



Discussion Paper

Climate Change Policies at the U.S. Subnational Level – Evidence and Implications

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January 2006

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1 Introduction

In February 2005, the Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC) came into force after Russia finally ratified it. However, the U.S., at a federal level at least, decided not to participate – that is ratify the Kyoto Protocol – and refuses anything that imposes mandatory controls on domestic greenhouse gas emissions. This attitude again dominated the negotiations at the international climate conference in Montreal at the end of 2005 (COP 11 and COP/MOP 1 – further referred to as COP/MOP in this document). All the U.S. would agree to for long-term cooperative action was a “dialogue” under the UNFCCC.¹

While the Bush administration demonstrated a stronger willingness to cooperate internationally at the G-8 summit in Gleneagles, initiatives so far have by and large been limited to bilateral and regional partnerships to combat climate change through technological innovation. This also appears to be the focus of the “Asian Pacific partnership on clean development and climate change” which launched its first meeting in Sydney, Australia, on 12 January 2006.²

At the national level too, the federal efforts focus on technology as reflected inter alia in the “U.S. Climate Change Technology Program” (CCTP)³. Significant efforts have been put into research and development as well as into related initiatives such as the national network of public-private sector partnerships, which was launched in 2002 and aims at determining “the most suitable technologies, regulations, and infrastructure needs for carbon capture, storage and sequestration in different areas of the country”⁴. It is due to this, that the U.S. claims to coordinate “the world’s most extensive research effort on climate change”⁵.

It becomes apparent, that in international relations as well as at the national level, the U.S. government is focussing on technology transfer and especially on

* Special thanks to the American Institute for Contemporary German Studies (www.aicgs.org) for financing and contributing to Markus Knigge’s two months research stay in Washington, during which the main parts of this paper were written. The authors are also thankful for comments to Ernst Ulrich von Weizsäcker, Lee Lane, Oran Young and R. Andreas Kraemer. In addition we thank Aaron Best, Bosch Transatlantic Fellow with Ecologic in 2005, for his support and help.

¹ Decision -/CP.11 Dialogue on long-term cooperative action to address climate change by enhancing implementation of the Convention, www.unfccc.int/files/meetings/cop_11/application/pdf/cop11_00_dialogue_on_long-term_coop_action.pdf.

² Environment Daily 2017, 16/01/06; see also: www.deh.gov.au/minister/env/2005/mr28jul205.html; for more links and information on international efforts of the U.S. government: U.S. Department of Energy, <http://www.climatechange.gov/vision2005/app4.htm>.

³ CCTP, <http://www.climatechange.gov/index.htm>.

⁴ U.S. Department of Energy, <http://www.fe.doe.gov/programs/sequestration/partnerships>.

⁵ U.S. Environmental Protection Agency, www.yosemite.epa.gov/oar/globalwarming.nsf/content/actions.html.

Research and Development. Approaches towards mandatory measures such as obligatory greenhouse gases (GHG) emission reductions though are met with diffidence, to say the least. It is argued that mandatory targets are inflexible and burdensome, and voluntary arrangements between governments and business or between governments can serve the purpose adequately.

At the COP/MOP in Montreal, Bill Clinton – in the Washington Post referred to “as a sort of ersatz head of state”⁶ – called for a more progressive U.S. climate protection policy and branded the governments fear that reducing GHG emissions would damage the U.S. economy as “flat wrong”⁷. Interestingly, at the conference mayors and governors from all over the United States of America displayed their willingness to take far reaching steps for climate protection. An examination of the policies on the subnational level over the last few years, indicates that within states, regions, or local entities there is a growing willingness to embark on more progressive climate change policies. While there is no question that global environmental issues deserve global responses and should thus be addressed by international regimes supported by national governments, many far-reaching and politically interesting efforts in the U.S. are now coming from states and local communities.

Given the fact that up until now, the U.S. has been the world’s largest emitter of GHG⁸, most interested parties agree that the GHG reduction needed for a successful climate protection regime requires the U.S. to participate. This is all the more important as countries, which are not in the group of industrialized / Annex I countries according to the Kyoto Protocol will be difficult to convince to agree to mandatory emission caps if the U.S. refuses to agree to such a policy. Even though countries like China and India support the Kyoto Regime – which is easy for them to do so long as they do not have binding caps - it is not yet known, what they will agree to under a further developed Kyoto Protocol after 2012. It will also be difficult for those industrialized countries which have agreed to binding targets under the Protocol to sell the drastic emission reduction needed for a sound climate protection policy to their industries if main polluters refuse to share the burden. Thus, the U.S. will continue to play an important role in the international climate negotiations in the years to come despite the fact that there is no prospect that the Bush administration will agree to binding targets.

Given the importance of U.S. involvement for a successful global approach to climate protection and given the historic role of the American states for leading the way for many policy and legislation changes at the federal level, there is a great interest in climate policy initiatives at subnational level, which comprise command

⁶ Washington Post, <http://www.washingtonpost.com/wp-dyn/content/article/2005/12/13/AR2005121301501.html>.

⁷ CNN, www.cnn.com/2005/WORLD/americas/12/09/climate.clinton.ap.

⁸ U.S. Environmental Protection Agency, www.yosemite.epa.gov/oar/globalwarming.nsf/content/emissionsindividual.html; Note: The declining trend is especially due to growing emissions of countries like China and India, while absolute emissions in the USA have been rising over the last few years.

and control or even quantity based policy instruments. However, so far there has been no comprehensive overview describing the different initiatives, indicating in which parts of the U.S. these policies, programs and political commitments take place and summarizing the main arguments why these initiatives might or might not act as a spark for national legislation.⁹ This discussion paper seeks to fill this gap. The first part of the paper gives a brief overview about important ongoing climate change initiatives on the state, regional and local level. As far as possible, maps are included to demonstrate where these activities are taking place. It should be noted though that this paper provides a broad though not exhaustive overview.

In the second part, the potential of subnational initiatives to pressurize and shape federal climate change policy is discussed. Factors which increase pressure on the national government, as well as impediments for subnational initiatives are laid out. Finally, conclusions are drawn about the prospects for the future of U.S. climate change policy. In doing so, the paper does not evaluate the policies' usefulness in mitigating climate change or their cost effectiveness. The search for the best policy measure in the fight against climate change should be based on a more detailed analysis, which might build on this study. But without judging this paper will draw attention to the political powers at subnational level which might be driving future climate protection policies at the federal level.

⁹ Most efforts, such as Rabe (2004) or the website from the Pew Center for Climate Change, do rather focus on one of these aspects; nevertheless, the Pew Center for Climate Change did work out important maps reflecting many of the states activities and thus has prepared the ground for this paper.

2 Distribution of Power – Federalism in the U.S.

To understand U.S. environmental policymaking at the subnational level, it is important to first understand the distribution of legal powers among the U.S. federal government and the fifty states. The distribution of power seen today is determined by the U.S. Constitution and judicial decisions based on constitutional law. The way power is distributed between the federal and state level however, is mutable with the power granted to the states being expanded or contracted over time and policies on the federal and state level influencing each other. In environmental matters it seems that the federal government has expanded its authority vis-à-vis the states. Moreover, the national and international character of environmental challenges such as climate change limits the ability (and in many ways, the authority) of state and local governments to address these issues in an exhaustive manner.

Nevertheless, state and local governments still retain a significant ability to address environmental issues independent of the federal government. In fact, a key benefit of federalism is the way it allows and encourages state and local policy innovations to flourish, often with the end result that the best policies are eventually adopted on the federal level. This section describes the nature of federalism in the U.S. and its implications for climate change policy on the subnational level before the initiatives and policies at subnational level are presented in more detail in the next section.

2.1 Distribution of Power

The distribution of power within the federal system is threefold:

Powers reserved to the federal government: The U.S. Constitution enumerates those powers that belong to the federal government. For example, Article 1 of the Constitution states that only the federal government can enter into treaties with other nations.¹⁰ This has clear implications for climate policy, as no U.S. state can sign up to an international climate treaty. Certainly states can pass laws committing themselves to meet the provisions of a particular treaty, but such laws are not binding under international law.

Powers reserved to the states: Article 4 of the Constitution explicitly deals with states' powers vis-à-vis the federal government and each other. The Tenth Amendment to the Constitution reserves to the States or to the people all powers not specifically granted to the federal government by the Constitution.¹¹ States are

¹⁰ Treaty-making powers are specified under Article 1 Paragraph 10 of the U.S. Constitution, which states that “no State shall enter into any Treaty, Alliance, or Confederation.”

¹¹ The Tenth Amendment to the United States Constitution states that „the powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people.“

thus truly independent of federal authority in many of their lawmaking powers. Even transboundary issues involving more than one state can be resolved through state-level policymaking, with the affected states entering into bilateral or multilateral agreements. For example, several northeastern and mid-Atlantic states are developing a regional strategy for controlling emissions of greenhouse gases through an emissions trading system.¹²

Local governments: Under the Tenth Amendment, states are empowered to establish local forms of government. Such local governments most often take the form of counties and incorporated cities. The local governments' law-making abilities are determined by the state in which they are found. Other forms of local and regional government, such as regional planning agencies, can also be established in accordance with state laws.

2.2 Judicial means of defining the distribution of powers

It is not always clear where state powers end and federal powers begin – and it should be noted that this can be subject to change. Disputes over the distribution of powers are determined by the judicial system with the U.S. Supreme Court having the final decision over such questions of constitutional law. The division of federal and state power under federalism has shifted over time as a result of court decisions and this division continues to be redefined as legal challenges are brought before the courts. Though several clauses in the Constitution have been the basis of legal challenges regarding environmental law, the Commerce Clause (Article 1, Section 8, Clause 3 of the Constitution) is arguably the most important one for climate change policy. Furthermore, the Treaty Clause, and the Takings Clause¹³ have been the subject of significant court decisions in environmental cases.

The Commerce Clause empowers Congress „to regulate Commerce with foreign Nations, and among the several States, and with the Indian Tribes" and has been used by Congress to justify a broad range of federal regulatory activities. The clause has been one of the pivotal clauses in the Constitution in determining the modern balance of power between the federal and state levels of government. The Commerce Clause also forms the legal underpinnings of the federal government's power to pass environmental regulations binding on the states. In legal challenges

¹² Regional Greenhouse Gas Initiative, <http://www.rggi.org>.

¹³ Takings Clause (Fifth Amendment): "No person shall...be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation." This clause has been used in lawsuits over environmental regulations that put restrictions on private property that reduce its value (e.g., zoning restrictions, protection of natural habitat).

to environmental policy — be they challenges to state or federal laws — the core elements of judicial decisions often relies on interpretations of this clause.¹⁴

2.3 Non-judicial means of defining the division of powers

Both the federal and state levels of governments use political means to extend their domains into areas that are constitutionally reserved to the other level of government. The federal government uses the promise of federal funding to encourage states to adopt federal guidelines and states use their political clout in Congress to retain some measure of autonomy in local rule making.

Expanded federal powers—the power of federal funding: The federal government often uses its spending authority, the so-called “power of the purse”, to provide incentives to the states to conform to federal guidelines in areas where the Constitution grants no federal authority over the states. For example, in an effort to conserve energy during the oil crisis of the 1970s, Congress imposed a nationwide speed limit by threatening to withhold federal highway funds from any state that did not adopt a 55 mile-per-hour speed limit.

Expanded state powers—winning state exemptions under federal law: Even in areas where federal authority is well established, states may still have some autonomy, if that autonomy is specifically granted by federal statute. Such is the case with the Clean Air Act of 1990, which specifically grants to the state of California the ability to set clean air regulations that are more stringent than their federal counterparts. The ability of a state to reserve such special treatment under federal statute is a question of political influence in Congress and not based on state rights granted under constitutional law.

2.4 Implications of federalism for climate policy

The Constitution clearly prohibits states from entering into international treaties, and the expanding scope of federal control over environmental policy limits states autonomy to act on issues such as climate policy. More specifically, state and local governments cannot establish policies that usurp federal powers established under the Commerce Clause. Due to the fact that climate change is inherently international and involves considerable economic costs, the power of states and local governments is somewhat limited.

However, as will be shown in this report, state and local governments have still managed to find innovative ways to address the challenge of climate change without overreaching their constitutional powers.

¹⁴ A concise summary of the application of the Commerce Clause to environmental laws is available online at Roger Beers Environmental Litigation Files at: <http://www.rbeerslaw.com/commerce.html>.

3 Climate Change Policies at Subnational Level

As the world's third-largest country after Russia and Canada¹⁵ and the third most populated country after China and India¹⁶, the United States comprises a considerable variety of geographical, social and economic settings. The fifty U.S. states may therefore take advantage of the political freedom granted to them by the constitution to adopt policies and legislation according to their particular needs and priorities.

This observation also applies to the environmental or, more specifically, the climate protection area. Indeed, activities on the state, regional and local level indicate considerable potential within the American political framework to develop a wide range of policies that respond to the challenge of climate change. These including measures which are currently rejected on the federal level, e.g. mandatory GHG emission caps. Perhaps most surprisingly, a variety of policies and measures that have long proven controversial at the federal level – such as renewable portfolio standards, greenhouse gas (GHG) emission targets, and mandatory reporting of GHG emissions¹⁷ – have been implemented at the state level, often with very little dissent. In fact, until the 2002 legislation that set California on path to establish CO₂ emissions standards for vehicles, the state experience in developing climate change initiatives has generally been bipartisan and consensual.¹⁸ This has reflected a process of enacting policies tailored to the political, social and economic realities of the states particular setting, thus avoiding conflicts and resistance by major stakeholders.¹⁹

The following text and maps provide an outline of some of the most important climate change initiatives on the subnational level. The majority of the maps were drawn from the website of the Pew Center on Global Climate Change²⁰.

1.1 Greenhouse Gas Inventories

Greenhouse gas inventories assemble data on all major activities generating GHG emissions. As the data is required to establish an emissions baseline and to reveal trends across economic sectors within a state or nation, GHG inventories are often seen as a necessary first step for states in developing a meaningful plan to address global climate change. To comply with existing commitments under Art. 12.1 a and Art. 4.1 of the United Nations Framework Convention on Climate

¹⁵ Aneki.com, <http://www.aneki.com/largest.html>.

¹⁶ Aneki.com, <http://www.aneki.com/populated.html>.

¹⁷ See e.g. Oberthür and Ott (2003).

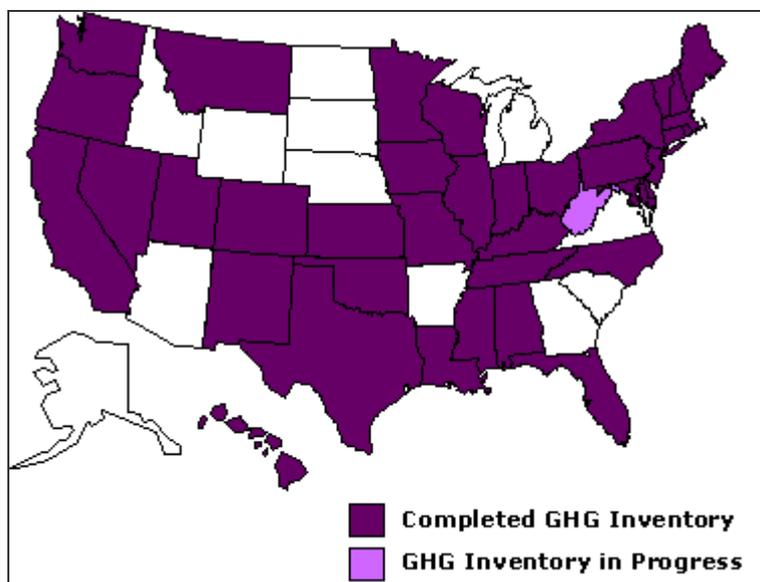
¹⁸ Rabe (2004), p. 129.

¹⁹ Walls (1993), p. 105.

²⁰ www.pewclimate.org.

Change (UNFCCC), the Environmental Protection Agency (EPA) prepared the official U.S. Inventory of Greenhouse Gas Emissions and Sinks.²¹

Map 1: States with Greenhouse Gas Inventories²²



Taking stock of the existing knowledge of GHG emissions and sinks, most states have complemented the national inventory with their own more specific and detailed inventories. However, these inventories only provide accumulated data and do not entail information about emissions on a plant level.

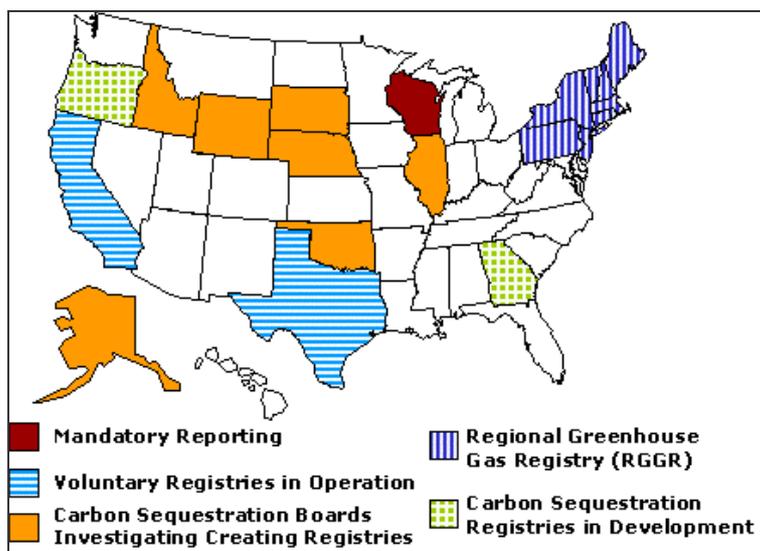
1.2 Climate Change Action Plans

Building on inventories, climate action plans help states to identify and evaluate feasible and effective policies to reduce their GHG emissions through a combination of public and private sector policies and programs. They lay down detailed steps that could be taken to reduce a states contribution to climate change. Each U.S. State has its own particular economic and social setting. This provides the U.S. states with different opportunities for dealing with climate change. As a result, climate action plans have included a number of different greenhouse gas mitigation policy options ranging from energy-efficient mortgage programs to renewable energy portfolio standards to afforestation.²³

²¹ Environment Protection Agency (2005).

²² As of July 2005. Map from the Pew Center on Global Climate Change. http://www.pewclimate.org/what_s_being_done/in_the_states/inventories_map.cfm.

²³ State's climate action plans are online available at: U.S. EPA, <http://yosemite.epa.gov/oar/globalwarming.nsf/content/ActionsStateActionplans.html>.

Map 3: States with GHG Reporting & Registries²⁸

So far only Wisconsin has set up a comprehensive mandatory reporting system. Since 1993 entities that emit 100,000 or more tons of CO₂ must report their emissions to the state Department of Natural Resources.²⁹ However, New Jersey also requires all entities that report other air emissions to the state Department of Environmental Protection to report CO₂ and CH₄ emissions as well.

A number of States in New England are cooperating to develop a voluntary GHG emission registry for the Northeast, including carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. This registry will initially provide general guidance for measuring and reporting emissions for all major sectors.³⁰

1.4 Carbon Cap or Offset Requirements for Powerplants

A small number of states have established regulations for the maximum allowable volume of CO₂-emissions (caps) or offset requirements. These regulations were for the most part introduced for power plants as one of the major sources of GHG emissions. For instance, New Hampshire passed legislation in 2002 requiring that CO₂ emissions from power plants be reduced to 1990 levels by 2006.³¹ In 2001, Massachusetts adopted enforceable rules requiring 6 power plants to cap

²⁸ As of July 2005. Map from the Pew Center on Global Climate Change.

http://www.pewclimate.org/what_s_being_done/in_the_states/reporting_map.cfm.

²⁹ Unexpectedly, dozens of sources that fall below the threshold voluntarily report their emissions, providing the state with a detailed profile of its major CO₂ sources.

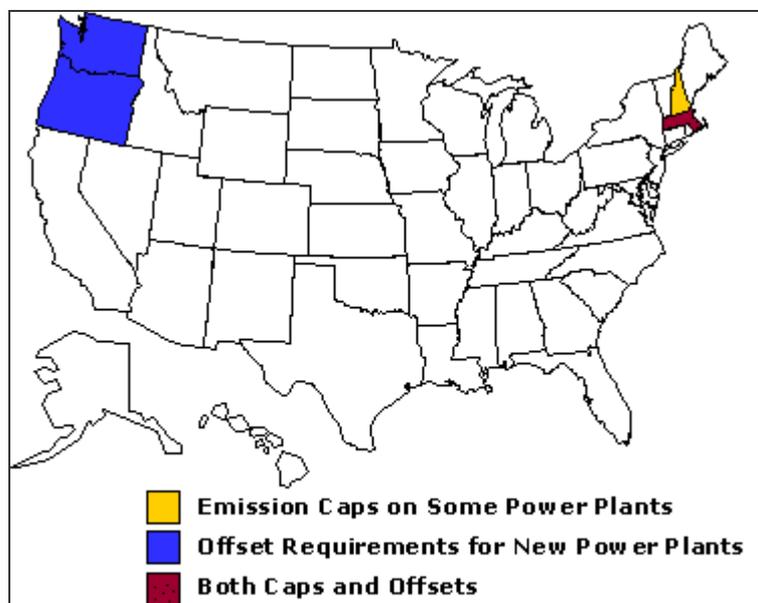
<http://www.pewclimate.org/states.cfm?ID=39>.

³⁰ <http://www.rggr.us/>.

³¹ New Hampshire Clean Power Act (HB 284), online available at: <http://www.gencourt.state.nh.us/legislation/2002/hb0284.html>.

emissions at historic levels (average 1997-99) and also achieve an emission rate average of 1,800 CO₂/MWh by 2006/08.³²

Map 4: States with Carbon Cap or Offset Requirements for Power Plants³³



Power plants offsetting requirements exist for instance in Oregon and Washington. These states require new power plants to offset 17 % and 20 % respectively of anticipated CO₂ emissions. Under these laws, developers of new power plants will have to meet CO₂ standards by investing directly in energy efficiency and renewable power or by financially contributing to an independent organization, an amount based on the number of tons of CO₂ they must offset. The independent organization would be responsible for making appropriate investments in carbon mitigation efforts.³⁴

It should be noted, that caps or reduction goals are part of policies in other areas too. For example, Arnold Schwarzenegger as Governor of California passed an order in June 2005 stating clear reduction goals:

“That the following greenhouse gas emission reduction targets are hereby established for California: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; by 2050, reduce GHG emissions to 80 percent below 1990 levels”.³⁵

³² Regional Greenhouse Gas Initiative, http://www.rggi.org/docs/eva_ne_co2_analysis.pdf.

³³ As of July 2005. Map from the Pew Center on Global Climate Change; http://www.pewclimate.org/what_s_being_done/in_the_states/cap_and_offset_map.cfm.

³⁴ http://www.nwenergy.org/publications/report/00_jan/rp_0001_6.html.

³⁵ Article 1, Executive Order S-3-05, June 2005

This is linked to reports made to the governor on the impacts on California of global warming and these reduction targets have been established as well as mitigation and adaptation plans regarding these impacts.

1.5 Vehicle GHG Emissions Standards

In 2002, California passed legislation creating vehicle emissions standards which when in place will require that tailpipe GHG emissions be significantly reduced. The California Air Resources Board will develop a plan by 2005 for the "maximum feasible reduction" in tailpipe emissions from cars and light-duty trucks, thereby creating stricter standards than the federal level.³⁶ Under the federal Clean Air Act, California is allowed to set pollution standards for cars and trucks that are more stringent than federal standards.³⁷

Map 5: States Poised to Require Vehicle GHG Emissions Standards³⁸



In the past, Oregon and Washington as well as most northeastern states have followed California's vehicle emission rules, and now those states³⁹ are in the process of transposing California's latest rules regulating carbon dioxide and other greenhouse gas emissions from vehicles as well. As these states comprise more than a third of the combined U.S. and Canadian car market, the move can be expected to force the auto industry to produce cleaner, more fuel efficient cars.⁴⁰

³⁶ Common Dreams News Center, <http://www.commondreams.org/headlines05/0727-04.htm>.

³⁷ Walls (1993), p. 123.

³⁸ As of July 2005. Map from the Pew Center on Global Climate Change; http://www.pewclimate.org/what_s_being_done/in_the_states/vehicle_ghg_standard.cfm.

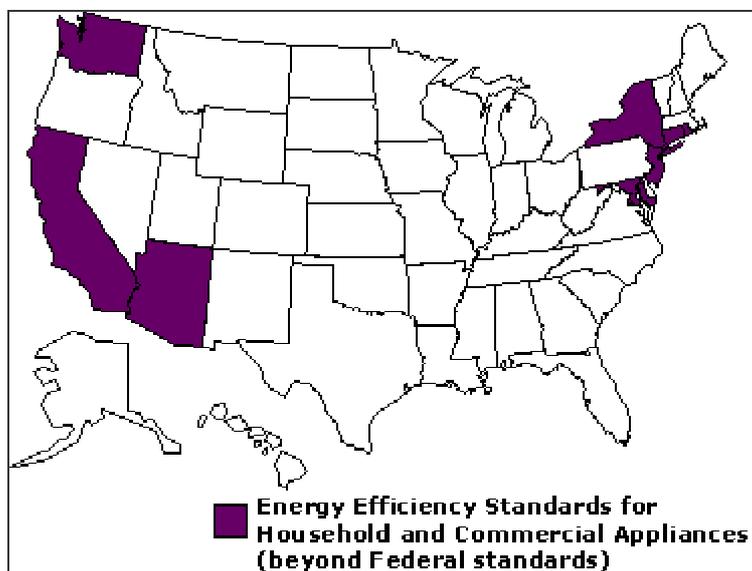
³⁹ Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Oregon, Rhode Island, Vermont, and Washington are currently poised to follow California's vehicle emission standards.

⁴⁰ Sierra Club, <http://www.sierraclub.org/pressroom/releases/pr2005-04-23.asp>.

1.6 Appliance Efficiency Standards

States may not set standards for products covered by existing federal standards without a waiver from the U.S. Department of Energy. However, a number of states have set minimum energy efficiency standards for products not covered by mandatory federal standards. For instance in Washington, efficiency standards apply to 13 appliances including ice machines, commercial clothes washers, commercial refrigerators and freezers, as well as commercial gas unit heaters. The American Council for an Energy Efficient Economy (ACEEE) estimates that Maryland is able to avoid 400 MW of power plant capacity that would otherwise be needed, and will have saved \$600 million by 2020 due to its efficiency standards for nine appliances.⁴¹

Map 6: States with Appliance Efficiency Standards⁴²



Rhode Island has set minimum efficiency standards for 19 products. The Northeast Energy Efficiency Partnership, a regional nonprofit organization, estimates that these standards will reduce the carbon emitted up until 2020 by 42,000 metric tons per year, which is equivalent to removing 35,000 cars from the roads. In addition, standards are expected to improve the reliability of the electric grid as electricity demand will drop by 60 MW by 2020, which is equivalent to the energy use of about 45,000 households.⁴³

⁴¹ U.S. Department of Energy,

http://www.eere.energy.gov/states/state_news_detail.cfm/news_id=8477/state=MD.

⁴² As of July 2005. Map from the Pew Center on Global Climate Change;

http://www.pewclimate.org/what_s_being_done/in_the_states/energy_eff_map.cfm.

⁴³ Northeast Energy Efficiency Partnerships,

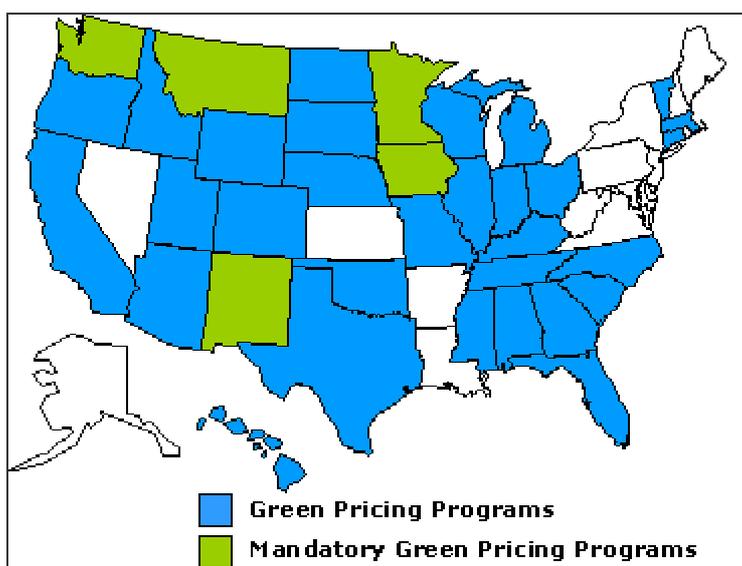
<http://www.neep.org/Standards/FactSheets/RIfactsheet.PDF>.

New York efficiency standards for appliances such as ceiling fan and light kits; commercial washing machines; commercial refrigerators, freezers, and icemakers; and other commercial and household items became law in July 2005. New York estimates that the standards will save consumers up to approximately two gigawatt hours of electricity a year and up to \$284 million, while reducing carbon dioxide emissions by 870,000 metric tons.⁴⁴

1.7 Green Pricing Programs

While mainly carried out on a voluntary basis, a number of states have required utilities to create “green pricing programs”. Green pricing gives customers the option to pay a premium on their electric bills to have a portion of their power provided from renewable sources. However, even without legal requirements, utilities in most states offer green pricing programs.⁴⁵

Map 7: States with Green Pricing Programs⁴⁶



When considering these programs however, one should bear in mind, that – due to the technical characteristics of electricity and the grid – electricity generated by renewable sources is generally not delivered directly to the customers who pay for it. Thus, what is offered in the framework of green pricing is the assurance by the selling utility that renewable energy has been generated in an amount equal to the customer’s purchase.

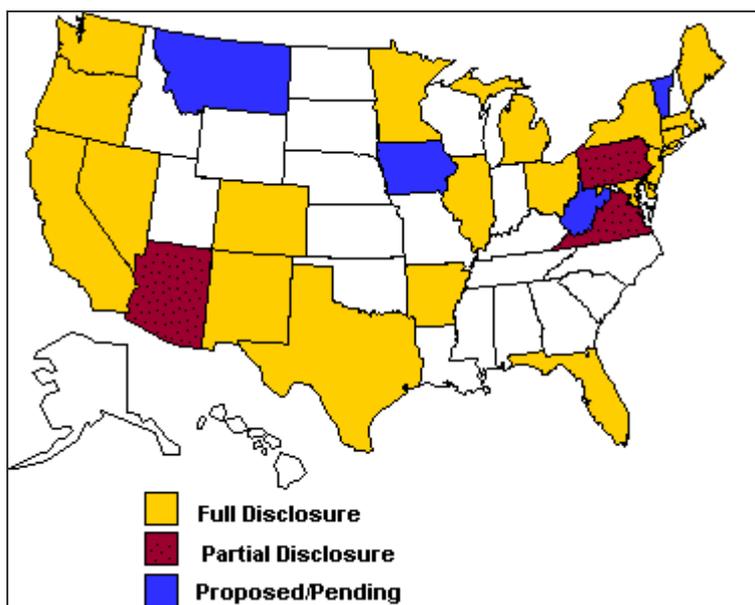
⁴⁴ Pew Center on Global Climate Change, http://www.pewclimate.org/what_s_being_done/in_the_states/energy_eff_map.cfm.

⁴⁵ U.S. Department of Energy, <http://www.eere.energy.gov/greenpower/markets/pricing.shtml?page=0>.

⁴⁶ As of July 2005. Map from the Pew Center on Global Climate Change; http://www.pewclimate.org/what_s_being_done/in_the_states/west_coast_map.cfm.

A number of states have adopted environmental disclosure policies, requiring electricity suppliers to provide information on fuel sources and, in some cases, emissions associated with electricity generation. For instance, in 1999, the Colorado Public Utility Commission (PUC) adopted rules requiring the state's investor-owned utilities to disclose information on their power sources to retail customers. Utilities with a total system load of more than 100 MW are required to provide the information as a bill insert or as a separate mailing twice a year.

Map 8: Disclosure Policy⁴⁷



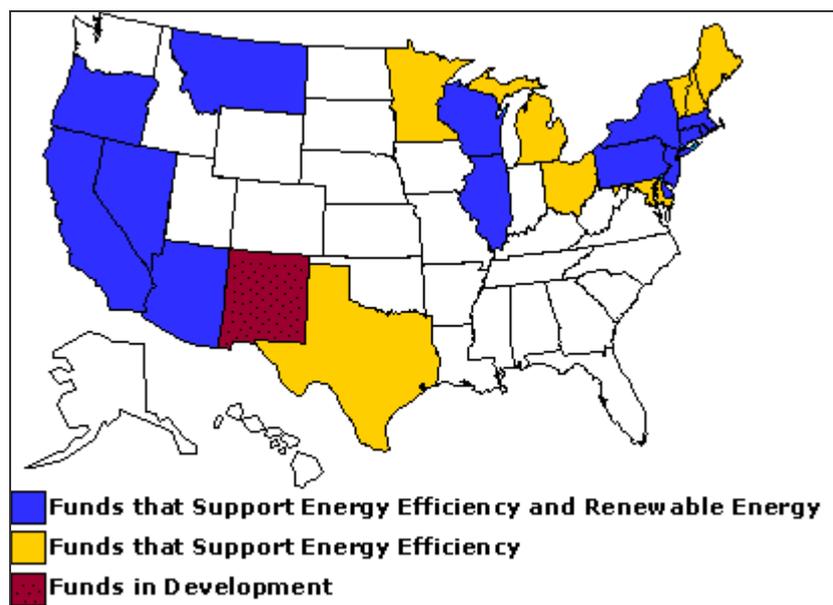
Other states, such as Illinois or Maine do not only require a disclosure of the fuel mix but also the of the associated emissions.⁴⁸

1.8 Public Benefit Funds

Almost half the states have established funds to promote renewable energy and clean energy technologies. Resources are collected either through an extra charge on the bill of electricity consumers or through specified contributions from energy utilities. Twelve of these publicly managed clean energy funds have formed the Clean Energy States Alliance to coordinate a public benefit fund for investments in renewable energy projects.

⁴⁷ The green Power Network from: U.S. Department of Energy, http://www.eere.energy.gov/greenpower/resources/maps/disclosure_map.shtml.

⁴⁸ For a detailed list see: U.S. Department of Energy, <http://www.eere.energy.gov/greenpower/markets/disclosure.shtml>.

Map 9: States with Public Benefit Funds⁴⁹

In contrast to the federal governance level, which focus primarily on Research and Development of clean energies, these funds are mainly aimed towards the installation of renewable energies.⁵⁰

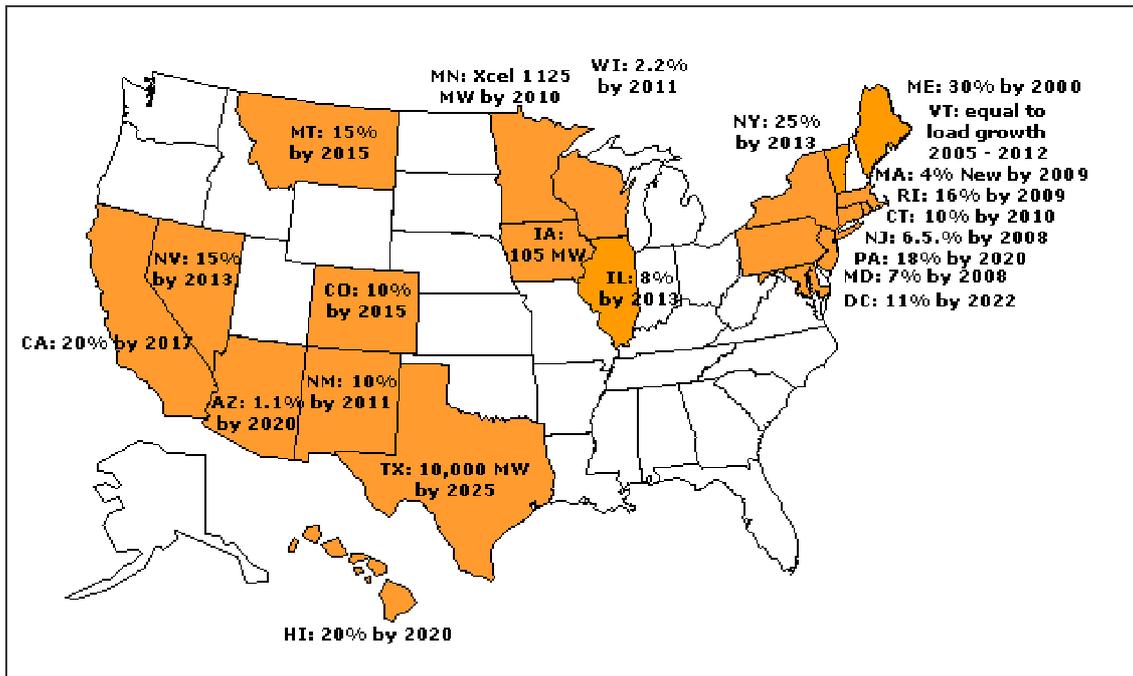
1.9 Portfolio Standards

In contrast to the federal government, which strongly opposes quotas for certain energy technologies, twenty-one states and the District of Columbia have adopted Renewable Portfolio Standards that require energy utilities to increase their output of renewable energy from sources like solar, wind and geothermal energy.⁵¹ Climate change does not always constitute the prime motivation behind these standards. In fact, considerations such as resource diversity, cleaner air, security, technology advancement, and in-state economic development and employment play major roles in the creation of these legislation. Nevertheless, the use of renewable energy delivers GHG reductions.

⁴⁹ As of July 2005. Map from the Pew Center on Global Climate Change; http://www.pewclimate.org/what_s_being_done/in_the_states/public_benefit_funds.cfm.

⁵⁰ The Clean Energy States Alliance is composed of funds in California, Connecticut, Illinois, Massachusetts, Minnesota, New Jersey, New York, Ohio, Oregon, Pennsylvania, Rhode Island, and Wisconsin. See <http://www.cleanenergystates.org>.

⁵¹ Many states allow utilities also to comply with the renewable portfolio standards through tradable renewable energy credits. For all Renewable portfolio standards in the U.S.: Database of State Incentives for Renewable Energy, <http://www.dsireusa.org>.

Map 10: States with Renewable Portfolio Standards⁵²

New York, California, Texas, Nevada and Arizona are credited with instituting the most far-reaching standards. New York's standard requires that 25 percent of the state's power come from renewable sources by 2013.⁵³ In Massachusetts the standard is 4% by 2009 with an additional 1% per year thereafter.⁵⁴ In 2004, Colorado voters passed an amendment to the Colorado Revised Statutes calling for a renewable energy requirement of 3% beginning in 2007, and increasing to 6% in 2011 and 10% in 2015 and beyond.⁵⁵

In 1999, Wisconsin's renewable portfolio standard came into effect making Wisconsin the first state to have a RPS with the target to reach 2.20% in 2012.⁵⁶ Maryland's objective, established in 2004, aims for 7.5% of energy produced to come from renewable sources by 2019.⁵⁷ However, it is not possible to directly compare these objectives, as key differences among the States include their

⁵² As of July 2005. Map from the Pew Center on Global Climate Change; http://www.pewclimate.org/what_s_being_done/in_the_states/rps.cfm.

⁵³ Environmental Media Service, <http://www.ems.org/states/rps.html>.

⁵⁴ Goodwin Procter,

http://www.goodwinprocter.com/publications/ELA_RenewableEnergy_3_05.pdf.

⁵⁵ Renewable Energy Policy Project, http://www.repp.org/articles/static/1/Colorado_RPS.htm.

⁵⁶ Database of State Incentives for Renewable Energy, <http://www.dsireusa.org/documents/Incentives/WI05R.htm>.

⁵⁷ Database of State Incentives for Renewable Energy, http://www.dsireusa.org/library/includes/incentive2.cfm?Incentive_Code=MD05R&state=MD&CurrentPageID=1.

definition of renewable, allowable alternatives to renewable capacity and enforcement mechanisms.⁵⁸

The results of these policies could be substantial: For instance, the Pew Center on Global Climate Change expects Texas to avoid 3.3 million tons of CO₂ emissions annually with its RPS, which requires 2000 MW of new renewable generation by 2009.⁵⁹

1.10 Regional Initiatives

Over the past few years, a number of regional initiatives have begun developing systems to reduce carbon dioxide emissions from power plants, increase renewable energy generation, track renewable energy credits, and research and establish baselines for carbon sequestration. These regional initiatives are often perceived as more effective than programs at the state level, as they encompass a broader geographic area, eliminate duplication of work, and create more uniform regulatory environments, thus avoiding market impediments.

The Conference of New England Governors and Eastern Canadian Premiers (NEG-ECP) works to address regional, cross-boundary issues. In 2001, the NEG-ECP developed a comprehensive Climate Change Action Plan for reducing greenhouse gases. In addition to establishing a variety of programs and policies, the plan also includes the goal of achieving 1990 emission levels by 2010 and 10% below 1990 levels by 2020.⁶⁰ In 2004, the Western Governors' Association (WGA) resolved to examine the feasibility of the actions that would be required to reach a goal of 30,000 megawatts of clean energy by 2015 and a 20 % improvement in energy efficiency by 2020. The newly created Clean and Diversified Energy Advisory Committee, including Government officials, businesses, and non-for-profit organizations, will oversee task forces to facilitate planning for the energy technologies necessary to meet this goal.⁶¹ The Governors of California, Oregon, and Washington have also announced an initiative to coordinate their states' policies to combat global warming. Staff from the three states collaborated to produce a set of recommendations on strategies that the states can pursue cooperatively and individually.⁶²

“Powering the Plains” is an effort of state officials, industry participants, agriculture representatives and renewable energy advocacy groups to address climate change while promoting regional economic development. Participants in the process hail from North Dakota, South Dakota, Iowa, Minnesota, Wisconsin, and

⁵⁸ U.S. Energy Information Administration, <http://www.eia.doe.gov/emeu/plugs/plsrerg.html>.

⁵⁹ Pew Center on Global Climate Change, http://www.pewclimate.org/what_s_being_done/in_the_states/rps.cfm.

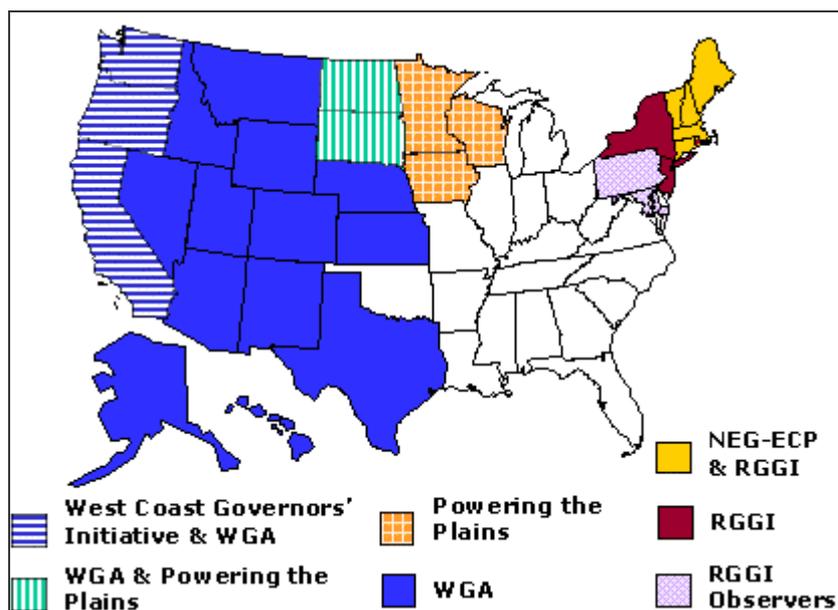
⁶⁰ The New England Governors' Conference, <http://www.negc.org/documents/NEG-ECP%20CCAP.PDF>.

⁶¹ Western Governors' Association, <http://www.westgov.org/wga/initiatives/cdeac/index.htm>.

⁶² Governor of Oregon, http://governor.oregon.gov/Gov/press_111804.shtml.

the Canadian Province of Manitoba. Participants focus their efforts on the region's comparative advantages in the transition to a renewable and carbon-neutral energy economy, including renewable energy development (wind, biomass, and hydro); hydrogen production from renewable and carbon-neutral sources; environmental credit trading (renewable and carbon credits); carbon sequestration in prairie soils and wetlands; and coal gasification with carbon capture and geologic sequestration.⁶³

Map 11: States Participating in Regional Climate Action⁶⁴



So far the most far-reaching initiative is the Regional Greenhouse Gas Initiative (RGGI). Within the initiative, nine Northeastern and Mid-Atlantic states are working together to develop a cap-and-trade system for CO₂ emissions from power plants, which will be required to cut their current level of carbon dioxide emissions - roughly the same level as the whole of Germany - by 10 % by 2020.⁶⁵ It is intended that the program be expanded to cover other greenhouse gases and other sectors in the future. Given that there are a number of states formally observing the initiative, the successful implementation of the RGGI cap-and-trade scheme will probably set the stage for other states to join or form their own regional initiatives.

Across the country, there are also several partnerships between the U.S. Department of Energy, state agencies, academic institutions, and private companies to estimate sequestration potential and develop regionally appropriate

⁶³ Great Plains Institute, <http://www.gpisd.net/resource.html?id=61>.

⁶⁴ As of July 2005. Map from the Pew Center on Global Climate Change; http://www.pewclimate.org/what_s_being_done/in_the_states/regional.cfm.

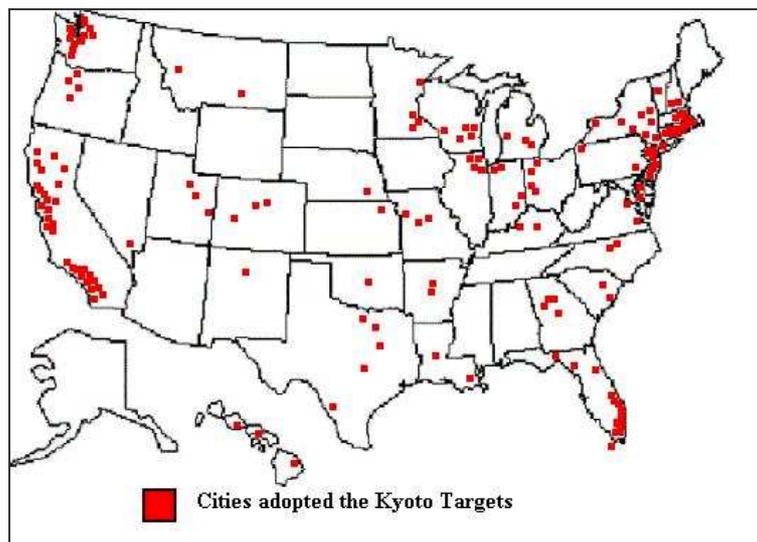
⁶⁵ "U.S. takes a piecemeal approach to Kyoto States prove to be America's laboratory on climate change" Financial Times, August 26 2005.

carbon sequestration strategies.⁶⁶ One example is the Clean Energy States Alliance (CESA) which comprises twelve states⁶⁷ that have established funds to promote renewable energy and clean energy technologies. The Alliance provides information and technical services to these funds which will make available nearly \$3.5 billion to promote renewable and clean energy over the next decade.⁶⁸

1.11 Mayors adopting Kyoto Targets

Responding to an initiative from Seattle's mayor, Greg Nickels, more and more mayors are participating in the fight against climate change on the local level. In March 2005, Greg Nickels persuaded eight other mayors to write to 400 colleagues across the country to join this endeavor⁶⁹ - with an overwhelming response; at the U.S. Conference of Mayors in June 2005 more than 130 mayors pledged that their cities would meet Kyoto Protocol guidelines of a 7 % cut in greenhouse gas emissions.⁷⁰ Since then, the number has increased. In September 2005, 178 mayors, from both political parties, representing nearly 40 million Americans, signed up to meet the Kyoto targets.⁷¹

Map 12: Cities adopting the U.S. Mayors Climate Protection Agreement⁷²



⁶⁶ U.S. Department of Energy, <http://fossil.energy.gov/programs/sequestration/partnerships>.

⁶⁷ The twelve states are California, Connecticut, Illinois, Massachusetts, Minnesota, New Jersey, New York, Ohio, Oregon, Pennsylvania, Rhode Island and Wisconsin.

⁶⁸ Clean Energy States Alliance, <http://www.cleanenergystates.org/about.html>; Morgan and Banks (2004), p. 2.

⁶⁹ The letter is online available at: Government of Seattle, http://www.seattle.gov/mayor/climate/PDF/USCM_6-page_Climate_Mailing_ALL.pdf.

⁷⁰ Cities lead the way to a greener world, *New Scientist*, June 4, 2005.

⁷¹ Government of Seattle, <http://www.seattle.gov/mayor/climate/quotes.htm#mayors>.

⁷² Source: Own Map based on <http://www.seattle.gov/mayor/climate/quotes.htm#mayors>.

Their decision will require their cities to reduce CO₂ emissions to 1990 levels for the years 2008 - 12.⁷³ Even greater numbers of communities have joined ICLEI's⁷⁴ Cities for Climate Protection Campaign which seeks to achieve significant reductions in U.S. domestic greenhouse gas emissions by assisting local governments in taking action to reduce emissions.⁷⁵ The mayors have proposed a series of strategies they can implement on a local level. The strategies aim at restoring forests, reducing urban sprawl, developing alternative energy technologies and educating the public. Some energy efficient initiatives are cheap and simple, such as carpooling, while others are costly and complex, such as the construction of light-rail or monorail lines.

1.12 Plug-In Partners National Campaign

The City of Austin, Texas is taking the lead in supporting the market introduction of climate friendly Plug-in Hybrid vehicles. These cars are equipped with a battery which can be plugged in to a 120-volt outlet. Depending on the size of the battery, vehicles can run up to 60 miles per charge before they automatically switch to running on the fuel in the fuel tank. Austin's so called Plug-In Partners National Campaign is intended to build a market for hybrid vehicles around the country. This will be done through the development of tax rebates and incentives, petitions and endorsements by cities, private businesses and consumers across the country. Utilities intend to give incentives through the provision of the excess generation capacity available during night-time hours.⁷⁶ So far the initiative has received an overwhelmingly positive reaction from other cities and is expected to get strong support from local governments and business.⁷⁷ The cities, which back the initiative, were announced at a national kick-off meeting in Washington, DC in January 2006.

1.13 Interim-Conclusions

The aforementioned examples demonstrate the wide range of different activities taking place on the subnational level, ranging from public benefit funds to mandatory appliance or vehicle emission standards to emission trading. While certain states are more active and more progressive than others, the majority of states are involved in some activities. The evidence suggests the largest number of different types and the most progressive climate change policy activities are occurring in the West Coast and the North Eastern states. It is these states which make use of renewable energy and efficiency programs, which have strictest

⁷³ PBS, http://www.pbs.org/newshour/extra/features/july-dec05/kyoto_8-08.pdf.

⁷⁴ ICLEI is an international association of local governments and local government organizations that have made a commitment to sustainable development; <http://www.iclei.org>.

⁷⁵ ICLEI, <http://www.iclei.org/index.php?id=1121>.

⁷⁶ Austin Energy, <http://www.austinenergy.com/About%20Us/Environmental%20Initiatives/Plug-in%20Hybrid%20Vehicles/50topCitiesPlan.htm>.

⁷⁷ Email Communication with Lisa Braithwaite from Austin Energy, 10 October 2005.

appliances and mandatory renewable portfolio standards, and have set up emissions trading schemes. A substantial number of states have also started to cooperate with each other to exchange policies or to embark on endeavors, such as emission trading or common vehicle standards. While most activities take place on the state level, some activities also occur on the local level. This is clearly expressed in the adoption of the Kyoto Protocol's target by 178 mayors (see 1.11) and the recently institution of the Austin Initiative (see 1.12). While the range of policy initiatives should be examined more carefully as they move into more advanced stages of implementation, it is already interesting to evaluate possible spill-over-effects to other states and to the national level. The ensuing chapter will elaborate the potential effects of but also the limits to subnational climate change initiatives in this regard.

2 Policy Impacts of State initiatives

While it is well known that the United States is the world's largest emitter of greenhouse gases, it is less recognized that individual U.S. states and regions alone are also some of the largest global emitters. Texas, for example, emits more greenhouse gases than France, the United Kingdom or Canada. Ohio's emissions exceed those of Turkey and Taiwan, and Illinois' exceed those from the Netherlands.⁷⁸ If the U.S. states were ranked as nations, they would rank as 12 of the top 25 global emitters of carbon dioxide, or 34 of the top 50.⁷⁹

Consequently, state initiatives have the potential to have a strong impact on raising or reducing greenhouse gas emissions. Nevertheless, Victor et. al. assert that the absence of serious action by the U.S. federal government is impeding states' abilities to reduce their own GHG emissions. According to them, "the efforts are too atomized to exert much leverage on the country's emissions, because federal institutions mostly govern the U.S. economy"⁸⁰. Moreover, the states which have set their own emissions targets are among the least carbon-intensive in the nation, although they produce about one-third of the nation's income, they generate just 14% of its electricity.⁸¹

Yet, states' climate change initiatives not only physically reduce greenhouse gas emissions but a number of experts and policy makers raise a more fundamental question of whether the multitude of subnational climate change initiatives in the U.S. could possibly drive action on the federal level. For instance, Seattle's Major, Greg Nickels, emphasizes the historical role of local governments as a way of experimenting with and demonstrating a policy's effectiveness, before it is embraced at state, regional, and ultimately national level. Additionally, a large number of NGOs, such as ICLEI, believe that long-term change must be sparked by an accumulation of local initiatives.⁸² Pietro Nivola of the Brookings Institution in Washington asserts: "Very often that is the way policy works: When enough major states take action, then eventually the central government follows."⁸³ In fact, a number of examples show that this pattern is in keeping with the traditions of American federalism in many respects. States have long been incubators of policy ideas that ultimately swept across regions and, in some instances, would be embraced later, in some form, at the federal level. Some examples include:

- In 1836, Massachusetts enacted the first child labor law in the United States. Several states followed this example, but it was not until 1938 that

⁷⁸ Claussen (2004), p. 36.

⁷⁹ Peterson (2004), p. 21.

⁸⁰ Victor et. al. (2005), p. 1821.

⁸¹ Victor et. al. (2005), p. 1821.

⁸² Common Dreams News Center, <http://www.commondreams.org/headlines05/0727-04.htm>.

⁸³ Here from: Sappenfield (2005).

Congress enacted legislation that effectively ended child labor in manufacturing.

- Oregon imposed the first gasoline tax in 1919. By 1932, when the first federal gasoline tax was authorized, all states had imposed such taxes.
- California implemented the first motor vehicle emissions standards in 1959, anticipating the national government's regulation by more than a decade.⁸⁴

For these reasons, it is worthwhile to examine what factors might contribute to the expansion of initiatives and the adoption of further climate change policies at the federal level.

2.1 Factors Driving the Conversion of State into Federal Policy

There are a range of factors which might contribute to increase pressure at a federal level to enact nationwide legislation. The following list of issues is not exclusive but shows some of the important drivers. Furthermore, it should be kept in mind that various initiatives can pressurize the federal government through different channels at the same time.

2.1.1 Increasing Uncertainty

The absence of federal legislation on one hand compounded by the large number of varying local, state and international-level initiatives to combat climate change on the other, means there is a growing degree of uncertainty about what form future regulations may take. This uncertainty creates costs among consumers and producers, as they are not able to make well informed decisions about long term investments. As a single national framework for controlling greenhouse gas emissions would create a more certain investment environment for both producers and consumers, rendering decisions more cost-effective, there is an increasing pressure on the federal government to create such a framework.⁸⁵

2.1.2 Diffusion of Regulations

An important factor for national policies is the institutionalized as well as the informal policy learning process between the states. There are abundant examples for the extension of policy innovations from one state to others, demonstrating that states participate in an interactive learning process that leads to policy development.⁸⁶ Frequently, a policy idea pioneered by one state is adopted by others, usually beginning with neighboring states but sometimes stretching across the continent. This process holds true also for climate change initiatives. Officials active in the development of programs and initiatives are frequently part of informal

⁸⁴ Harrington et. al. (2004), p. 58.

⁸⁵ Fri (2004), p. 10.

⁸⁶ See for instance: Kern et. al. (2001).

or formal networks with officials from other states. Among these interstate organizations which contribute to such exchanges are the Environmental Council of the States⁸⁷, the National Association of State Energy Officials⁸⁸ or the State and Territorial Air Pollution Program Administrators and the Association of Local Air Pollution Control Officials⁸⁹. The internet or conferences and workshops can certainly contribute to this kind of policy diffusion, too.⁹⁰

The dissemination of policies and regulations generally reduces the problems linked to spillover effects across jurisdictions caused by environmental legislation: the more states that have enacted similar legislation, the less room for economic disadvantages and distortion of competition due to different regulatory frameworks. As a result, resistance against new legislation on a state level should decrease with the number of states which have already enacted the corresponding regulatory framework. While a coordinated effort would be the best method to overcome prisoners' dilemmas⁹¹, it usually proves difficult to achieve concerted actions due to different economic circumstances, election periods etc.⁹²

Nonetheless, when a substantial number of states have embarked upon or already implemented legislation similar to one another, this decreases resistance against or even increases support for comparable legislation from the federal government.

2.1.3 Heterogeneous Standards as an Impediment to Commerce

Not only future regulation, but in particular the presence of different standards represent a major impediment for reaping economies of scale and to marketing products nationwide. Therefore, business – while theoretically preferring no regulation at all – is in favor of common standards nation-wide. For instance, in the early 1980s, President Reagan refused to establish national standards for energy efficiency in household appliances. In response, many states began to develop their own standards, causing concern among appliance manufacturers about their ability to market their products nationally, given state regulatory variation. These manufacturers subsequently urged Congress to act, resulting in the establishment of national standards by the 1987 National Appliance Energy Conservation Act.⁹³

The example clearly demonstrates that private market actors, which favor no regulation at all, do strongly prefer common standards to a diversity of regulations. Interestingly, states also might have an interest to push for common standards. In a federalist system a single state that imposes a more-stringent-than-average

⁸⁷ <http://www.ecos.org>.

⁸⁸ <http://www.naseo.org>.

⁸⁹ <http://www.4cleanair.org>.

⁹⁰ For international examples see: Knigge (2005).

⁹¹ In the prisoners dilemma the Nash equilibrium does not lead to jointly optimum solutions. Conversely, in equilibrium, each player chooses to defect even though the joint payoff would be higher by cooperating. See for example: http://en.wikipedia.org/wiki/Prisoner's_dilemma.

⁹² Walls (1993), p. 109.

⁹³ See Geller (1995).

regulation can lower its own purchasing costs and the costs for its manufacturing industry by convincing other states to pass similar regulations.⁹⁴

2.1.4 Emergence of New Interests Groups

Yet another element which increases pressure for federal climate initiatives are emerging industrial interests groups. As the first policies start to show effects, new stakeholder groups arise and start to coordinate and lobby for their interests. In particular in the area of renewable energy technology, new stakeholder groups have already emerged. In Massachusetts, the clean energy industry is a national leader in manufacturing, exporting millions of dollars worth of products and knowledge each year.

Segments of the industry are growing at annual rates between 25% and 35%, far exceeding the current growth of Massachusetts other industries, thereby creating thousands of jobs. By comparison, the textiles and apparel industry, a core industry in Massachusetts, lost 7 % of its jobs in recent years as a result of increased international competition.⁹⁵ Considering that, according to some sources, a number of renewable energy technologies are rapidly approaching cost-competitiveness⁹⁶, an increase in demand for and production of these modern technologies might be expected. This will give a louder voice to producers, suppliers and employees in the maintenance industry as well as their respective cities and states.

Another example is the – sometimes contested – emergence of biofuel business⁹⁷. The ethanol industry has grown dramatically in recent years – by 2003 it consisted of 74 plants in 19 states, supporting 214,000 jobs, mostly in rural communities – and it continues to grow today.⁹⁸ The Renewable Fuels Association expects that the increase in ongoing production and construction of new capacity will support the creation of 147,206 jobs in 2005, including more than more than 13,000 jobs in America's manufacturing sector.⁹⁹ However, it is farmers who benefit primarily from the ethanol production. In addition to providing a growing domestic market, the ethanol industry also provides the opportunity for farmers to enjoy some of the value added to their commodity by further processing. Farmer-owned ethanol

⁹⁴ Rose-Ackerman (1981), pp. 152-165; for a similar discussion on the international level see Jänicke and Jacob (2002).

⁹⁵ Massachusetts Technology Collaborative,

<http://www.masstech.org/cleanenergy/important/economy.htm>.

⁹⁶ Under current market conditions and without incentives Wind energy can produce reliable electricity for less than 5 cents per kWh. The federal production tax credit reduces that to less than 3.5 cents for the first 10 years of plant life as opposed to 4.8 – 5.5 cents/kWh for coal or 3.9 – 4.4 cents/kWh for natural gas. See: Pratt (2004), p. 12.

⁹⁷ A overview on the discussion: Taylor Bell (2004).

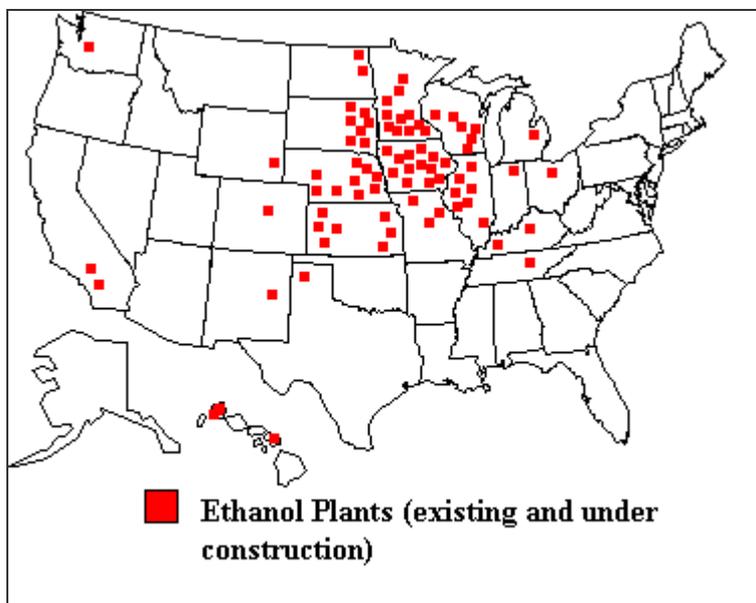
⁹⁸ U.S. Department of Energy,

http://www.eere.energy.gov/biomass/economic_growth.html#print#biomass.

⁹⁹ Renewable Fuels Association (2005a), pp. 2 – 3.

plants account for half of U.S. fuel ethanol plants and almost 40 % of industry capacity.¹⁰⁰

Map 13: Ethanol Plants in the United States¹⁰¹



The growth of the ethanol industry might lead to new alliances of stakeholder groups, namely a coalition between the persons involved in the manufacturing, research and development and maintenance of biomass installations and farmers. Moreover, ethanol production is mainly situated in America's Northern plains. Thus, it might increase pressure on those states which have so far been rather reluctant in their approach towards biofuels (see chapter 3).

2.1.5 Innovation & Demonstration

Because of the fear of unintended or unexpected consequences, risk-averse policymakers at the federal level are frequently reluctant to give untested policies a fair hearing even where they have been carefully analyzed.¹⁰² Conversely, state and local governments are more innovative and flexible in finding solutions to problems, including environmental problems, than the national government. In the words of Supreme Court Justice Louis Brandeis: "it is one of the happy incidents of the federal system that a single courageous state may, if its citizens choose, serve as a laboratory; and try novel social and economic experiments without risk to the rest of the country"¹⁰³. As a result, subnational activities offer a policy test-ground

¹⁰⁰ Renewable Fuels Association (2005a), pp. 2 – 3.

¹⁰¹ Based on information from the Renewable Fuels Association (2005b), p. 3 and the State of Hawaii, <http://www.state.hi.us/dbedt/ert/energymap.html>.

¹⁰² Harrington et. al. (2004), p. 58.

¹⁰³ *New State Ice Company v. Liebmann*. 285 U.S. 262, 311 (1932); here from Walls (1993), p. 108.

for future regulations, in particular as sub-federal policy practitioners have now shifted from program design toward implementing those plans. Consequently, there are more and more policies which have been tested at the subnational level, exposing the benefits or problems with different approaches in diverse settings. This makes it more difficult on the federal level to argue against a policy implemented successfully on the local or state level.

This is particularly, significant as many of the important federal energy, environmental, and transportation legislation is due for reauthorization, for instance, it has been more than a decade since the federal government last updated the clean-air-legislation.¹⁰⁴ Obviously, the “best of” state experience will offer lessons and models for nationwide experimentation. In the area of climate change, virtually any future step that the federal government could conceivably take in the coming decades is likely to be borrowed from something already being attempted in one or more of the states.¹⁰⁵

2.1.6 Increasing Awareness

Raising awareness about climate change and its future repercussions on the global environment is crucial to create sufficient public support for stricter climate change policies. Therefore it is important that the discussions surrounding the development of policies and programs as well as their implementation should contribute to foster interest in and understanding of climate change and contribute to raising acceptance for existing climate change policies and demand for regulation on the national level.

So far, results from different surveys suggest, that change in U.S. climate change is not top of the agenda in public opinion. A recent survey of the Massachusetts Institute of Technology (MIT) found that the environment and climate change are not high-priority issues for the public.¹⁰⁶ The environment came out 13th on a list of 22 possibilities for “the most important issues facing the U.S. today.” And on a list of 10 specific environmental problems, “global warming” came up sixth, behind water pollution and toxic waste. Many of the respondents had not recently heard or read about hydrogen cars, wind energy or nuclear energy.¹⁰⁷

In 2003, Brewer concluded, on the basis of forty public opinion surveys, that approximately two-fifths of the American public was seriously concerned about global warming, while another two-fifths were moderately concerned and the remaining one-fifth did not consider global warming much of a problem or did not believe that carbon dioxide emissions were a cause of it.

¹⁰⁴ The Clean Air Act, which forms the basis for the national air pollution control effort, passed in 1970 and was last amended in 1990.

¹⁰⁵ McKinstry 2004, here from Rabe (2004), p. 133.

¹⁰⁶ The survey was done by Howard J. Herzog and his colleagues at MIT’s Laboratory for Energy and the Environment (LFEE).

¹⁰⁷ Physorg.com, <http://www.physorg.com/news3485.html>.

A shift in the “moderately concerned” group towards “seriously concerned” might alter the future course of federal government policies.¹⁰⁸ While Brewer identifies a gap between the U.S. public and U.S. leaders, with the public exhibiting more concern and more support for new policies¹⁰⁹, other believe that elected officials have to provide leadership. They argue that initiatives achieving significant reduction of the greenhouse gases linked to climate change may involve economic costs well above what the average consumer is willing to pay.¹¹⁰ However, political leaders as well as think tanks in Washington do not share a consensus on the causes and potential effects of climate change.

Successful subnational initiatives on the local and state level will clearly help to bring the issue of climate change to the forefront in the media and to help the public to better understand what climate change means globally and particularly for the United States. Moreover, as most subnational initiatives have been implemented without the same amount of tensions and arguments between different stakeholders, they might also contribute to a more objective and reasonable public discussion about appropriate steps forward. Last but not least, the growth of the above mentioned climate-relevant industries can be expected – as an economic factor and important employer – to raise public awareness and shape public opinion. An examination of these factors shows that it can be expected that in the long run the trend in public opinion will press for a more stringent climate protection regime at the federal level.

2.2 Limits of State Policies

As discussed in the preceding pages, subnational initiatives contribute, through a range of the diverse factors and channels, to pressure at the federal level for further regulation in the area of climate change. However, subnational initiatives also face a number of impediments and limits, possibly decreasing their potential effects on the federal level.

2.2.1 Legal Constraints

Activities on the state level introduce the question of how responsibilities and rights are distributed between federal and state level. In particular it is not clearly defined where exactly state power must yield to the federal government and how flexible the federal government is prepared to be in allowing active state engagement.

Some federal environmental programs leave little or no room for state environmental policies and preferences. For instance, under the Clean Air Act, the national government defines, monitors and enforces the air pollution standards for new cars. Until the car is sold to a consumer, states have no regulatory

¹⁰⁸ Brewer (2003), p. 15.

¹⁰⁹ Brewer (2003), p. 1.

¹¹⁰ Pyhsorg.com, <http://www.physorg.com/news3485.html>.

competencies. This serves to avoid a patchwork of different standards across the nation. As mentioned in Chapter 1.5 the only exception is that states may adopt the “California standards”.

Similarly, the federal statute governing the labeling of pesticides considers label uniformity an overriding concern.¹¹¹ In fact, the federal government is usually responsible for policies which have the potential to impede interstate commerce¹¹² or are based on the adoption of treaties¹¹³. Therefore regulation of fuel economy, portfolio and appliances standards and other kind of regulations might not be within the province of State decision makers. Major car manufacturers, for instance, have filed a suit to challenge California's aggressive new carbon dioxide emission rules for new automobiles. Their central claim is that California's rules constitute a de facto regulation of automotive fuel efficiency, and such state regulations are explicitly preempted by federal law.¹¹⁴ California's defense is that the regulations are focused on air pollution, in this case concerns about climate change, and are therefore permissible under the Clean Air Act, even if the regulations will, in effect, require increased fuel economy.¹¹⁵

Initiatives with an international scope might also cause conflict over what competencies states have in the climate policy field. For example, New Jersey would like to revisit its earlier involvement with the Netherlands on a series of climate-related issues¹¹⁶, Illinois wishes to renew initial negotiations with China concerning possible carbon-trading projects, and Nebraska would like to explore ways to sell carbon credits from agricultural sequestration to countries that have ratified the Kyoto Protocol. The Northeast and Mid-Atlantic member states of RGGI are also exploring ways to expand their regional partnership through the possible addition of other states and provinces as “adjunct” members.¹¹⁷ So far, no legal challenges have been raised to these activities. However, the agreements between states and national governments may begin to blur the boundary of how far states can go in exercising international relations authority which is constitutionally granted to Washington. Furthermore, in case of the Kyoto Protocol for example, participation in the Emissions Trading Regime is only possible for parties named in Annex B of the Protocol¹¹⁸. Annex B names the U.S. as a country and not the individual states as possible actors. This suggests that the conventions of public international law might call for federal rather than for state action.

¹¹¹ Dwyer (1997), p. 215.

¹¹² U.S. Constitution Article 1, Paragraph 8, Clause 3 (“the Congress shall have Power... To regulate Commerce with foreign nations, and among the several States, and with the Indian Tribes...”). See also, Dwyer (1997), p. 206.

¹¹³ Constitution Article 1 Paragraph 10, Clause 1 (“No State shall enter into any Treaty, Alliance, or Confederation...”).

¹¹⁴ Auto Alliance Driving Innovation, <http://autoalliance.org/archives/000163.html>.

¹¹⁵ Office of the Attorney General State of California, <http://caag.state.ca.us/newsalerts/2003/03-129.htm>.

¹¹⁶ Knigge (2005), p. 16.

¹¹⁷ Rabe (2004), p. 150.

¹¹⁸ Art. 17 Kyoto Protocol.

2.2.2 Financial Constraints

In 2006, all the U.S. states combined are expected to face a collective budget shortfall of approximately \$32 billion to \$36 billion. These shortfalls are generally smaller those experienced in the last few years. From 2001 to 2004, aggregate shortfalls exceeded \$250 billion, and deficits for fiscal years 2003 and 2004 each reached the \$75 billion to \$80 billion level. In recent years, nearly every state cut spending, raised taxes, and/or drew down reserve funds to bring budgets into balance. However, the continuing deficits indicate that the sharp drop-off in revenues that precipitated the worst fiscal crisis in decades continues to threaten public services.¹¹⁹

While more than one-third of the \$15 billion states spend annually comes from the federal government, this amount is dropping as well.¹²⁰ EPA's budget for 2006 is 6% lower than its 2005 budget¹²¹, with the bulk of the cuts assigned to grants to States.¹²² This is occurring at the same time, as states are complaining that they have difficulties in implementing existing programs.¹²³ As a result, states face fiscal problems which have the potential to impede further action on climate change or even jeopardize the implementation of existing policies.

2.2.3 Infrastructure Constraints

Yet another impediment to future climate change initiatives, in particular further development of renewable energy sources, might be the infrastructure in the electricity sector. Wind power, for instance, seems well suited for many sections of the U.S., however, the realization of wind power's potential may largely depend on the capability to move electricity from its point of generation to the point of consumer demand. In other words, the states with the greatest geographical potential for wind power tend to be those located in the geographic center of the nation. The current capacity for export of this electricity across state and regional lines, however, is limited at present by the structure of the national electricity transmission system. For instance, North Dakota, the nation's windiest state, lacks transmission lines to connect windmill arrays with urban consumers in other regions. Given the difficult questions associated with new transmission, such as responsibilities, financing and public acceptance of lines as well as the timeframe needed to set up such lines, it can be expected that the grid capacity needed for

¹¹⁹ McNichol (2005).

¹²⁰ Christian Science Monitor, <http://www.csmonitor.com/2005/1006/p01s04-uspo.html>.

¹²¹ See U.S. EPA's budgets at: <http://www.epa.gov/ocfo/budget>.

¹²² The New Farm, <http://www.newfarm.org/news/2005/0205/021005/budget.shtml>.

¹²³ According to Environmental Council of the States, the shortfall in air programs is about \$100 million; in water quality programs, the gap is estimated to be about \$800 million; and in drinking water programs, the gap in 2002 was \$230 million and it is expected to grow to \$370 million by 2006. See: Environmental Council of the States (2003), p. 3.

new renewable production sights might in many cases not be installed in the short- or medium-term.¹²⁴

2.2.4 Political Constraints

Finally, a number of states currently lack the political grounding and the acceptance in their constituencies for launching policy innovation. While state agency officials from a number of states, such as New Jersey, New Hampshire, Oregon and Wisconsin regularly assumed roles as active policy entrepreneurs, other states have different preferences and concerns, such as employment, health, or revenue policies, rather than environmental protection.¹²⁵ In Michigan, for example, state officials who attempted to develop innovative environmental policies might well be putting their jobs in jeopardy, given the state's aversion to steps that might reduce greenhouse gases.¹²⁶ While a number of organizations, such as the National Governors' Association, the National Conference of State Legislatures, or the Environmental Council of the States, tend to highlight success stories and best practices¹²⁷, there are many states, such as Michigan and Colorado which appear determined to stave off any action on greenhouse gases for as long as possible.¹²⁸ It is uncertain as to whether policy initiatives outside their boundaries will have much of an effect on the policy making in these states.

¹²⁴ Rabe (2004), p. 142.

¹²⁵ Butler & Macey (1996), p. 64.

¹²⁶ George (2000).

¹²⁷ Rabe (2004), p. 136.

¹²⁸ Rabe (2004), p. 136.

3 Conclusion

To combat climate change, numerous subnational entities have embarked on a wide range of different programs, policies and initiatives. The policy initiatives described in chapter 3, indicate considerable potential within the American political framework to develop a wide range of policies that respond to the challenges of climate change. Given the geographical size of the individual States and their economies, these actions could not only improve for example, transparency and public awareness regarding GHG emissions but also help to reduce GHG emissions considerably. However, it is difficult to gauge the political and policy implications of these initiatives. This is due to the problems with predicting how these policies could diffuse to different states and eventually to the federal government and also what legal, economic or practical constraints there may be on particular initiatives.

For instance, a great number of states have – besides GHG inventories and climate action plans – set up emission registries for businesses. These policies can be regarded as prerequisites for further actions, such as carbon offset requirements or emissions trading, which are planned to be implemented by a small number of the more progressive states on the East and West coasts. As these states move forward with their policies one might assume that other states will take advantage of learning effects and eventually follow suit.¹²⁹

However, this policy spill-over depends on a number of factors. First and foremost, it hinges upon the success of the more progressive initiatives to demonstrate that more stringent climate change policies and robust economic performance are not mutually exclusive. However, it is not clear as to whether the accomplishments in some states will prove sufficient to induce other states to emulate their policies, particularly if these states are characterized by different economic characteristics. Therefore, public opinion and pressure from the business sector will prove fundamental in this respect. Yet, the degree to which business will push for a harmonization of policies largely depends on the threat to their competitiveness, closely linked to the problem of leakage, as well as on possible extra costs due to different regimes and requirements in certain states.

For instance, pressure for action on the federal level from power plants in the Northwestern and Northeastern states which face carbon cap or carbon offset requirements, hinges partly on the degree to which utilities from other states are able to sell their electricity in these markets at lower prices. Thus, the infrastructure of the electricity grid and the potential of leakage might partly determine the lobbying effort of the private sector for more harmonized regulations. Similarly, public opinion is difficult to shape. In particular entities which are more dependent on carbon intensive industries, such as the coal mining states, will not be easily

¹²⁹ Harrington et. al. (2004), p. 59.

convinced to enact stricter climate change regulations. As a result, the spillover effects in this case will largely be determined by the success of initiatives in the first place, and secondly awareness of the public and the constituencies and partly on business. However, it is likely that without federal legislation, a number of states will refuse to make use of policies, such as carbon offset requirements or emissions trading.

Another scenario arises if one looks at the emergence of renewable energies. While the impact of green pricing programs will largely depend on the awareness of customers and their willingness to pay an extra premium for clean energy, public benefit funds and portfolio standards will certainly contribute to an increase in the supply of renewable energies. Economies of scale and further technological development should make renewable energies more cost competitive. Utilities and states will therefore face fewer difficulties and may choose to employ renewable energy sources even if they had no program in place previously. Also, new stakeholders will emerge and press for further legislation in other states or on the federal level (see chapter 4.1.4.). As renewable energy industries is a growing sector, creating employment in the manufacturing, maintenance and agricultural sectors, more and more people will support a further increase in the use of renewable energy. Moreover, the current debates about energy dependency and the high oil prices will certainly contribute to a more open discussion about an increase in renewable energy sources. As a result, policy spill over effects might be less driven by demonstration effects or public awareness, and more by the emergence of new stakeholders in the renewable energy industry. While at first glance, legal, political and financial problems to the expansion of renewables seem surmountable, infrastructure problems might become an impediment in future (see chapter 4.2.3).

Yet another issue is the emission and efficiency standards for end-use products, such as automobiles and appliances. The policy transfer and diffusion of these policies is less driven by demonstration and learning effects, and more by market forces. The market size of California in combination with further states will de facto determine the national standards for vehicles as car manufacturers will not wish to serve separate markets. The benefits gained from economies of scale in the car industry will ultimately cause car manufacturers to adapt to the highest standards.¹³⁰ Car lobbyists and other producers who experience economies of scale and want to sell their products nationwide, will often push for regulation on the federal level. While these business actors would probably prefer no governmental intervention whatsoever, private sector actors are likely to prefer one national standard over the possibility of variation between states or regions.¹³¹ As a result, some states which exercise sufficient market demand may be able to

¹³⁰ That is indeed the reason, why automakers took legal steps against California. As soon as California will be allowed to raise its emission standards, the industry will be forced by the economies of scale to meet these standards throughout their production.

¹³¹ Butler & Macey (1996), p. 10.

influence the efficiency standards of the entire nation, even if certain states would not push for or even refuse to require higher standards. However, in exercising this power, states face legal constraints by national, as well as international trading law.

In conclusion, it is apparent that policy initiatives have different drivers and face different potential constraints. Moreover, the likelihood of diffusion and policy transfer is not only determined by the initiatives and the policies themselves but also by the particular circumstances of the individual states. It is no accident that no state currently building coal-fired power plants has signed up to limit carbon dioxide emissions¹³² and that the economies of the most progressive states are rather characterized by service industries and innovative technologies.

While Rabe for instance, argues that these initiatives collectively might present an alternative policy architecture for GHG reduction that could be expanded to other states, the nation or even other countries in coming years¹³³, most policy makers and researchers still regard climate change as an environmental issue which is best dealt with on the national level or even better through international cooperation. It is expected that in the end, the U.S. government will devise a serious response to climate change, as it is difficult to inspire global efforts when the country which leads on most international matters does not perform its expected role.

However, given that fact that any future action on the federal level is likely to draw from states' experiences, it might be worth supporting subnational initiatives through international information exchanges. Benefits that could accrue from international peer exchange activities include technical assistance to increase the demonstration of cost-effective clean energy technologies, the sharing of risks and learning associated with technology development and the exchange of program and policy expertise to curb GHG emissions. If partners can help a few, or even one state or local government to successfully implement innovative policies, the knowledge gained will benefit all states and ultimately also the federal government.

¹³² The Christian Science Monitor, <http://www.csmonitor.com/2005/1006/p01s04-uspo.html>.

¹³³ Rabe (2004), pp. 121 – 172.

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