Trends in America

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CLIMATE CHANGE MITIGATION

Global warming's potential to impact local and regional communities is vast. The impacts could include an increased number and intensity of severe weather events such as hurricanes, flash floods or heat waves; the decreased productivity of crops; or fewer days available to spend on the ski slopes. The impacts could potentially run the gamut from economic to environmental and from health to public safety, affecting water supply, businesses and the health and well-being of citizens.

Due to federal inaction on climate change, the states have taken it upon themselves to confront the matter. They have done so through myriad policies such as renewable electricity standards, joining and/or forming climate initiatives with other states, and promoting the development of green buildings and other energy efficiency measures.

This policy brief provides an overview of the most prevalent strategies for combating climate change. It weighs the pros and cons to provide state policymakers options that best meet the needs of the state and constituents.

The States Respond

Renewable Electricity Standards

Renewable electricity standards (also known as renewable portfolio standards) set a minimum amount of electricity that utilities must provide from renewable energy sources such as wind, solar, geothermal, incremental hydropower and biomass. Renewable electricity standards are usually represented as a percentage of total electricity sold, and so far 23 states and the District of Columbia have enacted renewable electricity standards generally ranging from 10 percent to 20 percent.

Renewable electricity standards can positively impact the climate by reducing the amount of electricity generated from coal, and thus the total amount of emissions generated from the power sector. Ancillary benefits of these standards include reduced reliance on foreign sources of oil and gas (which comprise approximately 20 percent of electricity generation), stability in the supply and cost of electricity, and the creation of high-tech "green" jobs. A recent University of Tennessee study found that an equal amount of electricity generated by new power plants would yield only half the new jobs created compared to increased production through renewables. Further, money that is spent on renewable electricity typically stays in the community.

Downsides to the standards exist, however. Costs for energy may increase slightly, with the Energy Information Agency estimating a rise of approximately 1 percent over a 20 year period in retail electric rates. Another significant challenge to renewable electricity standards is the time it takes to implement them, generally assumed to be five years.

Perhaps the most significant challenge to renewable electricity standards is the state of our nation's energy infrastructure and the funding allotted for its upkeep and enhancement. According to the news source Greenwire, "there is a dearth of transmission lines to move energy from remote wind farms and solar panels to customers in cities and suburbs." Further, spending on transmission by the federal government has decreased by $115 million a year from 1975 to 2000. The siting of the lines has also proved difficult for states to accomplish. In order to increase the use of renewables, transmission challenges will need to be overcome.

Energy Efficiency Resource Standards

Similar to renewable electricity standards, energy efficiency resource standards stipulate that a certain percentage of electricity generated must come in the form of savings from enhancements to a utility's delivery system, generation and end-use. In essence, energy efficiency resource standards require utilities to squeeze more energy out of what is already generated rather than increase generation. In some states, these standards are bundled as part of an overall renewable electricity standard.

Energy efficiency resource standards are immediately available for every state and can come online quickly. These standards

permit states to moderate demand growth in electricity and reduce greenhouse gases while establishing a renewable energy infrastructure. According to Bill Prindle of the American Council for an Energy Efficient Economy, "Since 1970, energy efficiency has met 77 percent of new energy service demands in the U.S, while new energy supplies have contributed only 23 percent of new energy service demands." Thus energy efficiency resource standards have vast potential. They also serve to foster job creation, stabilize electricity prices and provide an opportunity for states that have fewer renewable resources to impact energy use and greenhouse gas emissions.

However, a report prepared for the Edison Electric Institute, which represents investor-owned utilities, cautions that appropriate financial incentives need to be in place when pursuing efficiency. These mechanisms, such as decoupling, should not penalize utilities for producing and selling less electricity.

One measure to offset the cost of implementing energy efficiency resource standards is through the use of public benefit funds, which are small charges to customers' utilities bills that provide funding for these programs. Approximately half the states have public benefit funds for various programs.

Eight states—California, Connecticut, Hawaii, Illinois, Nevada, New Jersey, Pennsylvania and Texas—have energy efficiency resource standards.

Green Buildings

States are also adopting Green Globe or LEED-certified (Leadership in Energy and Environmental Design) standards for public buildings as a way to mitigate climate change and save on energy costs. According to the EPA, buildings in the United States contribute approximately 38 percent of the nation's total carbon dioxide emissions. Thus, buildings represent a significant source from which to reduce emissions.

And green buildings are affordable. A study conducted in Minnesota found that green buildings generally pay for themselves within three years. Even though green buildings often cost 2 percent more to build, a report commissioned for California's Sustainable Building Task Force, a composition of more than 40 state agencies representing myriad interests and responsibilities, "found that the financial benefits of green buildings are 10 times larger than the average additional cost of building them." In addition, numerous reports have cited the improved health and productivity results for students and workers that have accompanied green buildings.

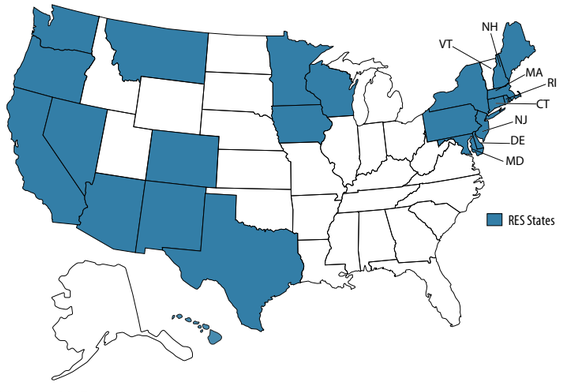
Climate Action Initiatives

Climate initiatives such as the Northeast's Regional Greenhouse Gas Initiative and the Western Regional Climate Action Initiative, involve a coalition of states in combating climate change. These programs seek to reduce greenhouse gases on a regional scale and will attempt to do so through the use of cap-and-trade programs. A cap-and-trade program limits the total amount of greenhouse gas emissions for the entire economy or a sector of the economy, typically from electricity producers or fuel suppliers. Allowances equal to one unit of emissions (1 ton CO_2) are then allocated or auctioned, not to exceed the sector cap limit. Producers that can maximize efficiency and reduce their emissions at low cost (relative to the cost of the allowance) would be able to trade their remaining allowances for a profit to producers that generated more emissions than their allowance. This kind of trading provides companies flexibility in choosing how to meet the program goals, and was very successful in reducing acid rain from sulfur dioxide (SO_2) and nitrogen oxide (NO_x) emissions in the 1990s.

The Regional Greenhouse Gas Initiative is comprised of 10 Northeast and mid-Atlantic states and will utilize a cap-and-trade program initially on power plant emissions. The Western Regional Climate Action Initiative is similar to the Northeast initiative and involves Arizona, California, New Mexico, Oregon, Utah and Washington, as well as the Canadian provinces of British Columbia and Manitoba. The Western initiative's goal is "to reduce greenhouse gas emissions in the West to 15 percent below 2005 levels by 2020."

Since electricity is often imported by one state from another, regional initiatives serve to minimize the impact of leakage that often results when single states attempt to address climate change. Leakage occurs when a state limits greenhouse gases from electricity producers within its borders, but imports electricity from another state, resulting in emissions that are still generated beyond the desired level. By working cooperatively, states can minimize the potential for leakage.

States with Renewable Electricity Standards



Source: FERC Map, June 2007. Accessed from www.ferc.gov/market-oversight/mht-electric/overview/2007/archives/06-2007-elec-ovr-archive.aof

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California's Request to Cover Greenhouse Gases from Motor Vehicles

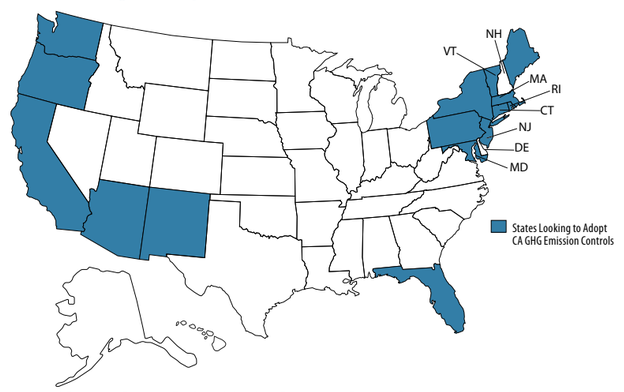
California has requested a waiver from the U.S. Environmental Protection Agency to control greenhouse gas emissions from motor vehicles. California is the only state permitted to request waivers for more stringent air quality controls under the Clean Air Act, though other states are free to adopt California's measures. If California is successful in its waiver request, 14 other states have indicated they will adopt the regulations as well. According to the Congressional Research Service, together with California, these states account for 44 percent of the total U.S. population.

The program—which applies to fleet averages, not individual vehicles—would require model year 2009 vehicles and later to limit emissions to approximately 30 percent below 2002 emission levels by 2016. Since transportation accounts for the second highest percentage of emissions (following electricity generators) and is the fastest growing source of greenhouse gas emissions, these regulations take into account a sizeable portion of U.S. greenhouse gases.

The benefits to requiring the regulations across fleet averages, according to the Congressional Research Service, is that "they provide substantial flexibility, including credit generation from alternative fuel vehicles and averaging, banking and trading of credits within and among manufacturers."

On the downside, automobile manufacturers claim that having different requirements in different states creates an undue burden and makes it difficult to

States looking to adopt CA Greenhouse Gases emission controls



Source: Congressional Research Service. California's Waiver Request to Control Greenhouse Gases Under the Clean Air. Updated August 20, 2007. James E. McCarthy.

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manufacture and sell vehicles. If 14 states adopt California's measures, however, some of these manufacturing concerns could be alleviated.

Conclusion

Renewable electricity standards, energy efficiency measures, climate initiatives and motor vehicle greenhouse gas emission regulations are all steps states have taken to decrease the impact of climate change. The potential for these sources to impact global warming is vast. For example, the Interlaboratory Working Group, a collaborative between five U.S. Department of Energy Laboratories, estimates that a combination of energy efficiency and renewable energy could reduce carbon emissions from electric producers by 46 percent over a 20 year period. Over an even longer period, Alan Nogee, director of the Clean Energy Program for the Union of Concerned Scientists estimates that number could jump between 60 percent and 80 percent. Similarly, according to the Congressional Research Service, if the 15 states that have indicated an intent to regulate motor vehicle emissions do so, reductions in greenhouse gases from tailpipes could total upwards of 200 million tons of carbon dioxide annually.

There is no silver bullet for climate change. Many measures will be utilized to repair the earth's climate. More options exist, including promoting energy efficient products and acquiring hybrid fleets. To quote the U.S. Supreme Court in *Massachusetts v. EPA*: "Agencies, like legislatures, do not generally resolve massive problems in one fell regulatory swoop. … They instead whittle away at them over time, refining their preferred approach as circumstances change and as they develop a more-nuanced understanding of how best to proceed."

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