



Energy Efficiency Credits Vie for Next Big Thing Status

Adoption has been slow, but the economic rationale for establishing energy efficiency trading markets is strong. Evolution Markets' **Supria Ranade** and **Matthew Deery** lay the case for measured optimism for market growth in energy efficiency credits.

With the convergence of an economic recession and increased environmental awareness, American companies and households are more focused than ever on reducing energy consumption. Federal programs to reduce greenhouse gas emissions and deploy more renewable energy resources have stalled in Congress. As a result, energy efficiency has become the de facto national environmental policy and economic driver.

State and local jurisdictions are leading the way with household and business incentives and the emergence of market-based programs, such as energy efficiency credit (EEC) markets. EEC trading is intended to create market signals that value the economic benefits of energy efficiency, similar to the role green tag or renewable energy credit (REC) markets have played in developing renewable energy resources.

This edition of the Evolution Markets Executive Brief explores the development of EEC markets, and their potential role as the next major environmental trading opportunity.

The EEC Basics

Also known as "white tags," EECs represent one MWh (megawatt hour) of electricity savings through energy efficiency measures. A megawatt hour is a unit of measurement representing one megawatt of power expended for one hour. In practical terms, one megawatt hour is the amount of electricity that would supply the monthly power needs of a typical home having an electric hot water system.

EECs can then be bought and traded among utilities and other companies. In theory, EECs can be traded across states or offered to the federal government to offset energy consumption. This encourages the market to find the most beneficial means of energy savings and thereby minimizes the overall economic costs of becoming more efficient.

These markets are designed by policymakers to create demand, establish compliance buyers, and, in some cases, institute a floor price or ceiling. Numerous efficiency measures and technologies can be utilized to create an EEC, and their use depends on the state. Some measures include combined heat and power, waste heat, electricity savings from energy

efficiency measures, load management programs, and demand response technologies, and their use depends on the state.

EECs, like more established renewable energy credits, are traded in two different types of markets: compliance and voluntary. In voluntary markets, companies purchase EECs as an environmental gesture or an act of corporate goodwill. In compliance markets, EECs are bought and traded among utilities and other electricity retailers in order to meet certain mandates required by state, local, or federal law. Specifically, compliance markets mandate that a company, typically a load serving entity, comply with some form of energy efficiency or renewable portfolio standard. These portfolio standards require that a specified percentage of an electricity provider's supply be obtained from a renewable source. In some states, energy efficiency methods are either required or permitted to make up a certain percentage of the portfolio.

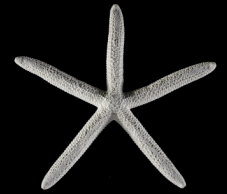
States Drive EEC Markets

In the drive to create EEC markets, states are clearly leading the way. Several states have policies permitting energy efficiency initiatives to qualify for portfolio standard requirements. According to the Database of State Incentives for Renewables and Efficiency (DSIRE), 29 states and the District of Columbia have Renewable Portfolio Standards (RPS), while seven others have renewable portfolio goals. Of these 29 states, approximately half allow energy efficiency initiatives to contribute to the portfolio mandates.

Despite the high number of states with an RPS and the relatively high percentage that permit the use of efficiency to comply with RPS goals, actual EEC compliance trading markets exist in just four states. Specifically, Connecticut, Massachusetts, Nevada, and Pennsylvania have adopted legislation requiring efficiency as part of a portfolio standard and allowing for the creation and trading of EECs.

Connecticut was the first state to take the lead in the EEC market, adopting legislation in 2007. Starting with a 1% mandate in 2007 and increasing by 1% for the three subsequent years, Connecticut's RPS eventually requires that 4% of a utility's electricity supply be provided by energy efficiency technologies from 2010 through 2020.

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Eligible EECs in Connecticut historically traded near the \$31/MWh alternative compliance payment set by state officials, but with the recent influx of qualified supply, the current vintage trades closer to the price floor of \$10.00.

The EEC market has been largely a success in Connecticut. In 2008, the total value of EECs auctioned from the Connecticut Conservation and Load Management fund was approximately \$3.3 million, suggesting revenues from trading are likely to be high enough to encourage reasonable investment in new projects, according to the National Renewable Energy Laboratory. Massachusetts, Pennsylvania, and Nevada have each followed Connecticut's lead, and have developed compliance EEC markets through their own RPS programs.

Eligible vintage 2010 EECs in Massachusetts have traded in a range of around \$15 to \$18/mWh, with an alternative compliance payment of \$20/MWh. There has been increasing voluntary interest in EECs, but credit trading in voluntary markets is still sparse. Demand in all four of the existing compliance markets will continue to grow in the future as requirements increase as designed in each program.

Potential Federal Market?

While state programs lead the way, there is continued hope of a Federal energy efficiency market program, which will create nationwide liquidity for EECs. Congress has taken steps to create such a market over the last 18 months, but current efforts are stalled.

The U.S. House of Representatives was the first to act, passing comprehensive climate legislation last summer that included an EEC trading provision. The American Clean Energy and Security Act of 2009, co-authored by Henry Waxman (D-CA) and Edward Markey (D-MA), has a provision for a combined efficiency and renewable electricity standard. The Waxman-Markey bill, approved by the House on June 26, 2009, calls for retail electric suppliers to meet 20% of their demand from a combination of renewable energy sources and electricity savings through energy efficiency.

The bill requires the Federal Energy Regulatory Commission (FERC) to establish standards to define and measure electricity savings from energy efficiency and conservation measures, as well as require third-party verification of savings. Also, companies that fall short of meeting the renewable electricity standard mandates may purchase EECs from companies who have excess, presenting the opportunity for the growth of the EEC market nationwide. The FERC has authority to determine what portion of the compliance obligation can be met through energy savings or EECs.

On the Senate side, Senator Jeff Bingaman (D-NM) passed an energy bill out of his Energy and Natural Resources Committee, which incorporates a renewable electricity standard. Like the Waxman-Markey bill, the Bingaman bill sets standards on the amount of electricity sellers must obtain from renewable sources or energy efficiency improvements.

The bill calls for increasing percentages of electricity coming from renewable sources over time, with a 15% requirement for 2021-2039. The Bingaman bill allows for 26.67% of the renewable electricity standard to be met by submitting Federal EECs. Utilities that sell less than 4 MWhs per year are exempt from the requirement.

Despite this significant progress in Congress, the Senate energy bill has been pared down significantly to reflect narrowed political possibilities and meet a now tight legislative calendar. It appears likely that the Senate will consider a limited energy bill that will not include a Federal renewable energy standard, leaving proponents of the program to push for the program again in the next Congress, which begins in January 2011.

International EEC Markets

While the U.S. moves slowly toward a national EEC program, energy efficiency trading has already taken hold elsewhere. New South Wales in Australia initiated the first EEC market program in 2003. Soon after, Italy, the U.K., and France established programs of their own.

According to the World Resource Institute, the Italian program has been a considerable success, with average EEC prices around \$69/MWh. In the U.K., the system operates slightly differently. Instead of trading credits, electricity and gas suppliers can trade energy savings amongst themselves, subject to a written agreement from regulators, in order to comply with the U.K.'s Energy Efficiency Commitment. This program requires electricity suppliers to achieve specified energy savings. The U.K. program has a unique requirement that entities must get pre-approval for energy efficiency projects before they begin. Energy savings from approved projects can then be transferred to another entity, but spot trades are not permitted. As a result, very few trades have actually been completed in the U.K., and pricing data is not available.

India, Denmark, and the Netherlands have taken steps toward EEC markets, as well. India also recently passed their National Mission on Enhanced Energy Efficiency program, which establishes an EEC market that is predicted to reach a size of \$16 billion in 2015, according to Ajay Mathur, the director-general of the country's Bureau of Energy Efficiency. The Danish Energy Authority commissioned the Ea Energy Analyses consulting group to perform research on the possibility of establishing an EEC market in Denmark, and it has been reported that the Netherlands are also considering the introduction of an EEC program.

Challenges to Establishing EEC Markets

While there are many positives associated with EEC markets, there remain significant challenges facing the design and implementation of such markets.

Measurement and verification of EECs is a difficult, but essential, component of any trading program. Energy savings are used to create EECs, as opposed to energy generation, and therefore they are more difficult to measure. Uniform standards for measuring and verifying savings across varying technologies are required in order for the EEC market to achieve larger scale penetration. An example of these differing eligibility standards are the eligibility requirements for CHP in Connecticut and Massachusetts.

In Connecticut, Combined Heating Power (CHP) projects that are eligible for compliance with the state RPS must be located in Connecticut, entered into operation after January 1, 2006, and have an operating efficiency of at least 50%. The maximum size of the system is 65 MW, and 20% of the energy output must go to electricity while another 20% must go towards thermal energy. In Massachusetts, CHP is eligible to meet RPS standards if the system entered into operation after January 1, 1998, meets specific efficiency requirements, and the energy is delivered to an end user located in Massachusetts. Additionally, the CHP regulations permit natural gas for fuel, but exclude most petroleum derived fuels and nuclear power.

EEC markets also require tracking systems, which are necessary to track ownership of the EEC and safeguard against double counting. There are, of course, costs associated with the creation and maintenance of these tracking systems, and they can be complex in nature. Any potential tracking system must have the capacity for integrating EECs with RECs and carbon offsets, as there is the potential overlap of environmental attributes should these markets merge in the future.

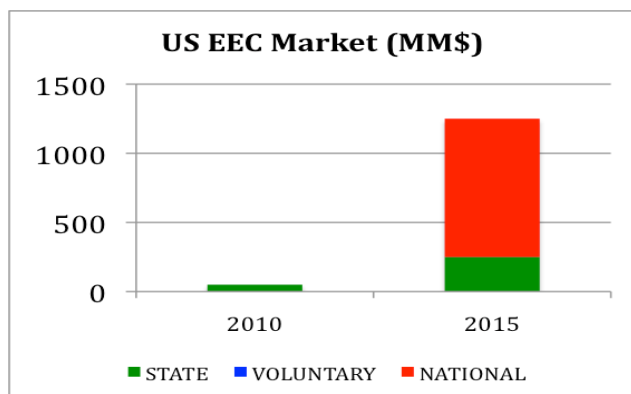
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Currently, tracking systems for RECs already exist in the U.S. through APX Inc. The APX tracking system consists of several different regional systems that issue, register, and track RECs: MIRECS tracks RECs in Michigan, M-RETS tracks RECs in the Midwest, NEPOOL GIS covers New England, PJM GATS tracks RECs in the Mid-Atlantic, WREGIS covers the western states, and Texas REC covers Texas.

For states not covered by the aforementioned markets, the North American Renewables Registry is available. The verification and tracking of RECs through this system protects against double sales in the REC market. According to APX, the North American Renewables Registry has the infrastructure in place to track EECs should a larger market emerge.

EEC Markets: The Future

Despite the measured growth of EEC markets in the U.S., they remain a viable market-based public policy tool for promoting energy savings across the national economy. The underlying popularity of EECs continues to be grounded in its cost advantages. Energy efficiency, at its core, provides cost savings to end users of energy, and in large part requires less capital to implement. Renewable energy remains a capital intensive enterprise. Wind farms are the largest generators of RECs and require significant capital costs, extensive government regulation, zoning approval, and considerable land needs. Efficiency measures, in contrast, are generally less expensive, engender less controversy, and can be implemented on an easier to manage scale-up basis.



Perhaps the greatest potential for the EEC market is the possible adoption of an EEC carve-out by more states with RPS requirements. There is the potential for several more states to establish EEC markets in the near future. In late 2008, Michigan passed Senate Bill 213, which establishes the creation of EECs, known as “energy optimization credits”. While the bill does not initially allow for trading of EECs among entities, it does allow for the Michigan Public Service Commission to create a trading program for EECs in the future. According to the National Renewable Energy Laboratory, a few

other states including New Jersey and Illinois are investigating the possibility of incorporating EEC trading into their energy policies. The combination of a potential national market and several new state markets represent tremendous potential for the EEC market moving forward.

Currently, with only four states comprising the EEC market in the U.S., the market is approximately valued around \$200 million. However, it is believed that with additional states considering adding portfolio standards and the possibility of a national market, the EEC market could grow to over \$1 billion in the next five years, according to Nexant Inc., a company that provides intelligent grid software and clean energy solutions to various industry sectors. The inclusion of energy efficiency portfolio standards in select versions of federal energy legislation indicates the potential for an eventual national market.

For more information on developing EEC markets or how to structure EEC transactions, please contact our Energy Efficiency Markets group at +1 914.323.0257 or eedesk@evomarkets.com.

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