

Abstract Submission

Title: State Climate Change Policies—Creating New Opportunities for Energy Efficiency

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Topic Area: Market Transformation and Energy Efficiency

Objective: This paper aims to inform the audience of pioneering climate change actions undertaken by states in the US, and discuss how these actions are promoting a more energy efficient market.

Results/Achievements/Concepts:

Several U.S. states are enacting pioneering climate change policies that are creating new opportunities for energy efficiency. Climate change policies focus on reducing greenhouse gas (GHG) emissions. States are employing various tactics to reach their GHG reduction goals including climate registries, emission trading systems, and multi-pollutant legislation. States are searching for solutions to reduce the GHGs, with particular emphasis on energy-related carbon dioxide emissions (which accounted for 81 percent of U.S. emissions in 2000). In their search, states are finding that energy conservation and energy efficiency practices can cost-effectively contribute to their overall climate change goals.

Energy efficiency is attractive from a climate policy standpoint because it tends to be measurable, cost-effective, directly related to the most prevalent GHG (carbon dioxide), and offset the largest source of emissions (fossil fuel combustion). Emissions reduction has always been a subset of the goal for energy efficiency. However, the increased focus on climate change may be an impetus for renewed attention and funding towards energy efficiency practices.

This paper discusses climate registries, the types of registries that exist, which states are enacting registries, and compares of the registries in place today. The paper also describes a variety of other requirements and programs states are implementing to curb carbon dioxide emissions. The paper concludes with thoughts and suggestions on how the

energy efficiency industry can leverage and support such state climate change policies and programs.

Unique and Valuable Qualities:

This paper provides a discussion of increasingly prevalent and important state policies regarding climate change and energy efficiency. It presents an invaluable perspective on how additional state governmental policies can actually benefit energy service companies.

State Climate Change Policies—Creating New Opportunities for Energy Efficiency

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INTRODUCTION

Daily, it seems, states are announcing new initiatives to reduce emissions of gases that contribute to climate change and policies to increase energy efficiency. Despite the obvious linkages between energy efficiency and climate change, these efforts tend to remain on separate, but sometimes parallel tracks. The purpose of this paper is to identify areas where energy service professionals might leverage climate policies to further energy efficiency initiatives.

The remainder of this paper is organized as follows:

- (1) Overview of the pioneering climate change actions undertaken by states.
- (2) Discussion of how climate change actions can be used to promote a more energy efficient market.

STATE CLIMATE CHANGE ACTIONS

Several U.S. states are enacting innovative climate change policies that have the potential to spur increased demand for energy efficiency programs and technologies. Climate change policies focus on reducing greenhouse gas (GHG) emissions and/or GHG emission intensity (*i.e.*, the ratio of GHG emissions to some measure of productivity, most likely gross state product). For a primer on climate change and GHGs, please see Figure 1.

The range of policies being enacted in states is very broad. Where some states are contemplating climate registries, emission trading systems, and multi-pollutant

Figure 1. Climate Change and Greenhouse Gases

The greenhouse effect is responsible for maintaining surface temperatures on earth that are warm enough to sustain life. The Earth absorbs heat energy from the sun, and returns some of this heat to space as terrestrial infrared radiation. Greenhouse gases (GHGs) trap heat in the atmosphere close to the Earth's surface, reradiate it back to Earth, and thereby cause warming.

Naturally occurring GHGs include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), water vapor, and ozone (O₃). In addition, a number of very potent man-made GHGs, including hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆) are created through industrial processes.

Human activities such as the combustion of fossil fuel, the production of certain agricultural commodities, the harvesting of trees, and various industrial processes have contributed to increased concentrations of these gases in the atmosphere. The rise in GHGs in the past century is widely attributed to the combustion of fossil fuels (*i.e.* coal petroleum, and gas).

legislation, others are establishing voluntary programs to address a single source category (e.g., carbon sequestration in agricultural soils). Below, several of the most prevalent climate-related activities underway in states are listed and defined. After each description, the number of states that have implemented or enacted the measure is provided in parentheses.

Carbon Dioxide (CO₂) Offset Rule (Power Plants): This rule requires new power plants to offset a certain percentage of their emissions; this is accomplished through CO₂ mitigation projects or monetary donations. (Three states have enacted CO₂ offset rules.)

Carbon Sequestration Programs: These programs promote activities that increase the amount of carbon sequestered within the state. Sequestration strategies range from no-till agriculture to tree planting to geologic sequestration techniques. (There are currently eight states with agricultural or forestry-based carbon sequestration programs.)

Clean Vehicle Incentives: These incentives offer tax credits and rebates for consumers purchasing low emission or alternative fuel vehicles. (23 states have developed Clean Vehicle Incentives.)

Climate Change Action Plans: Action plans are created by states to identify areas in which GHG emissions can be reduced through public and private sector policies and programs. (27 states have completed Climate Change Action Plans.)

CO₂ Disclosure: A program requiring retail electricity providers to report their fuel mix and emissions. In addition to these reported items, some states are also requiring information on energy efficiency practices. (15 states are requiring CO₂ disclosure.)

Green Power Purchase Goal: A commitment made by state governments to purchase a certain percentage of energy from renewable sources. (Three states have stated their Green Power Purchase Goals.)

Greenhouse Gas Auto Regulations: These policies outline auto emission standards that reduce CO₂ emissions in automobiles. (One state is developing these regulations.)

Greenhouse Gas Inventories: These inventories are performed by the state and identify the major sources of greenhouse gas emissions. This creates a baseline upon which reduction strategies are based. (40 states have completed GHG inventories.)

Greenhouse Gas Registries: A voluntary program created by states to register emitters and track progress on their reduction of greenhouse gas emissions. (Three states have active GHG registries.)

Idling Efficiency Programs: This program encourages drivers to turn off their automobiles when parked and to reduce the amount of time an automobile is idling at stopped locations. (17 states are engaging in idling efficiency programs.)

Mandatory CO₂ Reporting: In this program, facilities emitting over a certain amount of GHGs per year (the amount as determined by the individual state) are mandated to report their emissions. (Three states have are requiring CO₂ reporting.)

PAYD Insurance: “Pay as You Drive” Insurance bases the cost of an insurance policy on the annual mileage driven by the consumer. (Three states have implemented PAYD programs.)

Power Plant CO₂ Cap and Trade: This program limits the total amount of pollution emitted from all power plants, while offering allowances to individual power plants to emit a fixed amount of CO₂. The power plants can choose the methodology for reducing their emissions, and are allowed to “trade” (*i.e.*, buy and sell) emissions to meet their total emissions cap. (Two states have passed legislation for this type of program.)

Renewable Portfolio Standard: This program outlines the percentage of renewable energy will comprise of the state’s total energy consumption. (15 states have established renewable portfolio standards.)

Statewide Greenhouse Gas Target: A goal established by state governments that outlines reductions in GHG emissions by a certain percentage in a given timeframe. (Seven states have established GHG targets.)

System Benefits Charge: This charge is in place for customers of electric and natural gas utilities; the accumulated funds support efficiency, renewable energy projects, and low-income energy programs. (19 states apply this charge.)

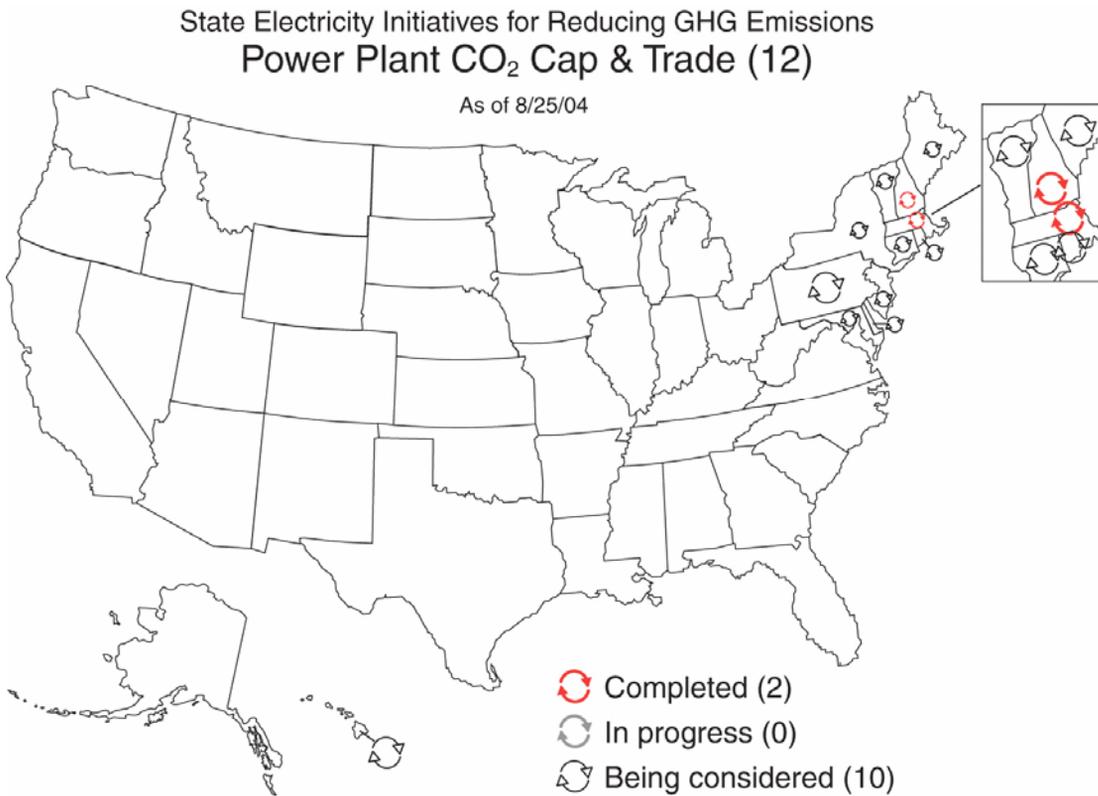
Transportation Planning Provisions: These provisions encourage state transportation departments to consider GHG implications when planning for transportation. (Two states are currently implementing these provisions.)

A couple of the measures included in the list above deserve a more detailed discussion, given their potential importance to the energy sector: power plant CO₂ cap and trade, GHG registries, and state specific activities.

Power Plant CO₂ Cap and Trade Programs

Although only two states, New Hampshire and Massachusetts, have implemented CO₂ cap and trade programs for their power plants, another 10 states are considering doing the same. Cap and trade programs for CO₂ would follow the model used to successfully reduce the emissions that lead to acid rain. Under a cap and trade program, a statewide cap would be established. This cap would reflect the total amount of emissions necessary for the state to meet a specific environmental target. Individual companies could be allocated a certain share of the emissions allowed under the state-wide cap so that the sum of emission permits (also known as allowances) for individual companies would equal the total emissions cap for the state.

A regional cap and trade program based on this premise is under development in the Northeast. Led by New York's Governor Pataki, Governors from Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, Delaware, and New Jersey announced that they will collaborate with New York on a regional strategy to reduce CO₂ emissions from power plants. Maryland and Pennsylvania are currently participating as observers to the process. The group, known as the Northeast Regional Greenhouse Gas Initiative (RGGI) is aiming to agree on a flexible, market-based cap and trade program by April 2005.



GHG Registries

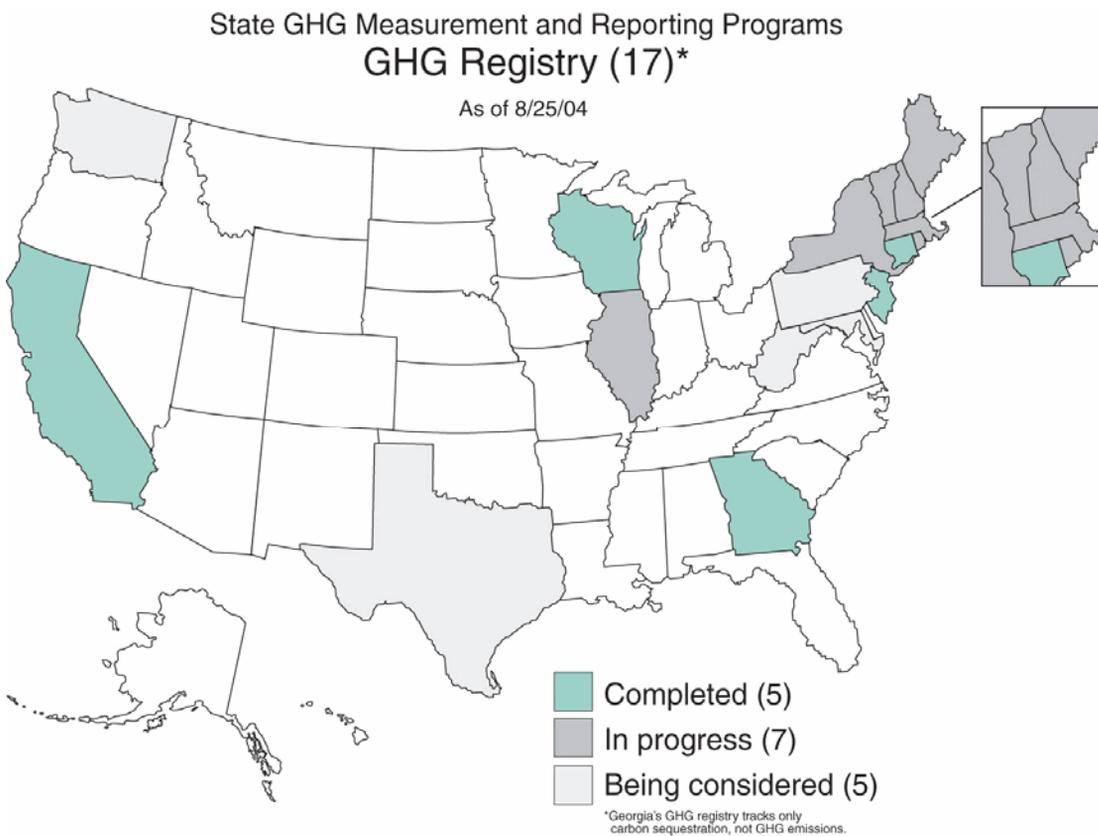
A state GHG registry is an organized system that allows states to track and monitor GHG sources and emissions within their control and immediate jurisdiction. The registry may be completed on either an annual, periodic, or one-time basis, and, according to the state of registry, the reporting process may be voluntary or mandatory.

Registries require data collection, which may occur at the project level (*i.e.*, a single facility) or at the entity level (*i.e.*, an entire corporation), depending on the state and the purpose of the registry. The scope of state registries is also highly variable with some states covering all sources and gases, while others cover a limited set of GHG sources or gases (*e.g.*, CO₂ only). Similarly, some registries include provisions for estimating and

reducing indirect emissions (e.g., emissions associated with upstream energy use) while others are limited to direct emissions from a facility or activity.

Information contained in state registries could be validated by a self-certification, regulatory review, an optional third-party certifier, or a mandatory third-party certifier. The verification requirements for a given registry determine the likelihood that registry data could be used by a company to establish “credit for early action” or tradable emission reduction credits.

Five states, California, Connecticut, Georgia, New Jersey, and Wisconsin have all enacted GHG registries and several more states are following suit. In particular, the New England states and Illinois have climate registries in progress. Specifics on the California Climate Action Registry and the Wisconsin Voluntary Emissions Reductions Registry are provided below as two examples of the types of registries evolving in the states.



California Climate Action Registry

The California Climate Action Registry was established by Senator Byron Sher’s SB1771 and signed into law by then Governor Gray Davis in October 2001. The Registry is a non-profit voluntary registry that became operational in October 2002 and currently has 35 members. Participating businesses, organizations, and cities report direct and indirect

GHG emissions with a base year of 1990 or later. For the first three years of participation, members are required to report CO₂ emissions. After the three year initiation period, members are required to register all Kyoto gases— CO₂, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. These emission results must then be certified by a state-approved verifier.

Wisconsin Voluntary Emissions Reductions Registry

The Wisconsin Voluntary Emission Reduction Registry was created to encourage and acknowledge voluntary emission reduction actions by companies in the state. Companies participating in the registry have committed to reduce their air emissions, and are reaping the benefits of registering their voluntary emission reductions with the Wisconsin Department of Natural Resources. The Wisconsin registry exclusively tallies emission *reductions* and not changes in overall emissions.

New York State's Energy and Transportation Planning Provisions

Some states, including New York and Massachusetts have addressed the linkages between energy and GHG emissions by folding GHG emission reduction targets into existing energy and transportation requirements. The New York State Energy Planning Board has developed a state energy plan targeted at increasing the use of renewable energy and energy efficient practices to offset primary energy use from fossil fuel combustion. The plan also includes targeted goals for the reduction of GHG emissions and has committed to a statewide goal of reducing GHG emissions of 5 percent below 1990 levels by 2010, and 10 percent below 1990 levels by 2020.

New York's NO_x trading program includes an energy efficiency and renewable energy set aside. The set-aside program provides an additional source of revenue or incentive to energy service companies to implement electric end-use energy efficiency and renewable generation projects by allocating 3 percent or about 1,200 tons of New York's ozone-season NO_x allowance budget to eligible projects beginning in 2003. A pilot program under which 115 tons of NO_x allowances are available for end-use efficiency projects has been in place since 1999. Projects are certified as tradeable emission allowances that can be bought and sold on the open market. Certifiable kWh reductions from energy efficiency projects are based on the International Performance Measurement and Verification Protocol (IPMVP), developed jointly by the U.S. Department of Energy (U.S. DOE) and a consortium of public and private organizations for the purpose of establishing the industry standard for measuring and evaluating the outcome of investments in energy efficiency. New York's Energy Efficiency and Renewable Set-Aside program is one of the first of its kind in the nation. To date, the New York State Energy Research and Development Authority (NYSERDA) has applied for 50 tons of NO_x emission credits and has another 68 tons ready for application. It is estimated that ESCOs collectively are eligible for an additional 200 tons of NO_x credits that can be applied for.

In the realm of transportation, New York's State Energy Plan included a requirement that the New York Department of Transportation work with the Metropolitan Planning Organizations to develop estimates of energy and GHG impacts of long-range transportation plans. This innovative approach had not been tried before and has begun to bring the issue of climate change and GHG emissions to the attention of local planners. Because transportation-related emissions account for a significant share of state-wide CO₂ emissions (approximately 40 percent of CO₂ emissions in 2001 are from the transportation sector) in New York State, buy-in from transportation officials at the local level is critical to the goal of reducing overall state energy use and emissions. Massachusetts is following suit with a similar requirement for transportation planning.

LEVERAGING ENERGY AND CLIMATE ACTIONS – A MARKET OPPORTUNITY

Energy efficiency is attractive from a climate policy standpoint because it tends to be measurable, cost-effective, and directly related to the most prevalent GHG, CO₂. Moreover, energy efficiency improvements can help to offset the largest source of GHG emissions (fossil fuel combustion). Reducing GHG emissions has always been a co-benefit of energy efficiency measures. However, the increased focus on climate change by states may increase attention on and funding for energy efficiency programs.

AESP's members belong to a seasoned industry that stands at the cusp of a new era – one where load reduction and cost savings are no longer the primary drivers. Increased state government interest in emission reduction strategies and funding for mitigation projects may open up new funding sources and a growing outlet for successful energy efficiency efforts. As an industry, we need to work together to respond to these new opportunities by providing public and private sector customers with the climate benefits of energy efficiency measures. Folding these climate benefits into existing business case presentations and evaluations will help our industry to harness the momentum surrounding this very important issue. In addition, as an industry, we will demonstrate our commitment to improving our environment and our air quality.

Cap and trade programs, as described earlier, focus on the power generation sector. As power companies struggle to meet their CO₂ emission caps, they may be in the market for credible, measurable emission offsets. The inclusion/exclusion of energy efficiency measures in the suite of available offsets is still up for debate as reductions gained through energy efficiency measures have the potential to “double count” emission reductions power plants are achieving to stay under the cap. The discussions on whether to include energy efficiency measures and renewables as offsets are rapidly evolving and the outcome of these discussions will have important implications for the energy efficiency industry.

This industry is encouraged to learn more about and get involved in the regional discussions about GHG reductions. We have a strong understanding of how to implement, measure, verify, and help policies and programs succeed. This knowledge

base is directly transferable to the climate change discussion and our industry would be remiss not to engage in the current conversation underway.

The energy efficiency industry is not fully integrated with the climate change industry or the renewable energy industry, despite the synergistic possibilities that exist. This same disconnect is seen in the public sector, in state and local governments. In some states, the energy, environmental, and regulatory offices may report to the same governmental director, but there may be little coordination between the three on specific activities. The energy efficiency industry has an audience with all three groups, which presents a unique opportunity to raise awareness about energy efficiency measures and their proven track record of cost-effective emission reductions. Moreover, this industry is poised to demonstrate the full suite of energy efficiency measures that are available to states as they expand their portfolios of climate-related activities.

As an industry, we must also solicit input from ESCOs, both local and large national companies. Their understanding, involvement, and support of GHG reduction strategies is integral to further promoting energy efficiency programs as a solution. ESCOs have built a business around energy efficiency and cost-savings goals – now they can continue to further their businesses by leveraging climate change efforts.

The U.S. Environmental Protection Agency (EPA) offers tools to help program developers convert kWh savings to GHG reductions; however, the measurement and verification of energy efficiency programs as related to GHG reductions is still evolving. This is one of the many areas where energy efficiency experts could expand their scope.

Corporations are voluntarily responding to the issue of climate change by joining programs such as the EPA's Climate Leaders Program, where they track and benchmark their GHG emissions corporate-wide, and then put in place plans to reduce those emissions. Some of these companies are making renewable energy purchases to meet those goals, while others will turn to energy efficiency and new technologies to help them reduce demand. This voluntary market will serve as a new audience for ESCOs, technology developers, and energy efficiency specialists.

These are just a few of the opportunities on the horizon for the energy efficiency industry as climate change measures gain support in the states. The time is ripe for your participation, education, involvement, and support of these GHG reduction initiatives. Incorporation of energy efficiency measures and programs into these state policies will not only improve corporate balance sheets, these measures will also demonstrate the potential for cost-effective, measurable GHG reductions that will improve our air and reduce our impact on the climate.