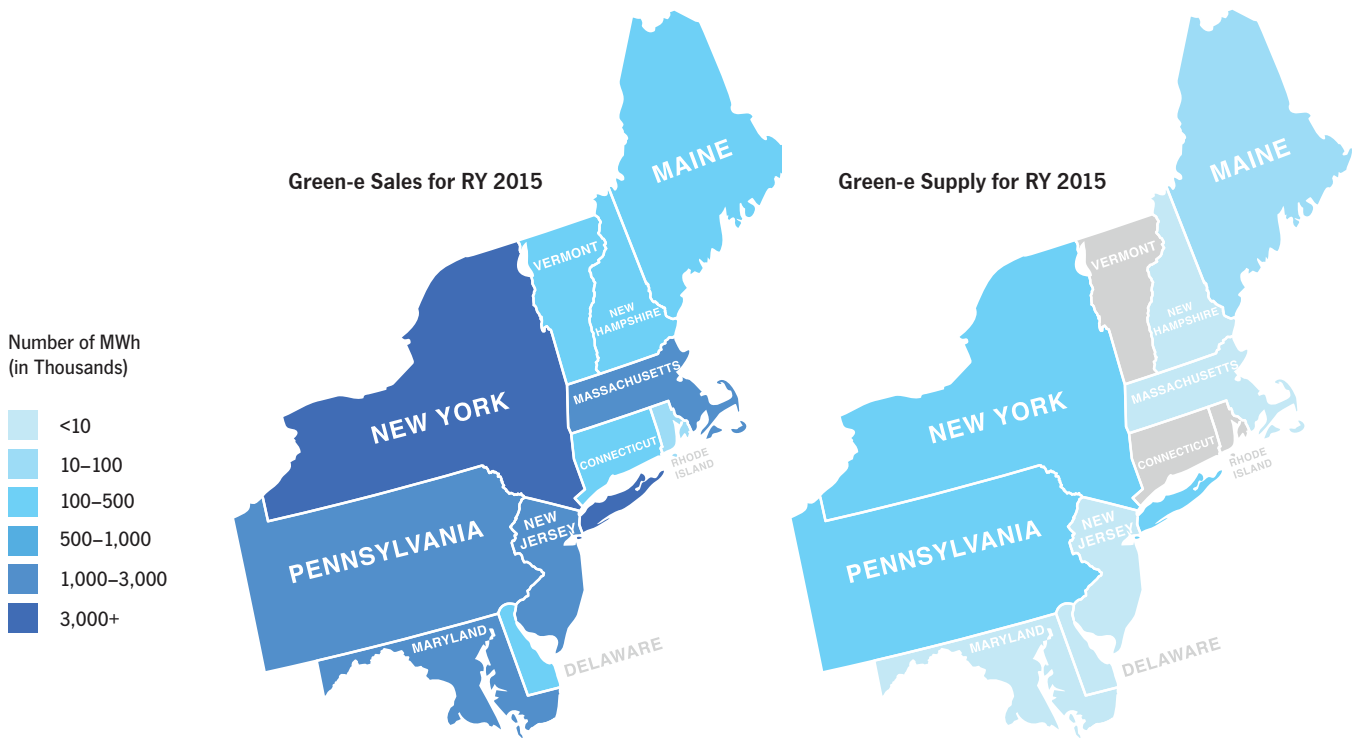
Because the Northeast is generally supply-constrained, voluntary markets must compete on price with RPS markets, otherwise projects will not sell to them. Voluntary demand for renewable energy is not inelastic, and overall demand for local renewable energy tends to drop when prices go up. As a result, there have been fewer corporate long-term power purchase agreements (PPAs), corporate green power options from suppliers using new local resources, and 100% renewable energy commitments by corporate purchasers in the Northeast, compared with other parts of the country.

There has been a drop in REC prices in most Northeast states over the last 2–3 years. Market participants have provided different explanations for this, including increased supply coming out of Massachusetts and slight rule changes in Maine. There has not been any weakening of RPS targets, however, and most expect primary tier⁴ REC prices to settle above \$30/megawatt-hour (MWh).

3. See Barbose, Galen. (April 2016). *U.S. Renewables Portfolio Standards 2016 Annual Status Report*. Lawrence Berkeley National Laboratory. Slide 24. Available at: emp.lbl.gov/sites/default/files/lbnl-1005057.pdf.

4. Four of the 11 states in the Northeast U.S. have created compliance “tiers” or “classes” of RECs based on when the generation facility came online or was installed: MA (Class 1 RECs from facilities installed after 1997), ME (Class 1 RECs from facilities installed after 2005), NH (Class 1 RECs from facilities installed after 2006), and NY (Tier 1 RECs from facilities installed after 2015). Four other states have created classes or tiers based on technology type: CT, MD, PA, and NJ. DE, RI, and VT do not have compliance classes or tiers of RECs for compliance.

Figure 2. Location of Green-e Sales⁵ and Supply for Reporting Year 2015 in the Northeast U.S.



Other barriers to voluntary renewable energy may include policy uncertainty and complexity in certain states, like NY, NJ, and PA. New Jersey will have elections for Governor and state legislature in November 2017 and may reconsider participation in the Regional Greenhouse Gas Initiative (RGGI). New York Governor Cuomo’s Reforming the Energy Vision (REV) strategy for the state has introduced a number of policy changes and new initiatives affecting different resources, creating some uncertainty in renewable energy markets—for example, the introduction of zero-emission credits (ZECs). Conversations around ZECs, including for nuclear resources, have now also begun in New Jersey and Pennsylvania. Massachusetts has also recently established the Solar Massachusetts Renewable Target (SMART) program to replace its solar REC (SREC) programs.

Market participants have identified a general lack of awareness and interest in the voluntary market among policymakers as a barrier as well. Policymakers have been primarily focused on mandates and state programs to encourage distributed generation instead. They may not be aware or convinced of the benefits that voluntary renewable energy may bring to their state and the region. To the extent that state policies and programs are designed without consideration of the voluntary market, they may ultimately preclude voluntary activity or leave no room for voluntary purchasing. For example, in 2016 Maine introduced a complicated bill to encourage solar energy—LD 1649, ultimately vetoed by the Governor—which

would have required all RECs associated with production receiving incentives to be allocated to load-serving entities (LSEs).⁵

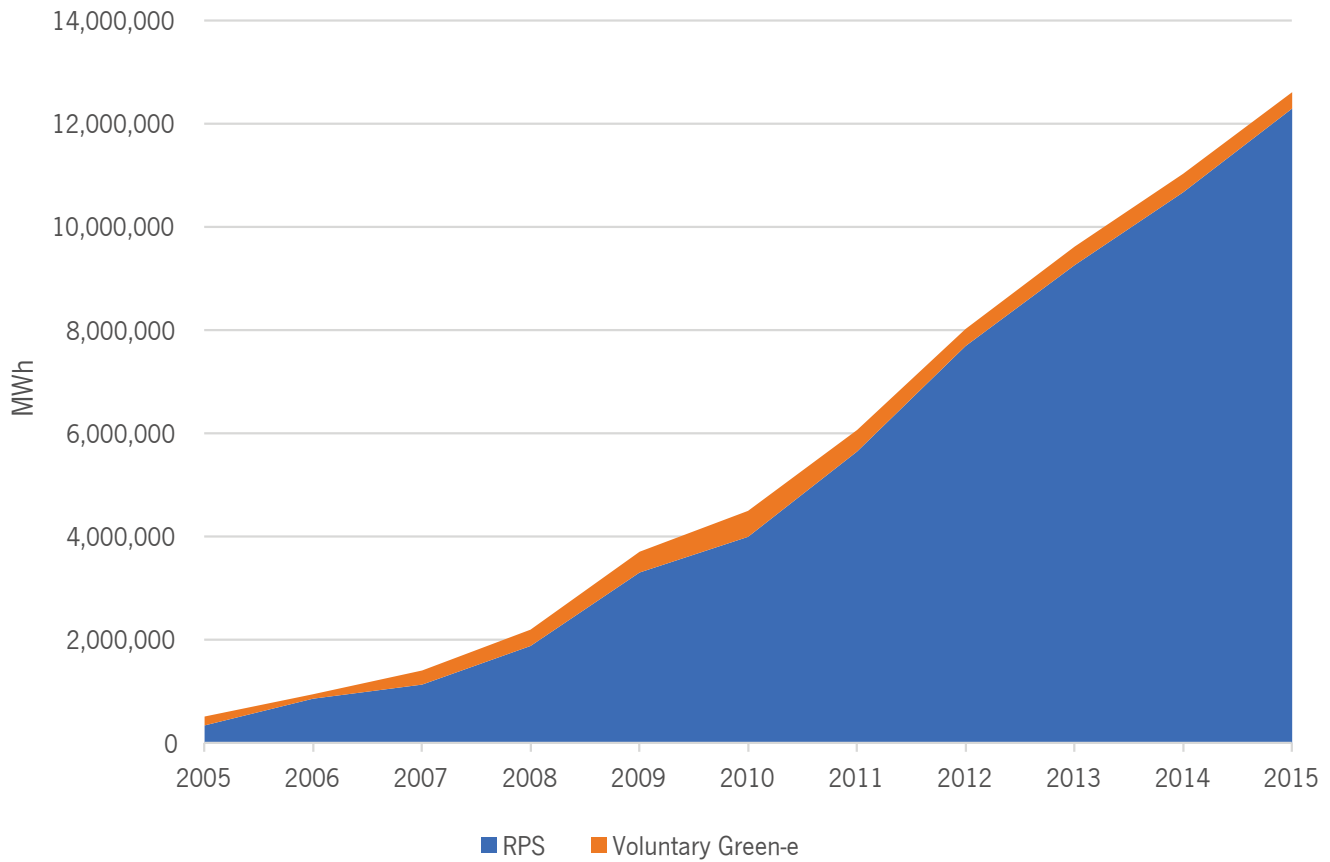
Increasing the amount of in-region voluntary supply means 1) encouraging corporate, institutional, or municipal voluntary buyers to build or finance new renewable energy in the region, 2) making renewable energy cheaper for other voluntary buyers, and 3) building (and not harming) voluntary demand for local renewable energy.

Overcoming the price barrier will be difficult. Voluntary buyers must be willing pay more (perhaps for value-added products or services) and regulators and policymakers must create circumstances that bring the cost of voluntary renewable energy down.

On the regulatory side, there is little expectation of restructuring compliance markets, particularly the higher-priced ones, or more broadly re-examining the role of voluntary renewable energy procurement in these states, which after all have long histories of strong compliance and good track records of driving clean energy development through mandates. Some market participants have suggested expanding eligibility for the existing RPS programs in order to lessen the supply constraint and make more renewables available. However, though expanding eligibility for RPS could free up top-tier supply for the voluntary market and lower prices

5. Visit legislature.maine.gov/LawMakerWeb/summary.asp?ID=280059805.

Figure 3. RPS and Green-e Supply in the Northeast U.S. (2005–2015).



RPS Supply only includes generation from “new” renewable energy facilities built since the commencement of the RPS. **Voluntary Green-e** annual supply includes generation that can occur in that year, the back half of the previous year, or the first quarter of the following year. Supply is limited to generation from facilities built within the last 15 years.

overall, in the short-term it may not result in new renewable capacity. Rather, it may simply shift supply from one market to the other, and costs from ratepayers to the voluntary market.

States can create room for the voluntary market by reserving some renewable energy for the voluntary market. For example, in 2006, the New York Public Service Commission adopted a “set-aside” provision under the RPS that required renewable generators to reserve at least 5% of their output for voluntary market sales. NYSERDA—then the state’s centralized procurement agency—paid incentives for up to 95% of a project’s monthly output up to the contracted amount. However, rather than being sold into the voluntary market, the other 5% was typically sold into other compliance markets in the region.

States can also help voluntary market participants engage in long-term contracts to help drive project development. The state of Rhode Island has identified long-term contracting as a key driver of new development and has created a “Long-Term Contracting Standard for Renewable Energy” within its RPS, which requires

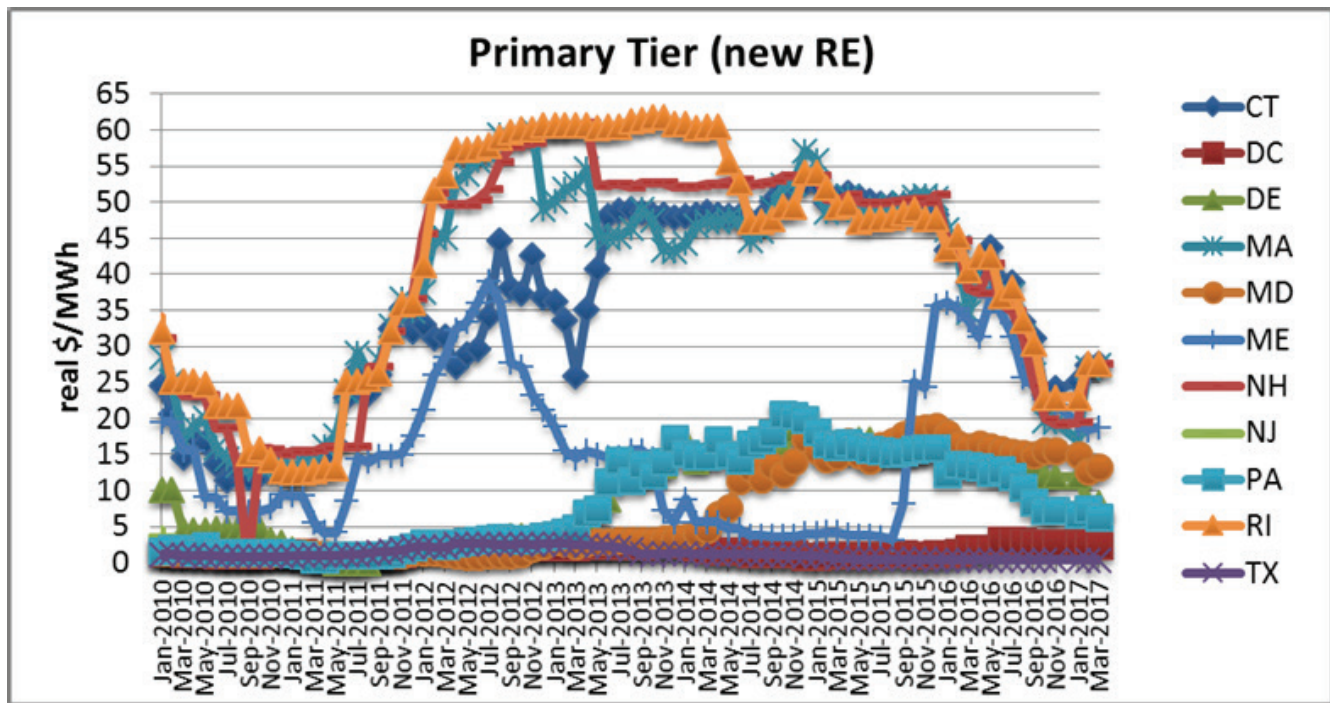
suppliers to enter into long-term contracts with specified amounts of new renewable energy capacity by different dates. Rhode Island, Connecticut, and Massachusetts recently completed a joint, three-state solicitation for long-term contracts.⁶ These states and others could also encourage long-term contracts with voluntary buyers by helping to guarantee credit or aggregate demand from mid-size voluntary buyers.

States can consider creating a public subsidy for voluntary renewable energy. The Customer Credit Program was implemented California in 1998 (and suspended in 2001), where the state paid suppliers (as opposed to developers or generators) a small amount per megawatt-hour (MWh) that was sold to the voluntary market, and customers would receive a \$0.01/kilowatt-hour (kWh) credit to help offset the higher cost of renewable energy.⁷ Alternatively, states could create requirements for long-term electricity procurement contracts with generators that specifically supply corporate

6. Visit cleanenergyrfp.com.

7. Visit www.energy.ca.gov/renewables/customer_credit/background.html.

Figure 4. Primary-tier Compliance REC Prices in the Northeast U.S. and Texas (2010–2017).



Source: Jenny Heeter, National Renewable Energy Laboratory

or voluntary consumption to increase the supply of RECs for voluntary consumption.

Other policies to support overall renewable energy development and long-term contracting can indirectly benefit the voluntary market, including policies that make siting and permitting, transmission expansion, and interconnection easier.

Suppliers may be more effective in capturing voluntary demand if they sell local voluntary renewable energy on value, not price. This entails identifying locality as the distinguishing value characteristic—the *terroir* or local flavor of locally produced energy. Products that blend local and national supply could be offered at a price point somewhere between the New England and national REC prices (e.g. 20% national and 80% Northeast U.S. renewable energy), if there is demand for them.

States can support and promote these local voluntary renewable energy products and programs by creating communications, recognition programs, awards, and campaigns specifically aimed at in-state or in-region voluntary purchasing. States can also provide technical support and provide resources to help voluntary and corporate buyers aggregate their demand and participate in the market, for example, through a renewable energy Request for Proposals (RFP).

Overcoming other barriers to voluntary demand not directly related to price means continuing to provide clarity with respect to REC

ownership and renewable energy claims, marketing, and communications, particularly where there are specific incentives for distributed generation or solar carve-outs. Most importantly, renewable energy claims, and claims regarding the emissions associated with renewable energy, must follow the REC. Consumers must be informed of whether or not they receive RECs and can therefore make claims. For example, confusion regarding RECs and claims was recently an issue for voluntary market participants in Vermont, prompting a petition to the U.S. Federal Trade Commission (FTC) to investigate deceptive trade practices.⁸ Voluntary customers will be reluctant to purchase and invest where they do not feel confident in both their claims and the benefits associated with the RECs.

To maintain the integrity of claims and benefits, states must ensure separate accounting of RPS and voluntary renewable energy using RECs so as not to double count (by counting voluntary purchases toward RPS goals), and to allow voluntary renewable energy and private investment to produce renewable energy and emissions reductions that are surplus to state mandates. In particular, states should maintain and strengthen the Voluntary Renewable Energy Market Set-aside Provision in their RGGI CO₂ Budget Trading Programs—or adopt one in the case of

8. US Federal Trade Commission. (2015). *Letter from James A. Kohm, Associate Director, Division of Enforcement, Bureau of Consumer Protection, to R. Jeffrey Behm, Esq., Sheehey, Furlong & Behm, P.C.* February 5, 2015. Available at: https://www.ftc.gov/system/files/documents/public_statements/624571/150205gmpletter.pdf.

Delaware—so that voluntary renewable energy can continue to reduce regional emissions.

States should provide additional policy certainty—particularly with respect to state goals, the interplay between different emissions reductions and renewables policies, and resource eligibility for the RPS. For example, the uncertain roles of both nuclear plants and distributed generation in the RPS is clearly impacting renewables markets. States can adopt goals for voluntary renewable energy and support them by creating policies to increase the value of local renewable energy. States should create consumer choice with respect to REC ownership wherever possible—for example, by allowing customers participating in distributed generation incentive programs to keep their RECs. States can also play a role in educating these consumers about renewable energy and the benefits of REC ownership as a part of these programs.

The two clearest opportunities for growing voluntary renewable energy in the Northeast are corporate renewable energy procurement and community renewables programs (also called community choice aggregation or municipal electric aggregation).

Corporate procurement of renewable energy is a major potential driver for renewable energy development in the region, as it is across the country. Many large companies have the interest and ability to develop projects themselves, directly finance or invest in construction of new renewable capacity, or enter into long-term PPAs with new facilities. For example, Bloomberg signed a 20-year PPA with EDP Renewables in 2015 for a quarter of the output from the Arkwright Summit Wind Project in New York, construction of which will begin in 2017.⁹ Iron Mountain also signed a 15-year PPA in 2015 with New Jersey Resources Corp for two-thirds of the power produced by the Ringer Hill wind farm in Pennsylvania, which completed construction in 2016.¹⁰

These companies are motivated by corporate social responsibility commitments, the demands of their customers, and, increasingly, energy cost savings. In the Northeast, these companies can take advantage of currently high REC prices by “arbitraging” the RECs from the projects—that is, selling the RECs from the Northeast project into local compliance markets and then purchasing cheaper RECs from outside the region. Depending on the price differential between the sold and replacement RECs, this can substantially lower the cost of renewable energy for these companies, while producing primary-tier local supply in the Northeast.

9. Visit www.edpr.com/bloomberg-and-edp-renewables-announce-largest-corporate-renewable-energy-purchase-on-record-in-the-state-of-new-york/.

10. Visit renewablesnow.com/news/iron-mountain-to-buy-power-from-40-mw-nj-wind-farm-516997/.

Corporate renewable energy procurement and REC arbitrage in particular represent exciting examples of private investment and voluntary demand supporting compliance markets—access to both markets is needed to make the projects happen. In this respect, the overall national voluntary market may be important with respect to supplying replacement RECs and ultimately making projects happen in the Northeast.

According to market participants, there remains a great deal of opportunity for corporate procurement in the Northeast—corporate procurement does not drive development as much as it does in other regions. One reason may be that long-term PPAs are more difficult to implement in competitive markets—in regulated markets utilities may be motivated to make deals with corporate buyers in order to protect their load. Often one of the challenges in restructured states can be finding an offtaker. If the voluntary market can help provide offtakers for projects that supply RECs to the RPS, via REC arbitrage or for a portion of the generation and RECs, it might help make RPS compliance less expensive.

The other major opportunity falls under the broad heading of community renewables. Community choice aggregation (CCA)¹¹ or municipal electric aggregation programs are, in general terms, where a city or municipal region aggregates the demand of its customers, effectively acting as a large buyer in the market. The transmission and distribution continues to be provided by local distributors of physical power. These programs can act as alternatives to traditional suppliers in regulated markets. But they are also allowed in some deregulated markets like Massachusetts, New York, New Jersey, and Rhode Island. For example, whereas the RPS obligation for 2017 is 12% for Class 1 RECs in Massachusetts, the default offer for a municipal electric aggregation program may be 17% renewable—with 5% of that voluntary renewable energy. Depending on the size and number of cities, municipal electric aggregation may represent significant voluntary purchasing that drives development. Very often the motivation behind these programs is procurement of local renewable energy that reduces emissions beyond compliance. As such, these programs may be willing to pay high premiums relative to other voluntary buyers. If the collective interest and demand of a town or city can be leveraged, they can make a difference in terms of new, local clean energy capacity.

On a smaller scale, individual community renewables projects can serve a small group of local customers who can invest directly in the projects. States may launch and strengthen programs to facilitate or incentivize community renewables projects, including virtual net metering and meter aggregation policies. Where there are caps in terms of project size, these programs will not likely attract large corporate customers, but they could be an increasingly viable option for small and medium-sized commercial customers. These smaller customers might not be able to take a full project,

11. CCAs must be authorized in state law.

but they may be able to take a percentage of one. States and other institutions, like Green Banks, can help address this particular problem by subsidizing, securitizing, or providing some insurance against failure for this kind of project or contract.

There are a few key issues for states to consider with community renewables projects. The first is REC ownership and claims. States should ensure that RECs reside with the customer. Confusion and a general lack of clarity and transparency around REC ownership and renewable energy claims in community solar programs may be slowing its overall progress in the voluntary market. Adequate and accurate disclosure is required to ensure that customers are investing with confidence and getting the full value of voluntary renewable energy. Where REC prices are an issue, and in particular where it is necessary to sell RECs from these projects into local compliance markets in order to make them less expensive for customers, the market may develop products that provide replacement RECs from the national market, similar to large corporate procurement with REC arbitrage. Regulatory uncertainty or sluggishness can also impede the overall impact of this voluntary solution in certain cases.

In the case of both corporate renewable energy procurement and community renewables programs, the high price of renewable energy in the Northeast may, in fact, represent an opportunity for states and the voluntary market to sell on high impact and value. There are steps that states can take now and good examples of successful programs to encourage voluntary demand for renewable energy that can drive development and prepare markets to meet long-term renewable energy goals. •

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