CLIMATE CHANGE 101
State Action

In the absence of federal leadership to address climate change, many states and regions have begun taking action on their own. States are setting targets for reducing their greenhouse gas emissions, adopting policies to promote renewable energy and energy efficiency, and developing statewide climate action plans. At the regional level, states are coming together to launch emissions trading programs and support clean energy development. While confronting the challenge of climate change requires a national and international response, the states and regions have a valuable role to play in showing what works and in laying the groundwork for broader action.

TAKING THE INITIATIVE

By taking action to address climate change, U.S. states are fulfilling their role in American democracy as "policy laboratories," developing initiatives that serve as models for federal action. But state efforts to reduce greenhouse gas emissions are notable for other reasons as well. Many individual states are major sources of these emissions. Texas, for example, emits more greenhouse gases than France, while California's emissions are comparable to those of Australia. State actions also are important because state governments have decision-making authority over many issues and economic sectors—such as power generation, agriculture and land use—that are critical to addressing climate change.

Why are states taking action on this issue? A top concern for many state decision-makers is the long-term economic well-being of their states. State leaders and their constituents are concerned about the projected toll of climate change on their states. In coastal states, the main worry is the impact of rising sea levels. In agricultural states, it is lost farm productivity. And in the dry Western states, it is the prospect of worsening droughts.

In addition, many states view policies that address climate change not as a burden on commerce but as an economic opportunity. These states are trying to position themselves as leaders in new markets related to climate action: producing and selling alternative fuels, ramping up renewable energy exports, attracting high-tech business, and selling greenhouse gas emission reduction credits.

Economic issues are just one motivator for state policies that address climate change. States also are seeking to improve air quality, lessen traffic congestion, and develop reliable energy supplies. And, in the process of working to address these other concerns, they are adopting policies that protect the climate. States also are discovering that climate policies often bring about benefits in these other areas as well.

Because reducing greenhouse gas emissions can deliver multiple benefits, it has been possible for many states to build broad coalitions around climate-friendly policies. In fact, climate change often has been viewed as a bipartisan issue in the states, with Democratic, Republican, and Independent governors signing climate change legislation, and with lawmakers of all political persuasions supporting state action. Even when governorships have changed hands, state policies on climate change and clean energy have remained in place. In addition to offering models for specific policy solutions, the states offer a model for finding

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common ground on an issue that too often has divided lawmakers at the national level.

WORKING ACROSS STATE BORDERS

In working to address climate change, many states have reached beyond their borders to enlist neighboring states in collaborative efforts. These regional initiatives can be more efficient than actions taken by individual states. Regional efforts cover a broader geographic area (and, in turn, more sources of greenhouse gas emissions), they eliminate duplication of work among the states, and they help businesses by bringing greater uniformity and predictability to state rules and regulations. Across the United States, climate-related regional initiatives have been designed to reduce greenhouse gas emissions, develop clean energy sources and achieve other goals (see Figure 1).

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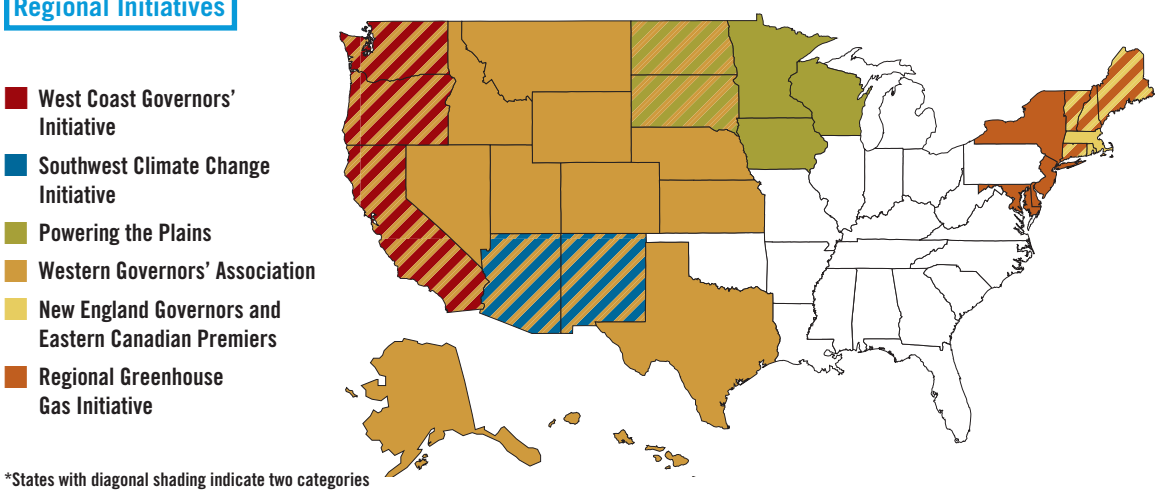
The Northeast Regional Greenhouse Gas Initiative (RGGI). In December 2005, the governors of seven Northeastern and Mid-Atlantic states agreed to a "cap-and-trade" system aimed at reducing carbon dioxide emissions from power plants in the region. Such a system requires emissions reductions while allowing companies to trade emission allowances so they can achieve their reductions as cost-effectively as possible. RGGI offers added flexibility for companies by providing credits for emissions reductions achieved outside the electricity sector. RGGI sets the stage for other states to join the effort or to form their own regional cap-and-trade systems. In addition, the program could be expanded to cover other greenhouse gases and other sectors.

The seven RGGI states—along with Pennsylvania, Massachusetts and Rhode Island—also are developing a greenhouse gas registry, the Eastern Climate Registry, to allow companies and states to register and record their emissions and the reductions they achieve. Reliable registries are important to implementing effective climate change policies. The Lake Michigan Air Directors Consortium (LADCO) is developing a registry for a group of Midwestern states.

Western Governors' Association. The Clean and Diversified Energy Initiative launched by the Western Governors' Association (WGA) has developed and recommended a set of strategies to increase energy efficiency, expand the use of renewable energy sources in the region, and incentivize

Figure 1

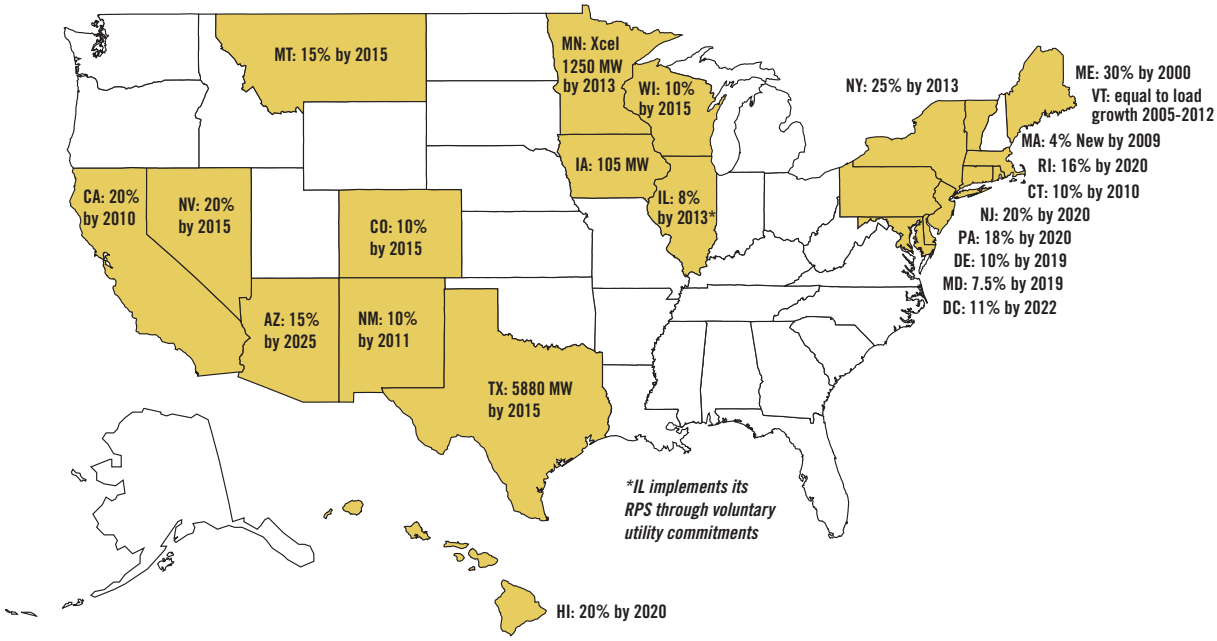
Regional Initiatives



*States with diagonal shading indicate two categories

Figure 2

Renewable Portfolio Standards



carbon capture and sequestration. Additionally, the WGA and the California Energy Commission are creating the Western Renewable Energy Generation Information System (WREGIS). This voluntary system is designed to provide data about renewable energy generation across 11 western states in order to support trading in renewable energy credits, as well as other state and regional policies aimed at expanding the use of renewable power.

Southwest Climate Change Initiative. The governors of Arizona and New Mexico signed an agreement in February 2006 to create the Southwest Climate Change Initiative. Under the agreement, the two states will collaborate to reduce greenhouse gas emissions and address the impacts of climate change in the Southwest.

West Coast Governors' Global Warming Initiative. The West Coast states—Washington, Oregon and California—are cooperating on their own strategy to reduce emissions. Among the governors' plans: adopting comprehensive state and regional goals for reducing emissions; and expanding markets for renewable energy, energy efficiency, and alternative fuels.

New England Governors and Eastern Canadian Premiers. In 2001, six New England states agreed to the New England Governors and Eastern Canadian Premiers (NEG-ECP) climate action plan, which includes short- and long-term goals for reducing greenhouse gas emissions in the region.

Powering the Plains. Launched in 2002, Powering the Plains is a regional effort involving participants from the Dakotas, Minnesota, Iowa, Wisconsin and the Canadian Province of Manitoba. This initiative aims to develop strategies, policies and demonstration projects for alternative energy sources including coal gasification, hydrogen, and biomass.

PROMOTING LOW-CARBON ELECTRICITY

States have considerable authority over how electricity is generated in the United States. With the generation of electricity accounting for 30 percent of all U.S. greenhouse gas emissions (and 38 percent of carbon dioxide emissions), states can therefore play a crucial role in reducing the power sector's climate impacts and promoting low-carbon energy solutions. State actions to promote low-carbon electricity include incentives and mandates for renewable

energy and energy efficiency, as well as limits on power plant greenhouse gas emissions.

Renewable Portfolio Standards. Twenty-two states and the District of Columbia have mandated that electric utilities in their borders generate a specified amount of their electricity from renewable sources (see Figure 2). Most of these requirements take the form of "renewable portfolio standards," which require a certain percentage or amount of a utility's power plant capacity or generation to come from renewable sources by a given date. The standards range from modest to ambitious, and what qualifies as "renewable energy" can vary from state to state. While the use of renewable energy does deliver significant reductions in greenhouse gas emissions, climate change is not the primary motivation behind many of these actions. Other motivations include job creation in the renewables industry, energy security and improved air quality.[1]

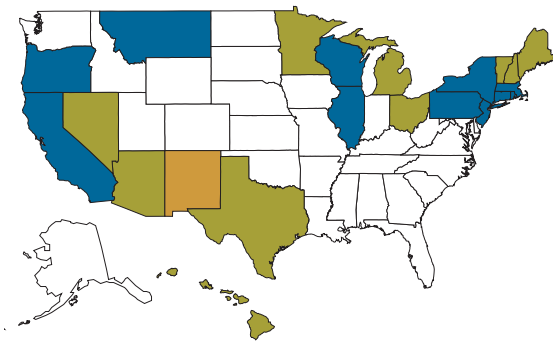
Public Benefit Funds. Almost half of U.S. states have funds, often called "public benefit funds," that are dedicated to supporting energy efficiency and renewable energy projects (see Figure 3). The resources for these funds are collected either through a small charge on the bill of every electric customer or through specified contributions from utilities. Having a steady stream of funding ensures that money is available to fund these projects. To date, 14 states with publicly managed clean energy funds have formed the Clean Energy States Alliance to coordinate public benefit fund investments in renewable energy.

Net Metering and Green Pricing. Forty-one U.S. states have at least one utility that permits customers to sell electricity back to the grid; this is referred to as "net metering." Eighteen of these states offer net metering on a statewide basis (see Figure 4). In addition, 36 states have utilities that offer green pricing, allowing customers the option of paying a premium on their electric bills to have a portion of their power provided from designated renewable sources. Five of these states—Washington, New Mexico, Montana, Minnesota and Iowa—have made green pricing options mandatory for electricity generators.

Limits on Power Plant Emissions. Both Washington and Oregon require that new power plants offset a certain portion of their anticipated carbon-dioxide emissions—for example, by reducing emissions on their own, or by paying a specified fee to a designated organization that will then select and fund offset projects. Massachusetts and New Hampshire have gone even further by requiring carbon-dioxide emissions reductions from existing power plants. The California Public Utilities Commission is developing a cap on greenhouse gas

Figure 3

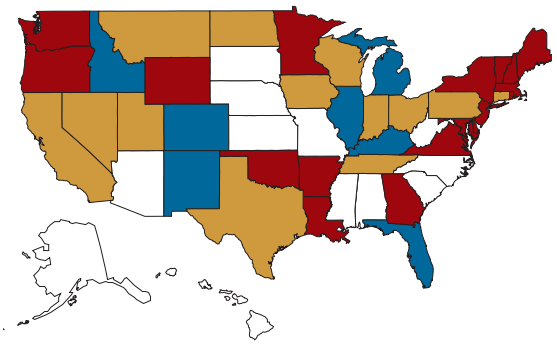
Public Benefit Funds



- Funds that Support Energy Efficiency and Renewable Energy
- Funds that Support Energy Efficiency
- Funds in Development

Figure 4

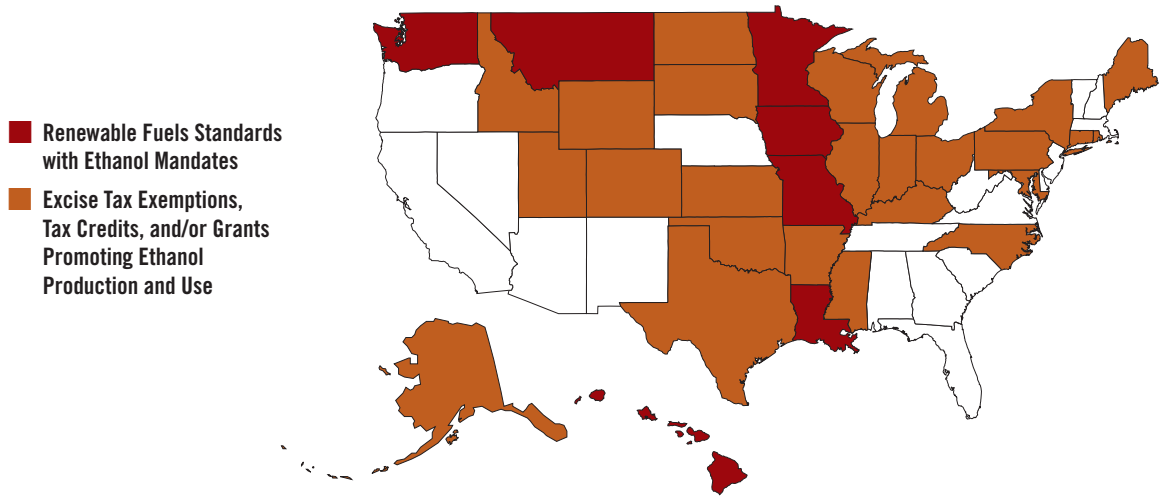
Net Metering



- Statewide Net Metering
- Net Metering Offered by One or More Individual Utilities
- Statewide Net Metering Rules Only for Certain Utility Types (e.g. IOUs only)

Figure 5

Mandates and Incentives Promoting Ethanol



emissions from electricity retailers, which would cover both in-state and out-of-state generation.

Efficiency Standards. The federal government has established minimum efficiency standards for approximately 20 kinds of residential and commercial products, including washers and dryers, refrigerators and freezers, dishwashers, and air conditioners. Numerous states—including Arizona, New York, Rhode Island, Washington, Maryland, Connecticut, California and New Jersey—have set standards on products not covered by federal standards.

STATE TRANSPORTATION POLICIES

Transportation accounts for 28 percent of all greenhouse gas emissions in the United States, and 33 percent of carbon dioxide emissions. State options for reducing these emissions range from adopting more stringent emission standards for cars and trucks to offering incentives for alternative fuels and fuel-efficient vehicles.

New Vehicle Standards. California has adopted a requirement to reduce greenhouse gas emissions from new light-duty vehicles; this requirement is pending a legal challenge from the automobile industry. If it is upheld by the courts, the California standard will reduce new vehicle fleet emissions 30 percent by 2016. The potential for reductions is even higher if other states adopt California's standards. California has unique authority among the states to set vehicle emissions standards, because of a special provision in the federal Clean Air Act. Other states have the option of either following federal standards or adopting California's. To date, 11 states have announced that they will follow California's greenhouse gas emission standards: Arizona, New York, Maine, New Jersey, Vermont, Massachusetts, Oregon, Washington, Rhode Island, Connecticut and Pennsylvania.

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Incentives for Climate-Friendly Fuels and Vehicles. More than half of U.S. states provide incentives for alternative fuels, gasoline/ethanol blends, alternative-fuel vehicles, and low-emission vehicles; there are also state incentives for converting traditional vehicles to run on alternative fuels. In addition to these incentives, seven states have established Renewable Fuels Standards (see Figure 5). These are requirements that

gasoline sold in the state must contain a certain percentage of renewable fuel, such as ethanol or biodiesel. Some states also have policies requiring that a certain percentage of state-owned vehicles run on alternative fuels, such as ethanol or natural gas, or that the state fleet meet a specified fuel-efficiency standard. And 23 states provide incentives promoting ethanol production and use. These incentives include excise tax exemptions, tax credits, and grants promoting the production and use of ethanol.

AGRICULTURAL POLICIES

Agriculture contributes approximately 8 percent of total U.S. greenhouse gas emissions, primarily nitrous oxide and methane from livestock, agricultural soils, and the use of fertilizers. In addition to reducing these emissions, farmers can store carbon in plants and soils and substitute biofuels for fossil fuels to "offset" emissions from other sectors of the economy.

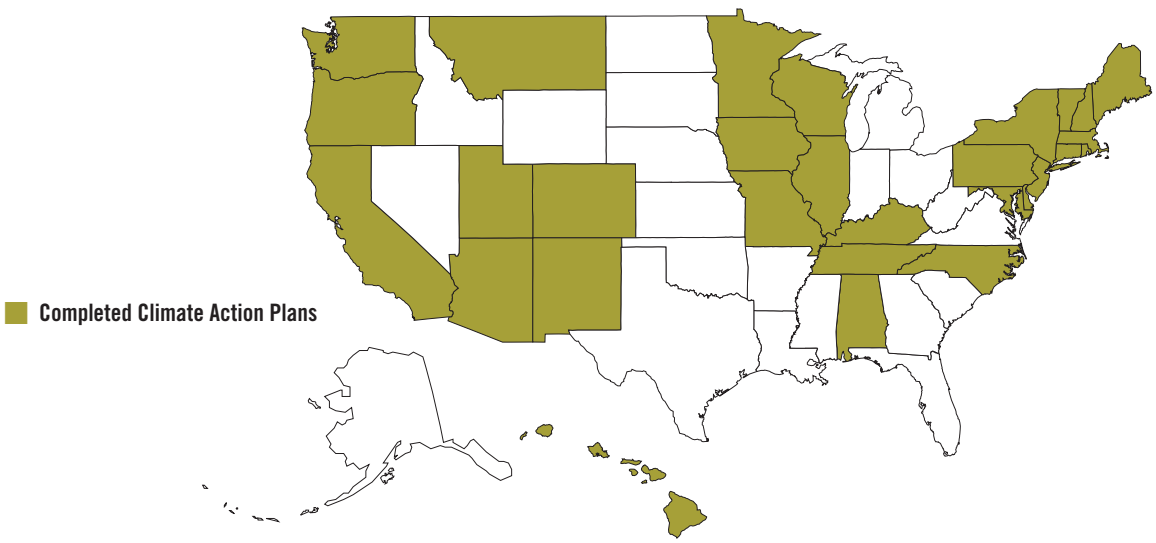
Supporting Biomass as a Climate Solution. The use of renewable "biomass" resources—including crops and animal wastes—as a low-carbon energy source offers an opportunity for the agricultural sector to address climate change in a profitable way. Among the states that are taking action to develop and promote biomass solutions is Iowa, which has launched pilot programs to improve the production of switchgrass as a fuel source alongside coal in electric power plants.

While some U.S. states are delivering real reductions in their greenhouse gas emissions, only in a few cases do their reduction targets reflect what will be needed on a global scale.

Promoting Climate-Friendly Farming Practices. Agriculture also can help protect the climate through soil conservation techniques that increase the amount of carbon stored in the soil, while at the same time improving soil quality. Compared to conventional tilling techniques, soil conservation techniques such as "no-till farming" reduce fuel use while saving time and money. Nebraska, Oklahoma, Wyoming, North Dakota and Illinois have formed advisory committees to investigate the potential for agriculture in their states to play a role in storing, or sequestering, carbon so that it cannot enter the atmosphere and contribute to climate change.

Figure 6

Climate Action Plans



EMISSION TARGETS AND CLIMATE ACTION PLANS

To date, 28 U.S. states have adopted climate action plans detailing the steps their states can take to reduce their contributions to climate change (see Figure 6). In addition, 12 states have statewide emission targets (see Figure 7). Comprehensive climate action plans, combined with enforceable targets aimed at limiting a state's emissions, provide the highest certainty of achieving significant reductions at the state level.

Emission Targets. California and New Mexico are among the states that have adopted proactive and far-reaching targets to reduce their emissions:

- In a 2005 executive order, California Governor Arnold Schwarzenegger committed his state to greenhouse gas reduction targets equivalent to reaching 2000 emissions levels by 2010 and 1990 levels by 2020; by 2050, emissions would be 80 percent below current levels. In 2006, the California legislature made the 2020 target enforceable under state law.
- An executive order signed in 2005 by Governor Bill Richardson of New Mexico commits that state to reduce emissions to 2000 levels by 2012, 10 percent below 2000 levels by 2020, and 75 percent below 2000 levels by 2050. New Mexico is the first major coal, oil and gas-producing state to set targets for cutting its emissions.

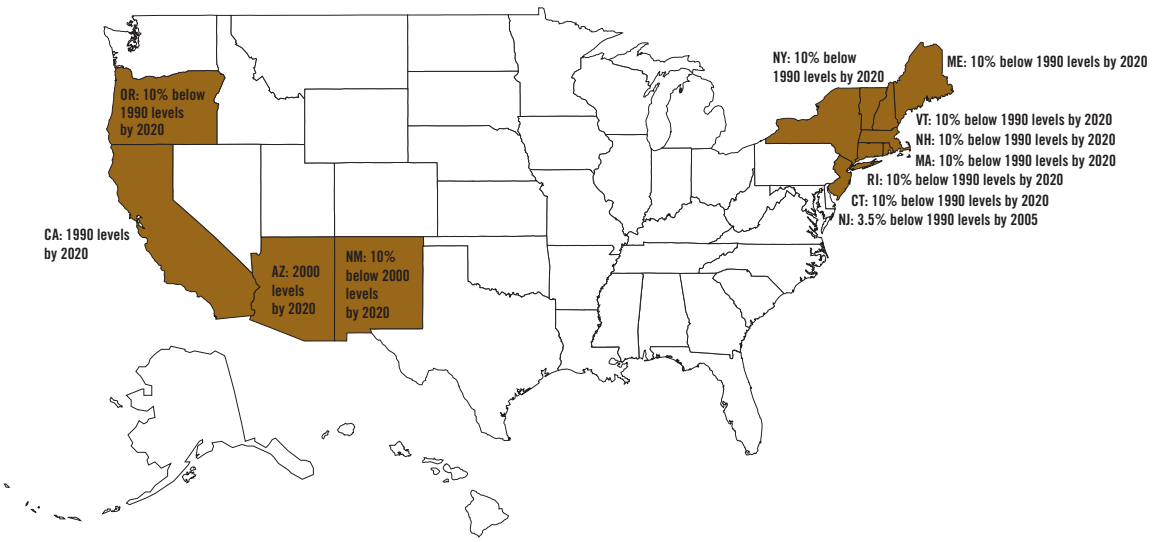
For both states, these targets supplement existing climate-friendly policies, including renewable portfolio standards, renewable energy tax credits, and energy efficiency goals.

Climate Action Plans. The process of developing a climate action plan can help state decision-makers identify cost-effective opportunities to reduce greenhouse gas emissions in ways that are most appropriate for their states. Every state is different, with different economic drivers, different resources and different political structures. As a result, state efforts to address climate change will vary. However, any state adopting a comprehensive climate action plan is going to need to incorporate strong incentives to make it happen.

Among the states that are developing climate action plans is North Carolina. The state's Legislative Commission on Global Climate Change was created to address the threats posed to North Carolina by global warming, determine the costs and benefits of various strategies for addressing the problem, and assess the potential economic opportunities for North Carolina in emerging carbon markets. Many other states are initiating or revising climate plans, including

Figure 7

State GHG Emission Targets



Alaska, Arizona, Florida, Montana, New Mexico, Pennsylvania, and Utah.

LEARNING FROM THE STATES

While most state climate change efforts are relatively new, some lessons already are emerging for future state, regional and federal actions. Although garnering support for mandatory goals is sometimes difficult, these policies are generally more effective at achieving significant reductions than voluntary measures. It is clear from the states' experience to date (together with the emergence of several cross-state climate initiatives) that emissions inventories, cap-and-trade and other efforts should be designed so they can easily be expanded or integrated into other programs—for example, at the regional and national levels. States need to ensure that their early actions are taken into account in the design of regional and federal programs. In fact, those states that are considering their options for dealing effectively with climate change may consider beginning or joining a regional initiative from the start. Among the benefits: more efficient reductions in emissions; and a reduction in the regulatory patchwork so businesses can more easily adapt to new policies.

Among the lessons from the states is that they have limited resources to devote to the climate issue, and their strict budget requirements can put long-term climate policies in jeopardy. Moreover, states lack certain powers that would be crucial to a comprehensive climate change policy, such as the authority to enter into international agreements. The patchwork quilt that can result when states take individual approaches to the climate issue can be inefficient and pose challenges for business. Comprehensive federal legislation would provide consistency and certainty for businesses.

While some U.S. states are delivering real reductions in their greenhouse gas emissions, only in a few cases do their reduction targets reflect what will be needed on a global scale. Ultimately, climate change is a global problem that will demand global action, including national action in the United States. The actions undertaken by states to reduce their emissions are an important first step on the path to solutions. In the end, the most important contribution of the states may turn out to be the lessons they are learning about what works—and what does not—to reduce humanity's impact on the global climate.

Pew Center on Global Climate Change

The Pew Center on Global Climate Change tracks and analyzes state climate action. News, reports, maps, tables, and a database of state action are available at www.pewclimate.org.

ENDNOTE

1. Rabe, B. 2006. *Race to the Top: The Expanding Role of U.S. State Renewable Portfolio Standards*. Pew Center on Global Climate Change, Arlington, VA.

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The Pew Center on Global Climate Change is a non-profit, nonpartisan, independent organization dedicated to providing credible information, straight answers, and innovative solutions in the effort to address global climate change.

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