

US commodity brokers expect the energy efficiency certificate or ‘white tag’ market to grow dramatically in the next few years as more states begin to treat efficiency as a tradable commodity. *Elisa Wood* investigates

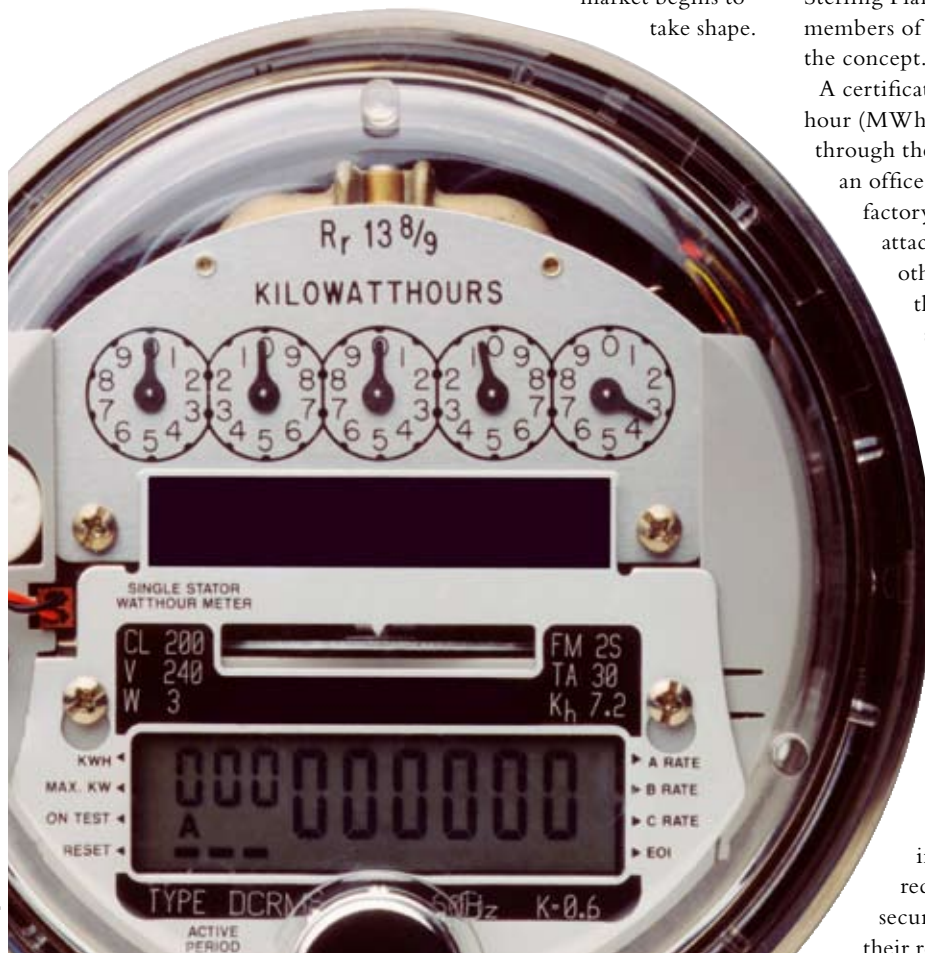
The power of savings

★ Energy efficiency advocates are fond of saying that the cheapest megawatt is the one never used. But in the US, the true value of that saved megawatt is only now becoming clear, as an energy efficiency commodity market begins to take shape.

Following the lead of the UK, France and Italy, three US states have set up rules that allow trading of energy efficiency certificates or ‘white tags’, as they have been dubbed by Georgia-based energy efficiency marketer Sterling Planet. Several other states and members of Congress are contemplating the concept.

A certificate represents one megawatt-hour (MWh) of electricity saved – perhaps through the installation of efficient lights in an office building, advanced motors at a factory or fuel-saving cogeneration units attached to a university. Utilities and other retail electricity sellers buy the certificates to comply with a state-mandated energy efficiency portfolio standard (EEPS), an enforceable energy savings requirement.

Craig Lilly, an attorney who handles clean energy deals from the California Silicon Valley office of Squire, Sanders & Dempsey, describes the rules as a kind of “financial engineering to establish an energy efficiency market”. And so far the engineering seems to be working in Connecticut, the first state to push forward with the approach. Connecticut instituted an EEPS in 2007 that requires utilities and retail sellers to secure certificates equivalent to 1% of their retail electricity sales.



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Efficiency certificates are commanding a healthy price in Connecticut, nearing the \$31/MWh price cap set by state officials. "Demand is outstripping supply," says Paul MacGregor, a vice-president for California-based Nexant, an energy software and consulting company. MacGregor facilitates trades for various clean energy commodities.

Demand for certificates is expected to continue to grow in Connecticut, since the state's EEPS requirement rises by 1% annually until it tops off at 4% in 2010, which amounts to between 1.3 and 1.4 million MWh of energy reduction, MacGregor says. The annual requirements were set by state lawmakers as part of a larger calculation that considered how much clean energy – including both renewables and efficiency – the state can achieve.

Pat McDonnell, director of conservation and load management at United Illuminating (UI), a Connecticut utility, says he expects trading to "really pick up heat" in the next 12 to 18 months, as the requirement ramps up and more companies begin to create certificates in response.

Easier than building wind farms

The white certificate concept is modelled after the more mature US renewable energy credit or 'green tag' market, now underway in around half the US states. Those states require that a percentage of power sold to customers comes from green energy. Efficiency advocates say the fledgling US white certificate market is likely to eventually see more trades than the green tag market simply because efficiency is so much easier to install. Wind farms, the largest generators of green tags in the US, require a large capital investment and extensive government review. Energy efficiency installations, on the other hand, are typically cheaper and require little regulatory scrutiny.

Efficiency also appears to offer a larger potential pool of clean megawatts. The Alliance to Save Energy (ASE), a Washington, DC advocacy group, says that the US already has saved 49 quads¹ of energy since 1973 through efficiency measures. In comparison, clean energy sources – in particular wind power, solar energy and geothermal energy – comprised only 0.7 quads over the same time period. Worldwide, efficiency could cut

the growth in energy demand by half over the next 15 years, says the ASE.

But convincing businesses to pursue efficiency is not always easy. Companies like Nexant and Sterling Planet are hard at work trying to get the message out that efficiency not only reduces a company's monthly power bill, but also creates a revenue stream through certificate sales.

"At first they are skeptical about the whole idea," MacGregor says. "Then when you give them a nice cheque, they want to find more efficiency. Before they might not have undertaken projects with a four- or five-year payback – but with the energy efficiency certificate prices added, those projects become doable".

Nexant works to make the process less intimidating for the client by taking a percentage of the energy efficiency certificates created by the client's installation as its payment. As a result, Nexant does not get paid until the client is paid.

While energy efficiency certificates may be relatively easy to create, it is not always simple to prove their worth. Before certificates can be traded, the relevant state must verify that the applicants truly saved as much energy as they

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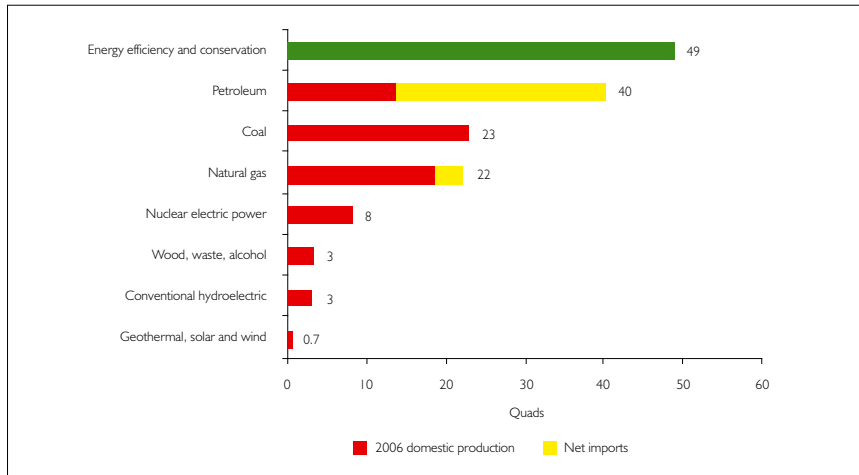
Paul MacGregor, Nexant

claim. Connecticut has a technical manual, a kind of 'cookbook' that spells out energy savings of many standard installations, says MacGregor. Complex or unusual efficiency projects can require a more lengthy review. He expects reviews to move more quickly as regulators become familiar with the various approaches to efficiency.

Certificate buyers are often utilities that are trying to secure their required quota. However, the certificate commodity trader does not deal directly with the utility, but instead transacts with a wholesale power

1. A quad is a unit of energy equal to 10¹⁵ (a quadrillion) British thermal units, or 1.055 × 10¹⁸ joules (1.055 exajoules or EJ) in SI units.





F1. America's greatest energy resource
 Energy efficiency and conservation improvements since 1973 have reduced annual energy consumption by 49 quads *Source: Alliance to Save Energy (November 2007)*

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Craig Lilly, Squire, Sanders & Dempsey

marketer. This is because under liberalisation rules, Connecticut utilities must buy most of their power from marketers. Therefore, the utilities often ask marketers to bundle the certificates into a larger power supply deal.

Mixing markets

The certificates are expected to help states reach ambitious goals, often set by state governors, to increase energy efficiency. But it is not only the certificate market that is encouraging more efficiency in states like Connecticut. Other drivers include more favourable treatment of efficiency when participating in regional power pool transactions and concerns about carbon dioxide emissions. For example, Connecticut is part of ISO² New England, a six-state regional grid manager that recently took the pioneering step of letting companies bid their efficiency savings alongside power generation in a forward capacity market auction. The ISO ended up selecting efficiency programmes that will allow

the region to avoid construction of about 1,188MW of power generation. A large number of projects are in Connecticut.

In addition, Connecticut is part of the multi-state Regional Greenhouse Gas Initiative (RGGI), which is expected to institute the nation's first cap-and-trade market for carbon emissions next year. “There is no cleaner kilowatt than the one you don't use,” says UI's McDonnell. In that spirit, the RGGI is expected to encourage the installation of efficiency projects as a way to reduce carbon dioxide emissions.

Policy-makers are still working out rules governing the interplay of the various incentive programmes – certificates, the forward capacity market and the RGGI – and some

controversies are cropping up. Consumer advocates warn that efficiency projects should not be allowed to receive more than one of the subsidies, arguing that double-dipping creates a financial windfall for the business undertaking the efficiency measure.

Disputes also sometimes arise about who should receive financial credit for an efficiency installation. In Connecticut, the rules are clear. The company that installs the efficiency measure retains the certificate unless it did so while enrolled in a utility-financed conservation and load management programme. Then the certificate goes to the utility. Utilities can sell the certificates into the marketplace, but cannot retain the profits. Instead, the money must be placed in a state fund that provides grants for clean energy projects.

In other states, the rules about who owns credits are still being worked out. Wal-Mart, which bills itself as the world's largest retail store chain, last year became embroiled in a dispute with utilities in the state of New Hampshire about who should retain credit for a demand-response initiative undertaken by one of its stores. The utilities argued that they should own the credits if a customer received a utility subsidy for the efficiency measure. Since the subsidy achieved its goal of encouraging the customer to pursue efficiency, it is unnecessary to give the customer an additional incentive, like a forward capacity market payment. Instead, the utilities said

2. Independent System Operator

legal rights to the credit should go back to the utility, which rolls the money into more subsidies for other customers.

Wal-Mart countered by drawing an analogy between electricity and soybeans. Soybean farmers receive subsidies from the government to grow their crop. After the farmer sells the crop, the government does not take the profits made by the farm and roll them back into subsidies for others. But ultimately, New Hampshire regulators sided with the utilities. The credit should go to the utility, they said, concluding that putting the money back into an energy efficiency subsidy pool was the best use of the funds.

Exactly how much the white certificate market will grow remains uncertain. While it is possible to calculate growth to some degree based on state requirements, there is a wild card: the voluntary market. More and more businesses like Google and Wal-Mart have announced self-imposed efficiency or carbon reduction targets. These companies pursue clean energy goals not because government requires them to do so, but because they want to engage in an act of corporate goodwill.

“We have had conversations with some folks about voluntary markets. There may be people out there who want to buy these for carbon offsets,” says UI’s McDonnell.

Poised to go national?

US information technology companies are taking a particularly hard look at reducing their energy usage on a voluntary basis. Cost is driving the decision, especially at data centres that face high cooling bills because of the intensive heat generated by computers. For every dollar spent on computer hardware, 50 cents is spent on energy, says market research company IDC. Over the next four years, energy spending is expected to leap to 71 cents for every dollar spent on hardware.

The energy efficiency certificate market

appeared poised for a huge leap last year, when the US Congress debated creating a national efficiency requirement, along with a national renewable energy portfolio standard. The standard could have led to a national certificate trading market. Both measures failed, amid concern that some states could not reach the targets. However, efficiency advocates expect Congress to reconsider the issue and believe it may garner more support after the Presidential election in November.

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In any case, various states continue to lead the charge to proliferate the white certificate trading concept. In addition to Connecticut, Pennsylvania has set a target of 10% efficiency by 2010, and Nevada will aim for a 5% target by 2015. California, Hawaii, New York, New Jersey, Oregon, Colorado, Washington, Illinois, Minnesota, Texas, Florida, Vermont, North Carolina and Virginia are among the states in various stages of instituting similar strategies.

“At some point, if white certificates reach a national mass it is likely the federal government will try to step in and establish uniformity,” Lilly says. “There is more and more interest among companies in going green and having some sort of energy efficiency plan. I think you could see a system or framework developing that everyone could agree on.”

It remains to be seen how soon such agreement will occur or even if certificate trading will ever reach national scope. But given the high price of electricity, growing demand and a general sentiment that green is good, energy efficiency trading seems to be a concept whose time has come in the US. [ER](#)

