

*Putting Knowledge Into Action*



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**Timing is Everything: The Case for Energy Efficiency Portfolio Standards and Tradable White Certificates**



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Sometimes a great idea requires great timing to ignite public recognition and action. Energy efficiency has long been a great idea; however, not until the recent convergence of higher sustained energy prices and demand for carbon footprint reduction has the case for widespread adoption of energy efficiency measures become so compelling. Moreover, today's technology is better, more reliable and ready to be massively deployed in a new trading market based on energy efficiency portfolio standards and white certificates (a/k/a white tags, negawatts, energy saving certificates).

**The Case for Rapid Deployment of Energy Efficiency Measures**

Higher sustained energy prices alone provide significant and obvious incentives for adopting energy efficiency measures. What is not necessarily so obvious are the substantial benefits of greenhouse gas (“GHG”) emission reductions to be realized from aggressive energy efficiency deployment.

The recent comprehensive report prepared by McKinsey & Company for The Conference Board, *Reducing U.S. Greenhouse Gas Emissions: How Much at What Cost?* (December, 2007), finds that improving energy efficiency in buildings and appliances could achieve 710 megatons (mid-range) to 870 megatons (high range) of GHG abatements through the target year of 2030. The report further concludes:

Improving energy efficiency in the buildings-and-appliances and industrial sectors, for example, could (assuming substantial barriers can be addressed) offset some 85 percent of the projected incremental demand for electricity in 2030, largely negating the need for the incremental coal-fired power plants assumed in the government reference case.

Unlike many other GHG reduction options which are projected to cost more to implement than the benefits realized, most of the energy efficiency options provide greater savings over their life than the initial cost of implementation. Nonetheless, the McKinsey report notes the critical importance of accelerating the pace of and overcoming the barriers to adoption of such “negative-cost” efficiency measures:

Many of the most economically attractive abatement options we analyzed are “time perishable”: every year we delay producing energy-efficient commercial buildings, houses, motor vehicles and so forth, the more negative-cost options we lose. The cost of building energy efficiency into an asset when it is created is typically a fraction of the cost of retrofitting it later, or retiring an asset before its useful life is over. In addition, an aggressive energy efficiency program would reduce demand for fossil fuels and the need for new power plants. These energy efficiency savings are not being captured today, however, suggesting that strong policy support and private sector innovation will be needed to address fundamental market barriers. Policy support might consist of standards, mandates and/or incentives to promote carbon-efficient buildings, appliances, and vehicles. Mechanisms to better align all stakeholders (e.g., end users, manufacturers, utilities, and supporting businesses) should also be considered.

### **Energy Efficiency Portfolio Standards**

Perhaps the most effective means to drive the pace of energy efficiency achievement and align stakeholder interests is by the adoption of energy efficiency portfolio standards (“EEPS”). EEPS require implementation of specified energy efficiency measures resulting in a percentage reduction (below a stated baseline) of energy use by jurisdictional end-users. For example, if the stated baseline in a given year is 1,000 MWh of energy use and a 10% EEPS is in effect that year, a reduction of 100 MWh of use through the adoption of approved energy efficiency measures would be required. Generally, EEPS provide for an escalation of required reduction percentages over a multi-year phase-in period.

EEPS are analogous to the more prevalent and better known renewable portfolio standards (RPS) adopted in more than half of the states in the United States, which RPS require a specified percentage of the total energy supply within an applicable jurisdiction to be generated from renewable energy sources.

EEPS and RPS programs may be either voluntary or compulsory. Compulsory or compliance programs include enforcement mechanisms with accountability imposed on load serving entities and penalties for noncompliance. At present, a handful of states in the United States and several European countries have adopted some form of EEPS including Connecticut, California, Colorado, Hawaii, Nevada, Pennsylvania, Texas, Vermont, Italy, Great Britain, France and New South Wales. These programs are well summarized in *The Potential for Energy Savings Certificates (ESC) as a Major Tool in Greenhouse Gas Reduction Programs*; Center for Resource Solutions, prepared for the

Henry P. Kendall Foundation; May 24, 2007, and *Energy Efficiency Resource Standards: Experience and Recommendations*; American Council for an Energy-Efficient Economy; March 2006, which provide excellent overall discussions of EEPS. Of particular recent significance is the New York Public Service Commission Order issued and effective on June 23, 2008 which adopted an Energy Efficiency Portfolio Standard targeting a 15% reduction by the year 2015.

### **Tradable Certificates**

Although there is a growing recognition of the benefits of energy efficiency, “business as usual” is not likely to achieve the desired accelerated pace of adoption. However, EEPS compliance mandates combined with tradeable certificates can provide the necessary impetus and important guideposts exist in the programs adopted by several of the EEPS jurisdictions identified above.

Central to the definition of a tradeable energy savings certificate or white certificate is the requirement that it represent a defined unit of energy savings realized from the implementation of an approved energy efficiency measure. Approved energy efficiency measures should be transparent to the marketplace and reflect objective and readily verifiable reductions in end user energy consumption below a well-defined baseline. These may include certain catalogue measures which are self-verifying (such as CFLs, LEDs or energy efficient appliances) as well as measures requiring specific periodic measurement and verification to demonstrate actual energy savings realized. It is also important that the standards giving rise to white certificates be verified or verifiable by independent third parties and that a reliable tracking system be adopted to assure that each certificate is accounted for, traceable and not double-counted.

One important benefit of the adoption and implementation of a white certificate program is the establishment of an objective and transparent means of measuring achievement of desired energy efficiency targets. In addition, and of key significance, white certificates provide the foundation for a robust trading market to jump start widespread energy efficiency implementation by unleashing market forces to achieve the greatest level of energy efficiency based savings from the most cost-effective measures. If load serving entities charged with meeting EEPS in a compliance market are allowed to satisfy their obligations through the purchase of white certificates they will look to do so in the most cost effective manner possible. In such a trading market end-users, providers, aggregators, equipment suppliers and financiers will all be motivated to achieve the greatest level of deployment of the most cost-effective energy efficiency measures in the shortest period of time through access to white certificate revenues. Certainly, such market-based programs should promote energy savings in a broader and more cost-effective manner than the use of equivalent revenues in case by case command-and-control rebate projects.

Some critics may question why it is necessary to create an added white certificate cashflow for the most cost effective energy efficiency measures. Some may even seek to impose a Kyoto-type Clean Development Mechanism “additionality” test for qualifying white certificate measures. An additionality test would require each certifying authority to answer the question: “Would this measure have been implemented in the absence of

the economic incentive provided through the white certificate?” Such an effort to impose an additionality requirement for white certificates should be flatly rejected.

The use of an additionality test introduces a subjective motive assessment in an otherwise objective market measure and serves to promote the least cost effective actions to qualify for white certificates. It is a bad idea. Such a test could bolster the status quo by excluding many of the most cost effective energy efficiency measures from white certificate eligibility. Based on common market observation, the status quo has not and will not result in the required accelerated levels of efficiency achievement. Thus, the sole determinant of a qualified white certificate should be whether the efficiency measure in question provides savings greater than the objectively defined baseline case.

### **The Connecticut Program**

Connecticut has taken a leadership role in adopting an EEPS compliance mandate combined with tradable certificates. This program, which became effective in calendar year 2007, created a separate classification (Class III) for energy efficiency and combined heat and power within the state's renewable portfolio standard. The compliance requirement began at 1% and escalates each year until reaching a 4% level. Under this compliance requirement, each load serving entity must demonstrate that it has achieved energy efficiency or CHP derived energy reductions at the required percentage levels during each compliance year. This requirement may be satisfied through the purchase of tradable Class III certificates.

Pursuant to implementation procedures adopted by the Connecticut Department of Public Utility Control (“DPUC”), a comprehensive catalogue of qualifying energy efficiency measures was established through a published Technical Reference Manual. The DPUC also established procedures for third party verification and measurement of the various approved procedures. Class III certificates are tracked through the existing ISO-NE GIS system to achieve verification, certification and avoidance of double counting in a cost-effective manner.

The Connecticut statute provides for imposition of noncompliance payments upon any load serving entity who fails to achieve the specified compliance mandate. While the enabling legislation provided that such noncompliance payments could be as high as \$55 per MWh, the DPUC has currently established a noncompliance payment amount of \$31 per MWh based, in significant part, upon its assessment of the cost of energy savings under the State's preexisting conservation and load management programs. This noncompliance payment amount is subject to periodic DPUC review. The enabling legislation also establishes a current floor of \$10 per MWh for Class III certificates.

Now in the second year of the phase-in period, a sufficient supply of Class III Certificates appears to be available and are reported to be trading in the low to mid \$20 per MWh range.

## **State Versus National Standards/Market**

To date, Renewable Portfolio Standards (RPS) have been adopted in many states, however, efforts to impose a national RPS have met with significant resistance. One roadblock to a national RPS is perceived to be the disproportionate availability of renewable resources within different regions of the country as well as the substantial disparity of cost and type of conventional power resources in different regions. Thus, the adoption of a uniform national RPS could have a very disproportionate impact on ratepayers in different regions of the country.

In contrast, there would appear to be few if any such obstacles to the adoption of a national EEPS. First, and most important, implementation of energy efficiency is uniformly available and provides direct benefits to energy consumers wherever located in the United States. Thus, the politically vexing issue of disproportionate availability and/or ratepayer impact that exists with RPS is absent here. The potential for a broad, national market also portends well for a deep and efficient trading market which will optimally promote energy efficiency as a national priority.

## **Changing the Utility Business Model**

Of course, the greater the success in achieving energy efficiency, the greater the erosion of the revenue stream of existing utilities. Utilities are now made to sell more power to make more profits. Therefore, moving forward with new technology and higher efficiency (i.e., less power sales) will disrupt the existing business model and must also allow alternative ways for utilities to recapture investment costs to maintain a reliable and efficient grid system. That means **decoupling** of efficiency from the rate base and the adoption of appropriate rate measures to allow for a fair economic return.

On the regulatory front, it will need NARUC working with FERC and state commissioners to address technologies potentials and the economic considerations behind it. The need to measure and meter use will now be married to a changing and interactive telecommunications infrastructure to assure and promote efficiency.

## **Benefits of Energy Efficiency Have Barely Been Tapped**

A strong energy efficiency certificate trading program which promotes rapid deployment of efficiency resources has numerous benefits. In addition to the other benefits described above, rapid and widespread deployment will lead to increased job opportunities in the energy efficiency sector inclusive of project development, equipment supply, research and development, measurement and verification and project and white certificate financing. Accelerated achievement of energy efficiency and the resulting significant reduction in new power plant capacity and fuel consumption also furthers the important goal of energy independence. Finally, a well designed energy efficiency market-based program will achieve the most pervasive, and soonest to be realized reductions in overall ratepayer energy use and cost. It will also diversify the utility supply base as efficiency becomes a new resource as more innovative technologies take hold and benefit rate payers.

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**Peter C. Fusaro** is holding an Introduction to Carbon Trading and Finance in New York on September 9th and an Advanced Carbon Trading and Finance Seminar on September 10th & 11th (For more information, go to [www.pgsenergy.com/seminars](http://www.pgsenergy.com/seminars)).

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