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A Survey of Environmental Policies Among the States: 2015

Heather Kirkpatrick
University of Michigan
Center for Local, State, and Urban Policy

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Center for Local, State, and Urban Policy Gerald R. Ford School of Public Policy University of Michigan

<u>Introduction</u>

The purpose of this study is to begin to develop a comprehensive assessment of the relative activity of the US states in developing environmental policies. We did this by developing eleven policy categories varying across different environmental and energy disciplines, from water quality to renewable energy incentives. Data was collected from several websites including the Database of State Incentives for Renewables and Efficiency, the National Conference of State Legislatures, and the American Council for an Energy-Efficient Economy, among others. This work is cited in Barry Rabe's new version of "Racing to the Top, the Bottom, or the Middle of the Pack?" in Norman Vig and Michael Kraft's 2016 edition of *Environmental Policy—New Directions for the Twenty-First* Century (Sage/CQ Press), pp. 33-57.

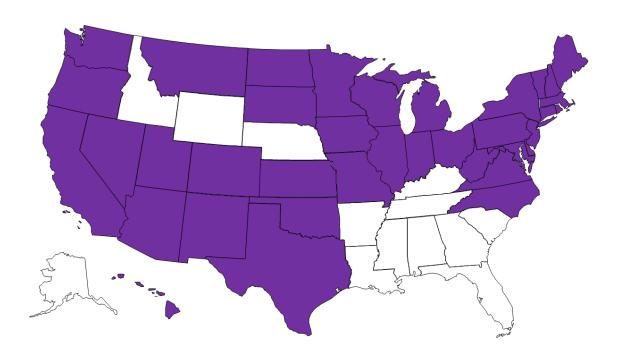
Categories include renewable portfolio standards, public benefit funds, state hybrid and electrical vehicle incentives, greenhouse gas emission reduction policies, reductions in nuclear and radioactive waste, tailpipe emissions standards, energy efficiency resource standards, toxic release inventories, water conservation and efficiency, mercury and toxics programs for utilities, and recycling programs. One point is assigned for each respective state if they have a policy that relates to furthering environmental action for a specific cause. Energy efficiency resource standards has four subcategories including performance incentives for electricity, performance incentives for natural gas, penalty incentives for electricity, and penalty incentives for natural gas. Each of the subcategories is worth .5 of a point. Thus, the maximum score a state can receive is 13 points, and the minimum score a state can receive is zero points. We tried to make our categories diverse enough that this study can provide a comprehensive view of state level environmental and energy policies while also remaining specific enough that the measurements show a distribution placement for states.

Each category also has a map, indicating the geographical distribution of policies. Some policies, like tailpipe emissions standards, show clear geographical distributions, while others, like greenhouse gas emission reduction policies, show less of a geographic distribution pattern. Clustering patterns can also be observed on an aggregate basis, in concluding sections that look at patterns across all of the policies. All 50 states are assessed in this study, although the District of Columbia is not measured because of the limited ability to secure directly comparable information about environmental policies.

Renewable Portfolio Standards

Renewable portfolio standards (RPSs) or renewable portfolio goals attempt to increase production of energy through renewable methods, such as wind power, solar power, or burning biomass, as opposed to more conventional methods like fossil fuels and nuclear energy. This is done by setting standards for production of energy by renewable sources. Renewable portfolio standards should further renewable energy development. Renewable portfolio standards falls into the realm of renewable energy policy.

Of the 50 states, not including the District of Columbia, 37 states have adopted this regulatory measure. One point was assigned to each state that has a portfolio standard in place. Of the 16 states with the lowest overall scores, 11 do not have renewable portfolio standards. Likewise, 31 of the states with the highest 33 scores also have RPSs. From these numbers, it appears that having renewable portfolio standards is a good indicator of a state having a strong energy and environmental policy program.



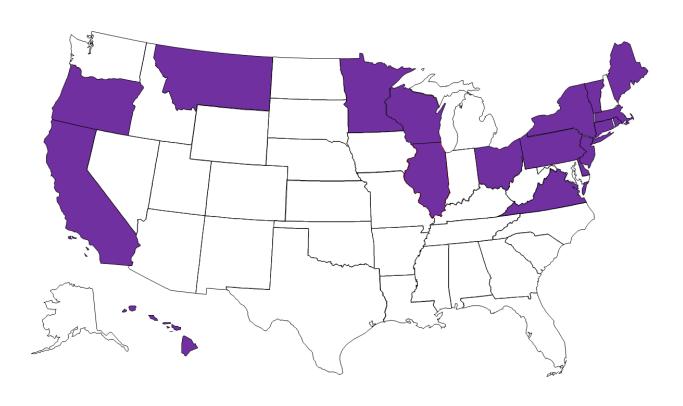
The information about renewable portfolio standards comes from the "Rules, Regulations, & Policies for Renewable Energy" table on the Database of State Incentives for Renewable Energy (DSIRE) website. This website is partially run by the United States Department of Energy. See http://dsireusa.org/summarytables/rrpre.cfm.

¹ Database of Incentives for Renewables & Efficiency [DSIRE]. (2015). *Policies & incentives by state*. North Carolina Clean Energy Technology Center at North Carolina State University: Raleigh, NC. Retrieved from http://www.dsireusa.org/

Public Benefit Funds

Public Benefit Funds typically charge a fee to consumers through consumers' energy bills. This money is then used to invest in clean energy. Public benefit funds should increase renewable energy usage.

Of the 50 states, not including the District of Columbia, 18 states have a public benefit fund;² we assigned each of these one point. Twenty-four of 25 states with the lowest overall scores do not have public benefit funds, and eight of the nine states with the highest scores also have public benefit funds. Like renewable portfolio standards, this tells us that having a public benefit fund is connected to having other energy and environment programs, as well. Notable geographic relations include a lack of public benefit funds from the Southeast, Great Plains, Southwest, and western Midwest. The Northeast has many, but New Hampshire, Maryland, and West Virginia do not have public benefit funds. We only used information on state level implementation of public benefit funds, although some policies have already been developed at the local level, notably in Boulder, Colorado.

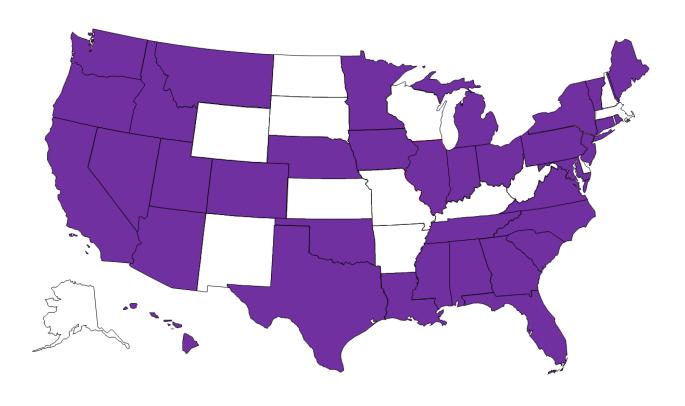


² DSIRE. (2015). *Policies & incentives by state*. The information about public benefit funds came from the Rules, Regulations, & Policies for Renewable Energy table on the DSIRE Website. See http://dsireusa.org/summarytables/rrpre.cfm.

State Hybrid and Electrical Vehicle Incentives

State hybrid and electrical vehicle incentives provide many different advantages to driving a hybrid or electrical vehicle, including monetary incentives, high-occupancy vehicle lane exemptions, vehicle inspections or emissions test exemptions, parking incentives, and utility rate reductions. Electric vehicles oftentimes produce fewer emissions than those that run on fossil fuels, but this depends on the type of fuel used to produce the electricity which fuels them. This category primarily deals with air quality and energy policy.

As of November 2013, 38 states had at least one incentive in place for driving a hybrid or electric vehicle.³ We assigned each of these one point. There does not appear to be a clear correlation between the number of environmental policies that a state has overall and a state having a policy relating to hybrid and electrical vehicles. States with the most energy and environmental policies have those relating to hybrid and electrical vehicles, but states with the fewest, including Alabama, Missouri, Idaho, and Louisiana, have incentives for driving hybrid or electrical vehicles, as well. There does not appear to be a correlation between geographical location and having incentives for driving electric or hybrid cars; many states from a wide variety of geographic locations have policies in this category.



³ Hartman, K. (2014, October 23). *State efforts promote hybrid and electric vehicles*. National Conference of State Legislatures [NCSL]: Washington, D.C. Retrieved from http://www.ncsl.org/research/energy/state-electric-vehicle-incentives-state-chart.aspx

Greenhouse Gas Emissions Reduction Policies

Emissions reduction policies focus on whether a state has enacted or adopted any greenhouse gas emissions reduction legislation, which primarily deals with energy policy and air quality. Specifically, we looked at policies enacted since 2008. In order to gain a point in this section, states could either have passed a piece of legislation reducing greenhouse gas emissions since 2008 or be a member of the Regional Greenhouse Gas Initiative (RGGI). RGGI is a market-based regulatory program comprised of nine states in the Northeast or New England region that share the goal of reducing carbon dioxide emissions in their states. Those states are Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont. According to the RGGI website, a cap of 91 million short tons was implemented in 2014. In each following year until 2020, the CO₂ cap is projected to decline by 2.5 percent. In addition, several other states enacted and adopted legislation reducing greenhouse gas emissions.

Twenty-two states have passed legislation reducing emissions since 2008 either through RGGI or through individual state action. There does not appear to be any relationship between geographical location and having emissions reduction policies beyond those associated with RGGI.



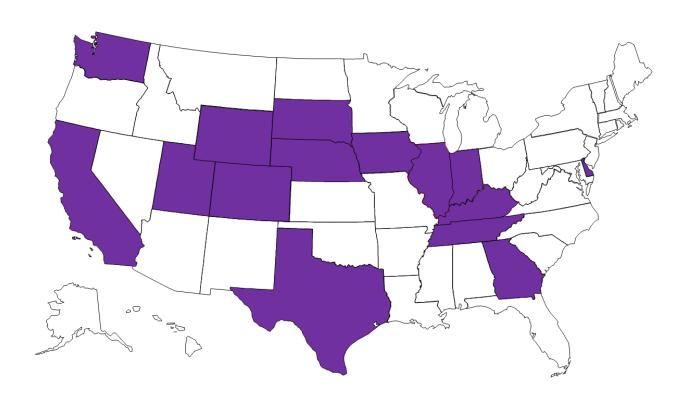
⁴ National Conference of State Legislatures [NCSL]. (2015). *Energy and environmental legislation database*. NCSL: Washington, D.C. Retrieved from http://www.ncsl.org/research/energy/energy-environment-legislation-tracking-database.aspx; Regional Greenhouse Gas Initiative [RGGI]. (2015). *RGGI homepage*. Retrieved from http://www.rggi.org/

To access this information from the NCSL website, click on "Climate Change- Emissions Reduction" in the "Topics" section, "Enacted" or "Adopted" in the "Status" section, "All Years" in the "Year" section, and "All States" in the "States" section. This is the same process you will follow for all further information retrieved from the NCSL website.

Reductions in Nuclear and Radioactive Waste

Nuclear and radioactive waste policies deal with whether a state has enacted or adopted any policies relating to the disposal of these materials; specifically, we looked at policies enacted since 2008. In order to gain a point in this section, a state must have passed legislation to increase effective storage and disposal of nuclear or radioactive waste. This section deals with energy production and policy as well as disposal of waste.

Fifteen states have enacted or adopted legislation that increased effective storage and disposal of nuclear waste since 2008. There does not appear to be a relationship between geographical location and developing new policies relating to disposal of nuclear and radioactive waste. In addition, there is not a correlation between having many policies relating to energy and environmental policies in general and enacting new policies relating to disposal of nuclear and radioactive waste.



In order to get this information, go to the NCSL's Energy and Environment Tracking database (link above). From there, click on "Nuclear/Radioactive Waste" in the "Topics" section, "All States" in the "States" section, "Enacted" or "Adopted" in the "status" section, and "All Years" in the "Years" section.

⁵ NCSL. (2015). Energy and environmental legislation database.

Tailpipe Emissions Standards

Tailpipe emissions standards set limits on emissions produced by cars and trucks. By producing new vehicle technologies, policymakers hope to not only reduce the harmful airborne pollutants produced by vehicles but also to reduce energy consumption. This category deals with both energy policy as well as air quality.

Fifteen states have tailpipe emissions standards;⁶ each of these states receives one point. Nine of these states are located in the Northeast, including such large states as New York and Pennsylvania. New Mexico, Oregon, Washington, and California all have tailpipe emissions standards, and they are all located in the western portion of the country. This tells us that there appears to be a correlation between geographical location and tailpipe emissions standards. Tailpipe emissions standards are not entirely dependent on geographical location, however, as we can see from New Mexico and Florida.

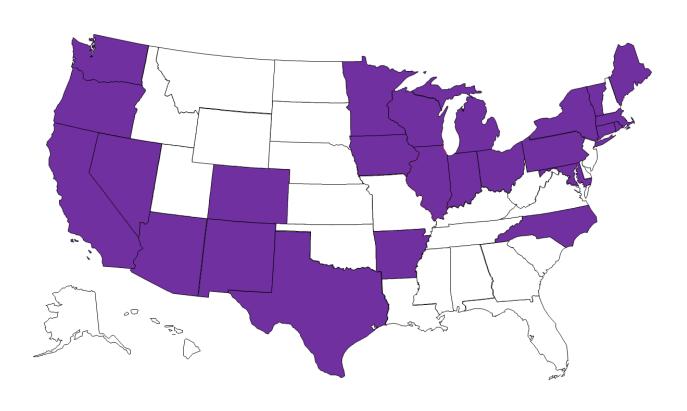


⁶ Downs, A., Chittum, A., Hayes, S., Neubauer, M., Nowak, S., Vaidyanathan, S., Farley, K., & Cui, C. (2013). *The 2013 state energy efficiency scorecard* (Report No. E13K). American Council for an Energy-Efficient Economy: Washington, D.C. Retrieved from http://www.aceee.org/sites/default/files/publications/researchreports/e13k.pdf

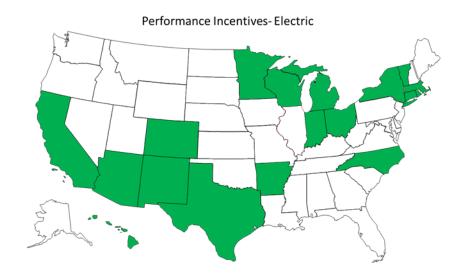
Energy Efficiency Resource Standards

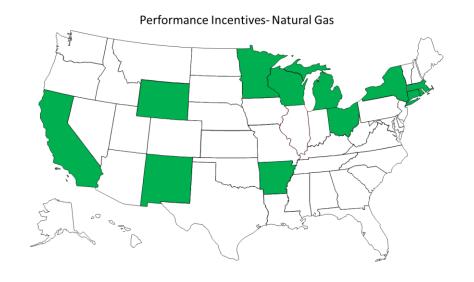
Energy efficiency resource standards are long-term energy savings requirements put in place for utility companies and efficiency program administrators. These programs include funding for implementation. Policymakers hope that these targets will push companies to reduce their energy usage, thus causing a reduction in nationwide energy usage. Individual states set their own targets, which allow states to plan their own energy policy-related futures.

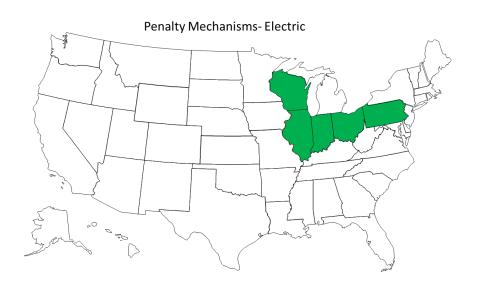
This section has five parts. First, states are assigned one point for having energy efficiency resource standards. Twenty-six states have already done this. In general, states that have energy efficiency resource standards also have many other environmental and energy policies. Next, states are assigned .5 of a point for having performance incentives for each electricity and natural gas. In addition, states are assigned .5 of a point for having penalty mechanisms for each natural gas and electricity. Overall, more states have performance incentives than penalties. Eighteen states had performance incentives for electricity. Twelve states have performance incentives for natural gas. Five states have penalties for electricity, and two states have penalties related to natural gas.

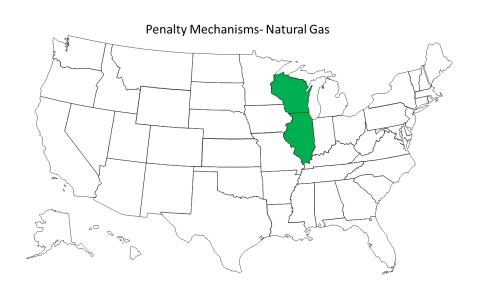


⁷ Downs, A., & Cui, C. (2014). *Energy efficiency resource standards: A new progress report on state experience* (Report No. U1403). American Council for an Energy-Efficient Economy: Washington, D.C. Retrieved from http://aceee.org/sites/default/files/publications/researchreports/u1403.pdf





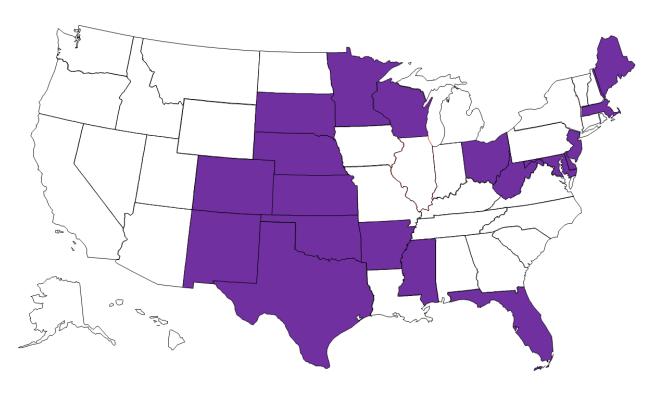




Toxic Release Inventories

Toxic release inventories (TRIs) list what types and how much of certain hazardous materials can be released into the environment, and were put in place to protect both public health and environmental health. This category deals with air and water quality. The Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 instructs all states to create State Emergency Response Commissions (SERCs) to create plans for effective responses to hazardous waste incidents. The formation of local emergency planning committees (LEPCs) is overseen by SERCs. While all states have SERCs and LEPCs, only 19 states have toxic release inventories because the federal government does not require them. Each state received one point if it has an established inventory program.

Southern states generally score lower than counterparts from other regions in developing environmental and energy policies but this is not the case for toxic release inventories as is shown in the map below. Mississippi, Arkansas, and Florida all have TRIs, whereas California, Illinois, and Connecticut, three states that have many other policies related to energy and the environment, do not have TRIs.

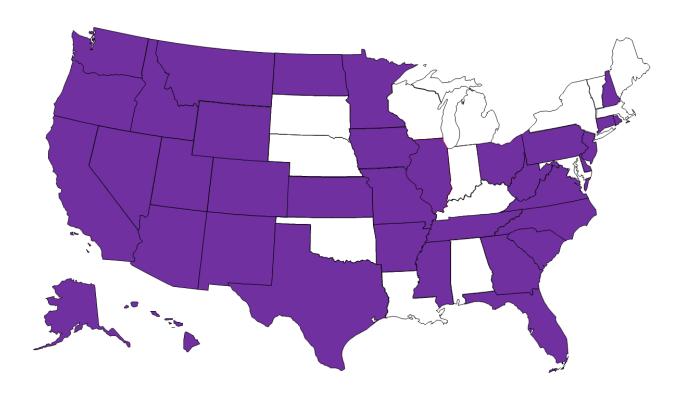


https://www.dropbox.com/s/xdtn684ym0cejuu/February%202014%20Green%20Report%20Final%20%282%29.doc

Water Conservation and Efficiency

Water conservation and efficiency deals with policies that increase water conservation and efficiency at the state level; specifically, we looked at policies that states have implemented since 2008. This category deals with water quality.

In the past seven years, 36 states have implemented polices that increase water conservation and efficiency. One point was assigned to each state that had implemented at least one policy since 2008 which dealt with water efficiency and conservation. For example, new regulations on irrigation or new policies on the disposal of contaminated water would both be rationale for a getting a point in the category. One example of a policy that would not rationalize getting a point is an exemption of hydraulic fracturing from the Clean Drinking Act. There does not seem to be a correlation between geographical location and implementing water legislation.



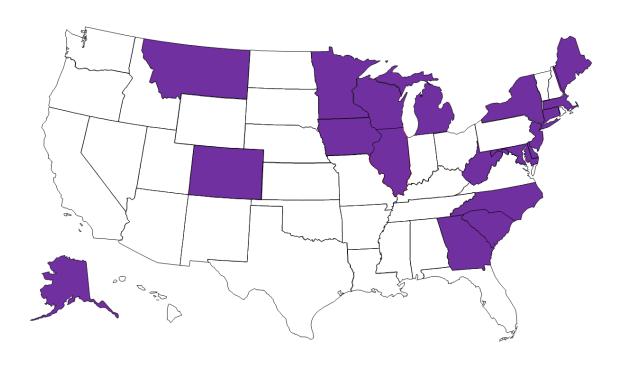
In order to get this information, go to the NCSL's Energy and Environment Tracking database (link above). From there, click on "Water Conservation/Efficiency" in the "Topics" section, "All States" in the "States" section, "Enacted" or "Adopted" in the "Status" section, and "All Years" in the "Years" section.

⁹ NCSL. (2015). Energy and environmental legislation database.

Mercury and Toxics Programs

Mercury and Toxics Programs for Utilities identifies states that have implemented programs to decrease the amount of mercury and other toxics which are released into the air from utility plants. This policy deals with air quality.

As of Feburary 2011, 19 states had implemented plans to reduce the amount of mercury released. One point was assigned to each state that had implemented a plan to reduce release of mercury by utilities. Some common ways of reducing mercury emissions include setting a cap on emissions or by developing a program to reduce the amount of mercury emissions over a period of several years. In addition, in order to receive a point in this category, states must take an initiative to reduce their own emissions. Policies related to airborne mercury reduction seems to be concentrated in the Midwest and along the east coast. ¹⁰



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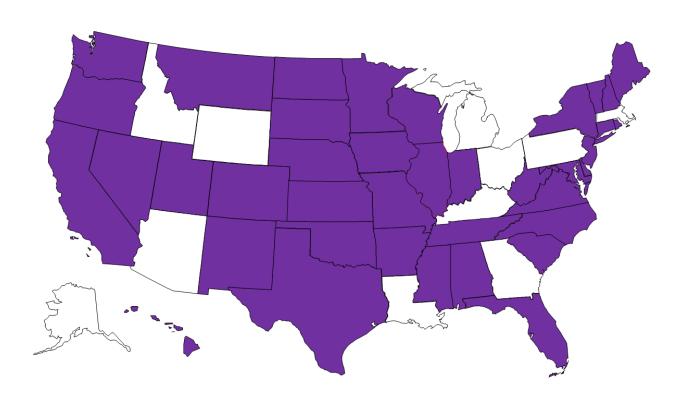
 $^{^{10}}$ National Association of Clean Air Agencies. (2011). State/Local Mercury/Toxics Programs for Utilities.

Information no longer available online

Recycling Initiatives

Recycling initiatives deal with whether states have initiated any new policies in the realm of recycling. Specifically, we looked at policies enacted since 2008. If a state has initiated a new policy since 2008 relating to recycling, then they get one point. For example, increased funds to recycling programs or new requirements that plastic bags be biodegradable would both be rationales for a state getting a point in this section. This policy realm deals with water and air quality.

Thirty-nine states have developed new policies in recycling since 2008,¹¹ and having policies related to recycling does not seem to be correlated with geographical location.



In order to get this information, go to the NCSL's Energy and Environment Tracking database (link above). From there, click on "Recycling" in the "Topics" section, "All States" in the "States" section, "Enacted" or "Adopted" in the "Status" section, and "All Years" in the "Years" section.

¹¹ NCSL. (2015). Energy and environmental legislation database.

US States with Environmental Policies

	Renewable Portfolio Standards	Public Benefit Funds	State Hybrid and Electric Vehicle Incentives	Emissions Reduction since 2008 or Regional Greenhouse Gas Initiative (RGGI) Member	Nuclear/ Radioactive Waste since 2008	Tailpipe Emissions Standards	Energy Efficiency Resource Standards	Performance Incentives- Electric	Performance Incentives- Natural Gas	Penalty Mechanisms- Electric	Penalty Mechanisms- Natural Gas	Toxic Release Inventory Programs	Water Conservation/ Efficiency since 2008	Mercury/ Toxics Programs for Utilities	Recycling Initiatives since 2008	Total
California ¹²	1	1	1	1	1	1	1	0.5	0.5	0	0	0	1	0	1	10
Colorado	1	0	1	1	1	0	1	0.5	0.5	0	0	1	1	1	1	10
Connecticut	1	1	1	1	0	1	1	0.5	0.5	0	0	0	1	1	1	10
Delaware	1	1	1	1	1	1	0	0	0	0	0	1	1	1	1	10
Illinois	1	1	1	1	1	0	1	0	0	0.5	0.5	0	1	1	1	10
Minnesota	1	1	1	1	0	0	1	0.5	0.5	0	0	1	1	1	1	10
Maine	1	1	1	1	0	1	1	0	0	0	0	1	0	1	1	9
New York	1	1	1	1	0	1	1	0.5	0.5	0	0	0	0	1	1	9
Rhode Island	1	1	1	1	0	1	1	0.5	0.5	0	0	0	1	0	1	9
Texas	1	0	1	1	1	0	1	0.5	0	0	0	1	1	0	1	8.5
lowa	1	0	1	1	1	0	1	0	0	0	0	0	1	1	1	8
Maryland	1	0	1	1	0	1	1	0	0	0	0	1	0	1	1	8
Massachusetts	1	1	0	1	0	1	1	0.5	0.5	0	0	1	0	1	0	8
New Jersey	1	1	1	0	0	1	0	0	0	0	0	1	1	1	1	8
Oregon	1	1	1	1	0	1	1	0	0	0	0	0	1	0	1	8
Washington	1	0	1	1	1	1	1	0	0	0	0	0	1	0	1	8
Wisconsin	1	1	0	0	0	0	1	0.5	0.5	0.5	0.5	1	0	1	1	8
Ohio	1	1	1	0	0	0	1	0.5	0.5	0.5	0	1	1	0	0	7.5
Vermont	1	1	1	1	0	1	1	0.5	0	0	0	0	0	0	1	7.5
New Mexico	1	0	0	0	0	1	1	0.5	0.5	0	0	1	1	0	1	7
Hawaii	1	1	1	0	0	0	1	0.5	0	0	0	0	1	0	1	6.5
North Carolina	1	0	1	0	0	0	1	0.5	0	0	0	0	1	1	1	6.5
Pennsylvania	1	1	1	0	0	1	1	0	0	0.5	0	0	1	0	0	6.5
Indiana	1	0	1	0	1	0	1	0.5	0	0.5	0	0	0	0	1	6
Montana	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	6
West Virginia	1	0	0	1	0	0	0	0	0	0	0	1	1	1	1	6
Arkansas	0	0	0	0	0	0	1	0.5	0.5	0	0	1	1	0	1	5
Florida	0	0	1	0	0	1	0	0	0	0	0	1	1	0	1	5
Kansas	1	0	0	1	0	0	0	0	0	0	0	1	1	0	1	5
Michigan	1	0	1	0	0	0	1	0.5	0.5	0	0	0	0	1	0	5
Nevada	1	0	1	0	0	0	1	0	0	0	0	0	1	0	1	5
Utah	1	0	1	0	1	0	0	0	0	0	0	0	1	0	1	5
Virginia	1	1	1	0	0	0	0	0	0	0	0	0	1	0	1	5
Arizona	1	0	1	0	0	0	1	0.5	0	0	0	0	1	0	0	4.5
Georgia	0	0	1	0	1	0	0	0	0	0	0	0	1	1	0	4
Mississippi	0	0	1	0	0	0	0	0	0	0	0	1	1	0	1	4
Nebraska	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	4
New Hampshire	1	0	0	1	0	0	0	0	0	0	0	0	1	0	1	4
Oklahoma	1	0	1	0	0	0	0	0	0	0	0	1	0	0	1	4
South Carolina	0	0	1	0	0	0	0	0	0	0	0	0	1	1	1	4
South Dakota	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	4
Tennessee	0	0	1	0	1	0	0	0	0	0	0	0	1	0	1	4
Alabama	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	3
Missouri	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	3
North Dakota	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	3
Wyoming	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	3
Alaska	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
Idaho	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	2
Kentucky	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
Louisiana	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2
Number of States w/Policy	37	18	38	22	15	15	26	18	12	5	2	19	36	19	39	

Information in this table is retrieved from: DSIRE. (2015). Policies & incentives by state; Hartman. (2014). State efforts promote hybrid and electric vehicles; NCSL. (2015). Energy and environmental legislation database; RGGI. (2015). RGGI homepage; Downs, et al. (2013). The 2013 state energy efficiency scorecard; Downs & Cui. (2014). Energy efficiency resource standards; https://www.dropbox.com/s/xdtn684ym0cejuu/February%202014%20Green%20Report%20Final%20%282%29.doc.

Conclusion

This research demonstrates the considerable diversity among states in policy adoption. First, no policy has been adopted by all 50 states. The most popular policy group in terms of participation is recycling, with 39 states gaining points for developing recycling programs since 2008. The categories with the lowest participation rates are the development of nuclear or radioactive waste programs since 2008 and tailpipe emissions standards, both with 15 states receiving points for each. The subcategories of energy efficiency resource standards did not have a high participation rate either. Penalty mechanisms for electric and natural gas had five and two states participating, respectively. In general, programs which have been around for a relatively long time in the United States, like recycling and water conservation programs, have a higher participation rate than programs that are newer in the United States, like tailpipe emissions standards. This conclusion, of course, is not consistent across all policies. Programs limiting mercury have been around for decades, yet programs related to mercury and toxics do not have a high participation rate, perhaps attributable in part to an expanding federal role in recent years.

In addition, programs that are related to less controversial environmental or energy topics tend to have a higher participation rate. For example, most people want to conserve water resources, especially in light of the growing drought in the western portion of the country. Another example of this is recycling programs; many people participate in and support recycling, therefore states are more likely to institute these policies. On the other side of that coin are programs with penalty mechanisms or more traditional energy sources such as fossil fuels, which may be more controversial.

Next, states' scores show an interesting story. The average score is 6.05, and the median is six points. No state received a perfect score; one theory for this occurrence is the diversity of policies measured. If the policies had been more focused on one policy area, like energy or water quality, then possibly at least one state would have come out with a perfect score. In addition, each state cares about different things; therefore, states will develop different policies that are relevant to their residents and state's particular needs.

Next, the high total score is 10 points (three points less than a perfect score). This score is shared by six states: California, Colorado, Connecticut, Delaware, Illinois, and Minnesota. Some of these states are historically known for being environmentally friendly, perhaps most notably California. The low score of two total points is shared by four states: Alaska, Idaho, Kentucky, and Louisiana. The status of these states is also not surprising considering they are generally known as underperformers in terms of being environmentally friendly policies. Whether this underperformance is purposeful or not is beyond the realm of this study.

In general, the Pacific Northwest, the Northeast, and the Midwest seem to have the largest number of environmental policies. The Southeast has the fewest policies, and the West extending from Idaho to Missouri—with the notable exceptions of Colorado and Iowa— also has very few policies. There are also instances where states with many environmental policies are located next to states with few such policies. For example, New Hampshire, with a relatively low score of four, is in the middle of arguably the most environmentally friendly area of the country. Colorado has a near perfect score of ten, but it is in the middle of a poorly rated area. These are, however, only a few examples of such a discrepancy between geographical location and policies.

In conclusion, we offer this as a first attempt at a mid-decade analysis and welcome anyone inclined to continue this study. It is only an initial overview but has the possibility to grow into a comprehensive measure of states' policies. Possible new ideas to explore are the development of policies related to hydraulic fracturing, incentives for high fuel economy vehicles, water use polices, ecological conservation and preservation polices, or policies related to reductions in CO_2 emissions. All of these, in addition to dozens more, would give this study more accurate results which could lead us to more robust conclusions. This could also be sustained over an extended period to measure changes over time.

Environmental Policies in American States

