

Category: Energy Efficiency

Subject: Renewable Energy Certificates (REC) and Energy Efficiency Certificates (EEC) – know the difference.

Energy efficiency in the data center has become one of the more popular topics being discussed in the industry media. Much of the talk is focused on energy efficiency and conservation and whether the motivation is altruistic or mercenary, self imposed or legislated what is missing in much of the dialog are meaningful incentives to create an eager willingness rather than a grudging agreement to comply.

The purpose of this brief is to provide a brief discussion of two such incentives that have been developed in the form of tradable commodities otherwise known as carbon offset certificates, Renewable Energy Certificates (REC's) and Energy Efficiency Certificates (EEC's). There is a third option available, mainly on the west coast, which is a rebate approach based on actual, measurable power savings. Utility companies such as PG&E, SDGE and Austin Energy are driving these programs but to my knowledge they do not involve either certificate but the award of a rebate check. This brief will be restricted to REC's and EEC's.

However before jumping into the certificate discussion let us take a quick look at how we got here. Despite what our egos may want to tell us, certificates were not created as a result of excessive or wasteful IT energy demands. They are the consequence of a more widely based phenomena called environmental trading, with its genesis dating back to the Clean Air Act Amendments of 1990 which legislated an environmental trading program designed to attack the then significant issue of acid rain. The focus at this time was to reduce the emissions of such pollutants as sulfur oxide (SOX), nitrogen oxide (NOX and mercury. Fast forward to 1997 and the Kyoto protocol which called on nations to reduce their emissions of CO2 and while the US did not sign the Kyoto agreement our legislators did pick up on the cap and trade proposal for carbon dioxide and I suggest that it is a safe bet that legislation is not a matter of if but when. Kyoto also caused the formation of an international trading system to trade in CO2 credits and hence the establishment of tradable certificate with REC's making the first appearance.

Renewable Energy Certificates (REC) - Also known as Green Tags - These certificate focus on providing funds for the creation of renewable energy and represent a contractual right of the holder to claim any environmental or other benefit associated with the creation of energy from a renewable project or facility.

The value of these certificates are established by measuring (metering) the amount of renewable energy production. One REC credit is equivalent to 1KWhr.

REC's are a key component to the proposed cap-and-trade legislation that is the subject of much debate these days. To try to simplify a somewhat complex proposition, a cap-and-trade system sets limits on individual companies covering their carbon dioxide emissions. Companies with emissions below the limit accumulate credits which they can trade to companies whose emissions are exceeding their preset limit. This gives companies the choice to purchase credits or meet emission standards. Emission standards (carbon footprint) will be legislated for both energy users as well as energy providers with accompanying penalties for any excess emissions. Purchasing REC's will be a method of legally exceeding actual carbon emission limits. This was the original approach which is tied to the creation and delivery of renewable energy. RECs do not directly drive energy conservation or efficiency but (my opinion) simply provide a "band-aid" that covers poor and excessive energy practices.

The monies raised by REC's are targeted at funding renewable energy production programs from wind farms, solar, bio-waste etc. An early approach was to promote reforestation (carbon absorption) but there was little to no check on the sustainability of the project being funded which questioned the efficacy of this approach. A second challenge was whether the projects funded were net new and not simply existing projects exploiting this new funding source.

REC's or Green tags are purchased by individuals or enterprises to offset the energy they use. They do not necessarily drive any changes in behavior nor drive conservation practices. They are, in my opinion, feel good pills!

A REC is in effect a carbon tax and as with any tax, expect a negative pricing impact.

Energy Efficiency Certificates (EEC's). Also known as White Tags - These certificates are a measure and calculation of actual power saved through the direct result of a conservation action or project. An EEC represents actual energy not used and carries a unit value equivalent to 1MWhr of savings. This is the approach most appropriate for an IT environment and is the one IBM announced in October of 2007 and have been aggressively promoting in their green activities.

As mentioned EEC's represent actual energy saved through specific conservation acts or practices and is tangible and measurable. EEC's or white tags are gaining traction, with Connecticut, Nevada and Pennsylvania having regulations¹ on their books however, it is not necessary to reside in these states to get the benefits of

¹ At time of writing this brief.

Bill Mottram

(303) 588 6674

Veridictus Associates Inc

bill@veridictusassociates.com

white tags. EEC's have an international reach with at least the UK, France, Australia and Italy with programs.

Both certificates are monetized and are tradable commodities.

According to Neuwing Energy, (IBM's partner for EEC creation) EEC's have values ranging from \$10 to \$15² in a regulated state to \$3 to \$5/MWhr in an unregulated state while REC average about \$20/MWhr³. Currently there is about 13 regulated states. And 36 states where utilities offer green pricing options.

Both REC's (Green Tags) and EEC's (White Tags) are traded in the open market in a similar fashion and I fully expect this practice to commodities in the coming years.

A growing market for these tradable commodities. This carbon trade market is evolving, and much depends on legislative action. It has been estimated by the Congressional Budget Office⁴ that the market will develop to somewhere between \$50B and \$300B with a more conservative estimate being \$30B in the next 5 to 10 years. Which ever number you feel has credibility one fact is apparent, the market for carbon offset certificates is likely to be substantial.

These approaches do have one common and redeeming feature, they argue against the wisdom and appropriateness of a carbon tax.

² "Can Energy Efficiency Save and Pay – Energy Efficiency Certificates", David Anderson, Green consultant, IBM, PowerPoint Presentation.

³ US Department of Energy, Energy Efficiency & Renewable; energy pricing page.

⁴ Congressional Budget Office, "Trade-Offs in Allocating allowances for CO2 Emissions," Economic and Budget Issue Brief, April 25th, 2007