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Renewable Portfolio Standards Gain in Popularity

Andrew Kolchins and Ned Stainthorpe

Whether it is for economic development, fuel diversification, or environmental reasons, renewable energy development is expanding throughout the United States. There is a clear and certain push by public policymakers on this front, as most states have adopted or are considering adopting renewable portfolio standards (RPSs), which mandate a percentage of energy supply from renewable sources.

RPSs are legislation created at the state level that mandates that a percentage of electricity sold at the retail level come from renewable sources. The emergence of new RPSs will generate demand for renewable energy, but it comes at a time of continued uncertainty about the extension of the Section 45 Production Tax Credits—scheduled to expire on December 31, 2008—and amid difficulty in getting projects built because of the concerns of local residents and difficult overall economic feasibility. Therefore, the critical question is whether this country will be able to meet the growing demand created by RPSs and the ever-expanding national voluntary market.

States must adopt regulatory policies with the appropriate certainty in order for a viable trading market in renewable energy credits to develop. Such a market will enable developers

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to secure financing for renewable energy projects by selling long-term streams of credits. In addition, states must consider other vital market design issues such as a robust tracking system to ensure integrity and a logical alternative compliance payment (ACP), which sets the price limit that the market can trade. As arcane as these issues might appear, getting the details right can ensure that projects get built, making enough supply available to meet the RPS requirements.

The critical question is whether this country will be able to meet the growing demand created by RPSs and the ever-expanding national voluntary market.

LEVERAGING THE MARKET

Increasing public support for renewable energy has led state and federal governments to enact various forms of legislation to encourage further use of these sources. While many consumers have embraced the environmental, geopolitical, and economic benefits of renewable technologies, a number of obstacles tended to limit the availability of such resources. In many instances, the physical location of the renewable facility is not in close proximity to the end-user. Wind farms, for example, are most often set far away from residential areas, making it difficult to transmit the power to homeowners. In response to these issues, a number of states and organizations have created a system whereby consumers can support the growth of the renewable industry, even when the physical electricity is not delivered to their home or business.

These states and organizations have decided that the environmental and social benefits of renewable energy have an economic value outside of the electricity itself. When the green attributes are separated from the underlying electricity, renewable energy credits (RECs) are created.

In the marketplace, a REC represents 1 megawatt-hour of electricity from a renewable source. RECs have an economic value and can be purchased by any party who wishes to use and support green power. The difference is that RECs can be purchased without the same constraints of the power market. This difference has led to a second stream of revenue for renewable energy companies, allowing them to secure financing for project development and improve the ongoing project economics.

The overall system of RECs has been very successful in its goal of expanding renewable energy capacity in this country. However, it is important to note that RECs are the foundation for two parallel markets working toward the same goal: voluntary market and the compliance market.

VOLUNTARY MARKET

The nationwide voluntary REC markets are primarily driven by the buying power of corporations, educational institutions, and retail green pricing programs run by utilities. The reasons for supporting the renewables marketplace range from environmental concerns that drive environmental disclosure requirements, to local job creation, to supporting the growth of a product that can act as a hedge against recent price increases in power due to volatility in the natural gas market.

The most liquid renewable voluntary REC product comes from wind—which is fairly plentiful (approximately 11,000 megawatts installed by the end of 2006). Wind happens to also be very marketable—think GE wind commercials—and buying wind-generated RECs is easy to convey to stakeholders. Next in order of popularity are solar RECs, which also have good marketability but are significantly more expensive on a dollars-per-megawatt basis than wind RECs. RECs from other sources of renewable generation such as landfill gas, biomass, and other technologies have less marketing appeal. Therefore, there is not as much demand for these products, which is reflected in pricing (**Exhibit 1**).

As long as environmental concerns exist over global warming, volatile natural gas prices, and the desire to create new jobs in rural communities, we predict continued strong growth in the voluntary REC markets.

As fast as voluntary markets are expanding, their growth is likely to be outpaced by the development of compliance-based markets.

COMPLIANCE MARKET

As fast as voluntary markets are expanding, their growth is likely to be outpaced by the development of compliance-based markets. The driving force are state-mandated RPSs, which continue to find favor across the country.

Exhibit 1. Voluntary Market: Pricing

price discretion based
on resource type:

Solar: \$30–\$50



Biomass/Low-Impact Hydro: \$1–\$3

Wind: \$0.75–\$15



Landfill Gas: \$1–\$3

Geothermal: \$1–\$10



States with RPS legislation in most cases require that retail electric suppliers obtain a set percentage of the electricity they sell from renewable sources. In an RPS state, the unique requirements of that state will have a significant impact on the relative success or failure of the program. To date, 22 states have enacted some form of RPS 9 (**Exhibit 2**). Leading the way is Texas, as well as states within the NEPOOL and PJM power pools.

However, only a limited number of states permit REC trading and can be considered to have formal “compliance REC markets.” The most actively traded compliance markets are Massachusetts, Connecticut, New Jersey, and Texas, where markets are made daily and there is a requisite amount of liquidity (**Exhibit 3**). While these states vary greatly in their specific requirements, they share a number of key features that have allowed the markets to flourish.

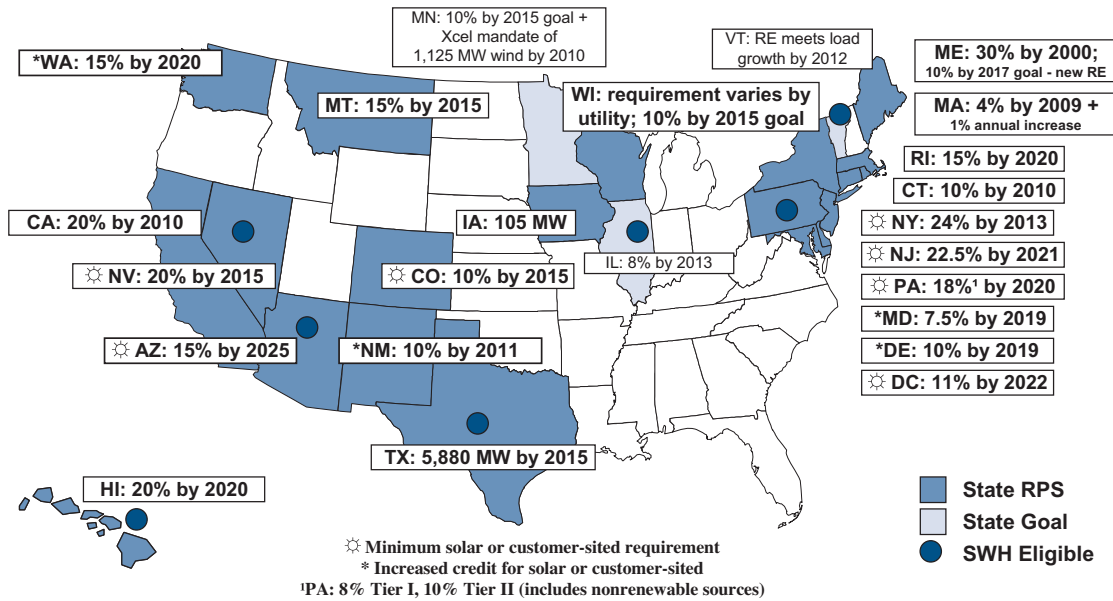
First, these states create a supply-and-demand curve by requiring a certain percentage of retail electricity or installed capacity to come from qualifying renewable sources. Depending upon how strict or how relaxed these eligibility

standards are, the available supply in a given state will vary. At the same time, demand is created by the percentage requirement that states have set. For example, Massachusetts has set strict eligibility standards and has set the percentage requirements at 2.5 percent for 2006. This supply and demand, created through state legislation, has resulted in a high REC price and the creation of new renewable facilities hoping to capitalize on the high price.

Second, the actively traded markets create demand by setting these percentages and enforcing them with preset penalty payments that exceed the market price of RECs. The inclusion of this penalty, known as the *alternative compliance payment*, makes it economically beneficial for retail electric providers to purchase RECs in the open marketplace before the compliance deadline. Without the ACP, utilities have little incentive to purchase electricity or RECs from renewable sources and face no penalty if they do not comply. On the other hand, when the ACP is set at a high level, providers have an economic incentive to comply through the purchase of RECs in the open market.

Exhibit 2. Renewable Portfolio Standards

Courtesy of DSIRE: dsire.org



Third, successful RPS states have a tracking system that creates transparency and efficiency in the market. These databases certify that each megawatt-hour was in fact created by the generator and tracks the REC from its creation to its retirement. This control has created transparency in a market where there used to be none.

Actively traded markets create demand by setting the percentages and enforcing them with preset penalty payments that exceed the market price of RECs.

Tracking systems also create efficiency by allowing buyers and sellers to transfer RECs from one account to another with the click of a button. These systems are important because they prevent double-counting of RECs. This would occur when a seller sells the RECs to two different counterparties. Although double-counting has happened only rarely, it has prevented some buyers from acting.

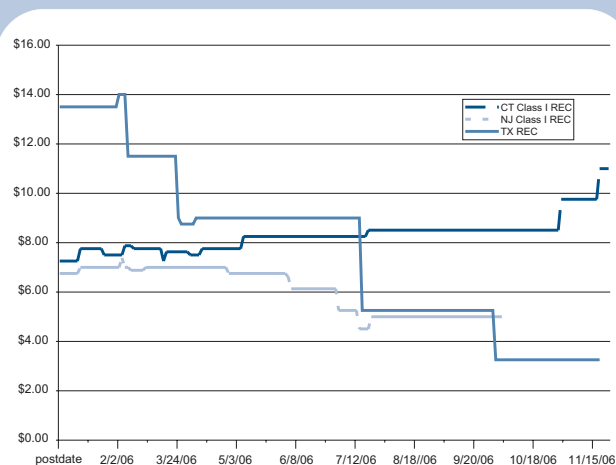
The three tracking systems in place today are the Texas Generation Information System

(GIS), the PJM Generation Attributes Tracking System (GATS) in the Middle Atlantic and extending into the Midwest, and the NEPOOL Generation Information System (GIS), which operates in the New England Power Pool. Texas was the first state to create a tracking system, and the success has been impressive. The state implemented the system in 2004 and required 850 megawatts of renewables to be installed, but that target was surpassed by over 400 megawatts after the installation of the GIS.

NEW PROGRAMS

Such success makes policymakers wake up and take notice. A number of states around the nation are pushing for the development of renewable energy resources and turning to market mechanisms to make this happen. RPSs are prevailing, but structuring renewable programs to take full advantage of the benefits of markets is vital. Following is a quick overview of some of the major initiatives in the works across the nation, and how they might develop as a tool for further renewable energy development.

Exhibit 3. 2006 REC Prices (CT, NJ, TX)



Ohio

In February 2005, State Senator Robert Hagan introduced RPS legislation in Senate Bill 69. While nothing is expected until the General Assembly reconvenes on January 1, Hagan was granted a sponsor hearing on November 14 in front of the Committee on Energy and Public Utilities. Senate Bill 69 has been stalled in committee for nearly two years, but incoming Governor Ted Strickland is a strong supporter of renewable energy and is pushing for RPS legislation early in his first term. Whether the incoming Democratic governor can work with the Republican-dominated State Assembly remains to be seen.

Nonetheless, RPS legislation proposed in Senate Bill 69 would require utilities and electric services companies to buy a certain percentage of their electricity from renewable sources. Mandatory compliance is not extended to electric cooperatives or municipalities. Eligible resources would include biomass, solar photovoltaics, wind, geothermal, and hydroelectric facilities that are less than 20 megawatts and certified as “low impact.” The applicable calendar year percentages are 3 percent in 2007, 5 percent in 2008, 6 percent in 2009, 8 percent in 2010, and 10 percent in 2011, with the minimum percentage increasing by 1 percent for each subsequent year until the percentage reaches 20 percent in 2021. Thereafter, the min-

imum calendar year percentage remains a constant 20 percent. Under the proposed legislation, guidelines for REC trading are not specifically defined but would be codified and overseen by the Public Utility Commission of Ohio. This legislation resembles that of the successful REC trading markets and could provide a good foundation for renewable industry growth in Ohio.

North Carolina

North Carolina has hired a consulting firm to conduct a study on the feasibility of implementing a state RPS. The study was to be released on December 1, 2006, and was to provide the public and the legislature with objective data concerning available state resources and possible regulatory policy. North Carolina currently has a voluntary Green Power Program, which has been well received by the public and has contributed to the installation of many kilowatt-hours of new renewables generation, particularly solar.

Michigan

A number of Michigan legislators have recently introduced RPS legislation, and the Michigan Public Service Commission (PSC) has released its own RPS proposal. In general, the Michigan legislature has defined renewable energy source as “energy generated by solar, wind, geothermal, biomass, including waste-to-energy and landfill gas, or hydroelectric.” While Michigan does currently have an RPS, lack of a stringent alternative compliance payment has hindered the development of an actively traded REC market.

Under current regulations, the PSC can impose a fine or take other appropriate action against a provider who does not comply with the RPS. It is unlikely that an active REC market can develop without a clear mandate and penalty for noncompliance. Recent legislative proposals attempt to deal with this issue. The PSC proposal includes a low-cost alternative compliance payment with the goal of encouraging compliance while holding down costs for ratepayers.

Illinois

In 2006, Governor Rod Blagojevich outlined an RPS plan and sent it to the Public Utility

Commission (PUC). Staffers reviewed the document and have sent the document to the commission. This outline contained no mandates for public utilities, and the Governor asked the PUC to compose the state's first RPS legislation. The PUC scheduled rule-making sessions, but subsequently decided that only the General Assembly had the authority to create an RPS. The issue remains at a standstill.

The issue in Illinois is further complicated because the power market is to be deregulated in 2007, and rates may increase by over 20 percent. As a result, RPS legislation is not the top priority of legislators or energy officials in the state.

Other Midwestern States

States in the Midwest are increasingly jumping on board the RPS bandwagon, making potential REC markets ever larger. With size comes scale, and the ability to link several states under a common system makes a potential REC market larger, more liquid, and more efficient. In addition to efforts in Illinois, Michigan, and Ohio to develop RPSs and institute REC trading programs, there is a regional effort under way to link these states and neighboring states.

On November 7, 2006, the Wisconsin Public Service Commission issued a Request for Proposal (RFP) for the development and administration of the Midwest Renewable Energy Tracking System (MRETS). Public utility commissioners have sponsored three regional meetings for public officials and industry participants to discuss the implementation of MRETS.

Just as the NEPOOL GIS, PJM, GATS, and Texas GIS have facilitated an active REC trading market in their respective regions, a Midwest tracking system is needed to provide transparency and efficiency to the emerging Midwest market. MRETS will track the generation of all new certificates from their initial generation to their eventual retirement with the end-user. This online database ensures that there is no double-counting of RECs and creates a simple platform through which RECs can be transferred from buyer to seller with the click of a mouse.

States to be included under the MRETS umbrella include Minnesota, Wisconsin, Iowa, North Dakota, South Dakota, and Illinois, as

well as the Province of Manitoba. A board consisting of regulatory officials from each state has been established to oversee the MRETS RFP process, technical standards, and system implementation. RFP bids were due on January 5.

MOVING FORWARD—GETTING IT RIGHT

It is encouraging that these links are being forged by a proposed renewable energy tracking system, which is one of the necessary elements of an effective renewable energy market. As states across the country continue to consider renewable energy requirements, they would be well advised to also follow the lead of pioneering states such as Texas, Massachusetts, and New Jersey in also setting an ACP that sends the right market signals.

Of paramount importance, however, is providing a proper measure of regulatory certainty. Buyers of RECs provide an important source of capital for renewable energy projects. Buyers are less likely to invest in projects for the long term should they feel the rules of the game will change.

Long-term REC purchases are the lifeblood of renewable energy development. Project developers who not only sign long-term power purchase agreements but also generate sustainable revenue from the green attributes of their projects are the ones getting their projects get financed. States that have a consistent regulatory framework for the implementation of their RPSs provide just this type of environment. States where policymakers or regulators continually adjust regulations to stimulate supply or demand will find that REC buyers are not as willing to purchase long-term streams of RECs.

For instance, Connecticut has a vibrant REC market, but purchases are rarely made further out than three years. Regulations in the state have been significantly modified over the past five years. By contrast, New Jersey regulations have remained constant, and renewable energy developers can find counterparties willing to take REC market risk going out ten years, and buyers of bundled RECs and power going out 20 years.

Getting it right is essential, and renewable energy developers are waiting in the wings to break ground on projects in states where the climate is right. 