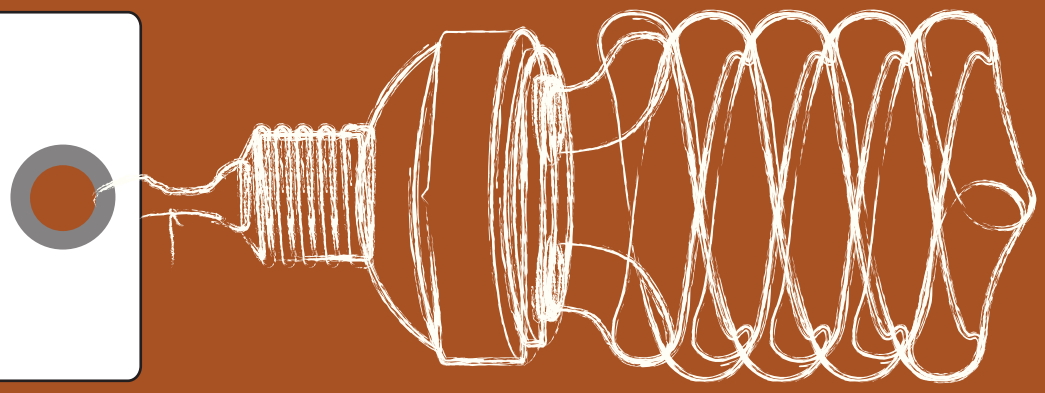
Executive Summary

The Potential for **Energy Savings Certificates (ESC)** as a Major Tool in Greenhouse Gas Reduction Programs



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THE POTENTIAL FOR ENERGY SAVINGS CERTIFICATES (ESC)[1] AS A MAJOR TOOL IN GREENHOUSE GAS REDUCTION PROGRAMS

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EXECUTIVE SUMMARY

Energy Saving Certificate (ESC) is an instrument issued by an authorized body guaranteeing that a specified amount of energy savings has been achieved. Each certificate is a unique and traceable commodity carrying a property right over a certain amount of additional energy savings and guaranteeing that the benefit of these savings has not been accounted for elsewhere. The ESC represents the environmental and social attributes associated with the energy saved, just as a renewable energy certificate (REC) represents the environmental and social benefits associated with generating electricity from renewable energy.

Energy Efficiency Portfolio Standard (EEPS)* is a program that sets a specific target for energy savings to encourage more efficient generation, transmission, and use of electricity and natural gas. These targets may be achieved through a market-based trading system. EEPS programs often include a list of eligible energy saving measures that can be used to meet the savings target and may carry a fine or other penalty for non-compliance.

* These programs are also referred to as Energy Efficiency Resource Standards (EERS).

James Hansen, Director of the Goddard Institute on Space Studies and one of the foremost experts on climate change, has said that man has just 10 years to reduce greenhouse gas (GHG) emissions before global warming reaches what he calls a tipping point and becomes unstoppable.[3] Energy efficiency is a critical means to meeting a variety of policy goals - from increasing energy security to improving the standard of living of the poor to decreasing the human impact on the environment. Moreover, many

[1] In Europe, Energy Savings Certificates are also referred to as "White Tags." However, because the term "White Tag" is trademarked in the United States, only the term ESC is used in this paper.
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[3] CBS News, "Rewriting the Science: Scientist Says Politicians Edit Global Warming Research," produced by Catherine Herrick and Bill Owens, and aired March 19, 2006.

scientists and policymakers think that the best short-term strategy for making significant and rapid GHG reductions is to launch a massive program in support of energy efficiency.[4] Although energy efficiency has been a top agenda item for energy regulators and policy decision-makers for decades, it has not fully met its promise to deliver the level of reductions that experts believe could be realized.

Unfortunately, GHG cap and trade programs by themselves do not generally stimulate either energy efficiency or renewable energy for several reasons. For example, there is the widely held view that energy efficiency measures are unreliable, unpredictable, and unenforceable. One solution for overcoming some of these problems is to institute strong energy efficiency measurement and verification methodologies along with a credible tracking system that guards against double counting and identifies measures that meet additionality criteria.[5] Energy savings certificates (ESC) may be the necessary tool to make this link. ESCs may be particularly useful to attract investment in hard-to-reach sectors (such as rental buildings, and weatherization in low-income communities) as well as to attract investment in energy efficiency measures with long paybacks that have been slow to enter into the market.

In considering energy savings certificates, there are four primary ways that ESCs might be included as part of a GHG reduction program:

- As a method for verifying compliance with an energy savings target (such as an Energy Efficiency Portfolio Standard (EEPS) program);
- As a trading device (allowing ESCs to be bought, sold or traded) for parties required to meet an energy savings or GHG obligation;
- As a mechanism to demonstrate eligibility for tax incentives, subsidies or carbon offset programs; and

[4] "Energy End-Use Efficiency," Amory Lovins, InterAcademy Council, September 19, 2005. In this white paper presented to the InterAcademy Council (Amsterdam), a consortium of 90 national academies of science, Lovins' summarizes knowledge gained in the past three decades about using energy far more efficiently. Among the surprising insights: "very large energy savings can often cost less than small or no savings." This paper is available online at: http://www.rmi.org/sitepages/pid171.php#EnergyEff.

[5] Additionality is a criterion applied to GHG projects stipulating that project-based GHG reductions may only be quantified if the project or project activity "would not have happened anyway" (i.e., the project would not have happened under business as usual).

- Incorporating all of the above, wherever ESCs can be created and traded within a larger allowance, certificate or project credit trading regime where the ESC benefits are equal to or exceed their incremental costs.

Energy savings targets can be included as part of a GHG cap and trade program or as a supplement to such a program. When used as a supplement, energy savings targets can be part of a separate parallel program (e.g., energy efficiency portfolio standards) as they are in Europe and Australia, or incorporated as a distinct target within a renewable portfolio standard (RPS) as is the case, for example, in Connecticut. Moreover, energy efficiency savings that meet additionality standards and have not been claimed elsewhere could be sold/traded in the voluntary GHG emissions market.

However, because the use of energy savings certificates, especially in Europe, is most closely associated with control strategies requiring compliance with energy efficiency targets or meeting energy efficiency portfolio standards, this paper particularly looks at the ESC and EEPS programs.

Some of the major barriers to utilizing energy savings certificates include the problem of transaction costs. Instituting a rigorous system of energy savings evaluation, measurement and verification (EM&V) introduces additional costs, while at the same time, there are also benefits associated with greater certainty of the energy savings results that give these programs greater credibility. Though reporting and accounting costs can be perceived as a significant issue, one means of reducing them is to piggy-back on the automated computer systems currently in use for electric generation information, such as renewable energy certificate (REC) tracking systems or Generation Information Systems (GIS).[6] Since the incremental cost of adding additional fields to these tracking systems is relatively low, this could help lower accounting and reporting costs.

[6] For example: the New England Generation Information Service (NE/GIS); PJM Generation Attribute Tracking System (PJM GATS): Midwest Renewable Energy Tracking System (M-RETS); Electric Reliability Council of Texas tracking system (ERCOT); and the Western Renewable Energy Generation Information System (WREGIS).

Because of the transaction costs associated with more rigorous EM&V, our investigation finds energy savings certificates might be most beneficially used for:

- Programs that require high levels of credibility such as:
    - Efficiency or GHG reduction targets that include significant penalties for non-compliance;
    - Programs where significant amounts of money are at stake such as, tax credits for capital intensive efficiency measures, carbon credits or GHG taxes;
- National or large regional programs where the use of ESCs for compliance purposes would significantly offset the administrative costs that would otherwise be required;
- Large, market-based programs that focus on the use of a trading scheme as a key compliance tool;
- Efficiency programs where the primary goal is obtaining as much energy savings as possible as rapidly as possible—including market transformation programs where the ultimate goal is to have everyone energy efficient;
- Measures with high initial costs such as new motors, processes and newer process technologies in the commercial and industrial sector, or whole building improvements, such as weatherization for low income ratepayers, or improvements for rental property, where third parties might be enticed into providing investment capital in exchange for the ESCs that might be produced.

A potentially significant negative aspect to ESCs is that they make energy savings a marketable commodity (rather than a public service or public good). As a commodity, the dictates of the market will tend to direct investment towards energy savings measures with the lowest cost, thereby deterring investments in projects that may have greater up-front costs, or longer payback periods, but would achieve potentially greater or broader

energy savings.[7] These issues can be addressed through the careful design of an ESC program somewhat similar to the UK program that is reviewed in the full paper.

Our research and analysis found that the design of an effective energy efficiency program that uses ESCs must have the following elements:

- **Transparent rules and procedures:**
  In developing their rules and procedures, including any subsequent modifications or revisions, each of the ESC schemes that we examined made a concerted effort to make relevant materials available, usually via the Internet, and provided a process for the general public to review and comment. Based on public comments, drafts were reviewed and revised prior to issue. In addition, the results of audits and other program findings were also made available to the public.
- **Little or no proprietary information is withheld from the public:**
  We are not aware of any concerns over the release of proprietary information.
- **A measurement and evaluation system that ensures real, measurable, verifiable, and additional energy savings:**
  All ESC schemes that we reviewed provided a flexible approach for calculating energy savings for groups of measures (e.g., deemed/stipulated savings, or energy monitoring – Italy provides a good example). These approaches are based on international methods that have been tested in the field for over twenty-five years.
- **Independent third-party auditing for verification and compliance**:
  All ESC schemes that we reviewed included a third-party verification system to ensure credibility and accountability. For example, the Independent Pricing and Regulatory Tribunal of New South Wales conducts audits for verification and compliance.
- **A process for issuing and tracking certificates that avoids double counting:**

[7] One example is a home weatherization program for low-income households. Though no one has yet tried using ESCs as a way of attracting financing for these types of challenging applications, the authors believe this could be a very creative and fruitful use of ESCs.

All the ESC schemes that we reviewed included a process for issuing and tracking certificates. For example, the regulators in Great Britain and Italy -- along with the market operator -- are responsible for issuing and tracking the ESCs.

- **A system for detecting and penalizing noncompliance:**
  All ESC schemes that we reviewed incorporated penalties for noncompliance in their programs. For example, France and New South Wales had fixed penalties while the penalties in Italy and Great Britain varied depending on the circumstances.

With these elements in place, we believe that an energy efficiency program using ESCs can efficiently and effectively operate in the voluntary or mandatory market for energy savings, assist with integrated energy resources planning, and be included in a program to reduce GHG emissions.