THE 2008 STATE ENERGY EFFICIENCY SCORECARD

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EXECUTIVE SUMMARY

Introduction

Energy efficiency is the "first fuel" in the race for clean and secure energy resources. Faced with rapidly increasing energy prices, constraints in energy supply and transmission, and energy reliability concerns, states are turning to energy efficiency as the most reliable, cost-effective, and quickest resource to deploy. States are now investing two to three times as much as the federal government toward energy efficiency programs and resource.[1] In the race for clean energy resources, states are adopting aggressive energy efficiency policies, increasing investments in efficiency programs, and improving efficiency in their own facilities and fleets. While some states have been making commitments toward energy efficiency for decades, others are just getting started, and still others fall far behind. We present here a comprehensive state energy efficiency scorecard to document best practices and recognize leadership among the states. The scorecard can serve as a means of benchmarking state efforts, with the goal of encouraging states to continue to raise the bar in efficiency commitments and providing a roadmap for states that want to catch up to the leaders.

In 2007, ACEEE released *The State Energy Efficiency Scorecard for 2006* (Eldridge et al. 2007), which was the first of its kind to provide a comprehensive approach to scoring and ranking states on the adoption and implementation of energy efficiency policies and programs. This is a 2008 update to the scorecard, ranking all fifty states and the District of Columbia on energy efficiency policies and programs. The scorecard examines eight state energy efficiency policy areas: (1) utility-sector and public benefits programs and policies; (2) transportation polices; (3) building energy codes; (4) combined heat and power; (5) appliance efficiency standards; (6) Lead by Example in state facilities and fleets; (7) research, development, and deployment; and (8) financial and information incentives. States can earn up to 50 possible points in these eight policy areas combined, with the maximum possible points in each area weighted by the magnitude of its potential impact on energy savings.[2]

Summary of Rankings

Table ES-1 shows state scores for each of the eight policy areas, overall rankings and total scores out of a maximum possible 50 points, and change in a state's rank compared to last year's report. Figure ES-1 shows state rankings and classifies states into four bins.

[1] In 2008, the federal government appropriated about $800 million for energy efficiency programs (ASE 2008). In 2006, state energy efficiency programs spent about $1.9 billion on electric and natural gas programs (data are presented in Chapter 1) and the states had budgets for 2007 of about $3 billion (CEE 2008).

[2] A companion report on state renewable energy policies and programs was developed by the National Renewable Energy Laboratory (Brown and Busche 2008).

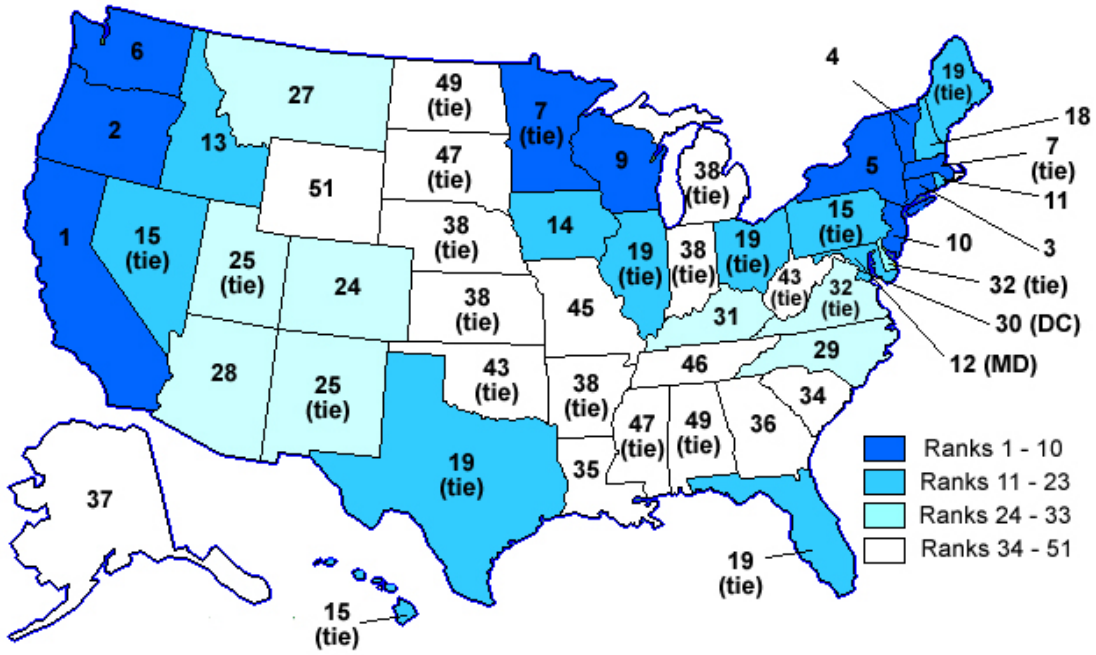
Table ES-1. Summary of Overall State Scoring on Energy Efficiency

Rank	State	Utility and Public Benefits Efficiency Programs and Policies Score	Transportation Score	Building Code Score	Combined Heat and Power (CHP) Score	Appliance Standards	State Lead by Example	RD&D	Financial and Information Incentives	TOTAL SCORE
	Maximum Possible Points:	*20*	*6*	*8*	*5*	*4*	*2*	*2*	*3*	*50*
1	California	14.5	4	8	5	4	2	2	1	40.5
2	Oregon	13.5	3.5	8	5	3	0.5	0.5	3	37.0
3	Connecticut	15.5	5	4	5	3	2	0.5	1	36.0
4	Vermont	19	2.5	5	2.5	1	2	0	1	33.0
5	New York	12.5	4.5	5.5	5	1	1	2	1	32.5
6	Washington	12	4.5	8	4	2	0.5	0	1	32.0
7	Massachusetts	12.5	3.5	3.5	3	1	1	1	1	26.5
7	Minnesota	13.5	1	5.5	2.5	0	2	0	2	26.5
9	Wisconsin	10	0.5	8	5	0	0.5	2	0	26.0
10	New Jersey	10	3.5	5	5	1	1	0	0	25.5
11	Rhode Island	10	3	4.5	1	3	1.5	0	0	23.0
12	Maryland	5.5	3.5	4.5	3	2	1	0	2	21.5
13	Idaho	10	0	6	3	0	0	0	2	21.0
14	Iowa	10.5	0	5	0.5	0	1	2	0	19.0
15	Hawaii	8.5	0.5	3.5	2.5	0	2	0	0	17.0
15	Pennsylvania	1	3.5	4.5	4	0	2	0	2	17.0
15	Nevada	8.5	0	5	0.5	1	0.5	0	1.5	17.0
18	New Hampshire	7.5	0	4.5	1.5	0	2	0	1	16.5
19	Maine	6.5	2.5	2	2.5	0	1.5	0	1	16.0
19	Florida	2.5	0.5	7	3	0	2	1	0	16.0
19	Ohio	5.5	0	3.5	5	0	1	0	1	16.0
19	Texas	3	0	5	5	0	1	1	1	16.0
19	Illinois	3	0	4.5	5	0	1	0.5	2	16.0
24	Colorado	8	1	3	2.5	0	1	0	0	15.5
25	New Mexico	4	3	5	1.5	0	0.5	0	1	15.0
25	Utah	6.5	0	6	0.5	0	2	0	0	15.0
27	Montana	6	0	5	1	0	1.5	0	1	14.5
28	Arizona	4	2.5	3	1.5	1	1	0	1	14.0
29	North Carolina	2	0	4.5	3	0	1	2	1	13.5
30	District of Columbia	2	2	3	2.5	1	1	0	0	11.5
31	Kentucky	3	0	6	0.5	0	0.5	0	1	11.0
32	Delaware	0	1.5	3	2.5	0	1	0	2	10.0
32	Virginia	1	0.5	5	0.5	0	2	0	1	10.0
34	South Carolina	1.5	1	5	1	0	0.5	0	0	9.0
35	Louisiana	0	1	4	0	0	2	0	1	8.0
36	Georgia	1.5	0.5	5.5	0	0	0	0	0	7.5
37	Alaska	0	1	3	1.5	0	0	0	1	6.5

Rank	State	Utility and Public Benefits Efficiency Programs and Policies Score	Transportation Score	Building Code Score	Combined Heat and Power (CHP) Score	Appliance Standards	State Lead by Example	RD&D	Financial and Information Incentives	TOTAL SCORE
38	Michigan	0.5	0	1.5	3	0	1	0	0	6.0
38	Indiana	2.5	0	1	2.5	0	0	0	0	6.0
38	Kansas	1	0	3	1	0	0	0	1	6.0
38	Nebraska	0.5	0	4	0.5	0	0	0	1	6.0
38	Arkansas	1	0	4	1	0	0	0	0	6.0
43	West Virginia	0	0	4.5	1	0	0	0	0	5.5
43	Oklahoma	0	0	4	0.5	0	0	0	1	5.5
45	Missouri	0	0	1.5	1.5	0	0.5	0.5	0	4.0
46	Tennessee	1	0.5	0.5	0.5	0	0	0	1	3.5
47	Mississippi	0	0	0	1	0	0	0	1	2.0
47	South Dakota	0.5	0	0	1.5	0	0	0	0	2.0
49	North Dakota	0.5	0	0	1	0	0	0	0	1.5
49	Alabama	0	0	0	0.5	0	1	0	0	1.5
51	Wyoming	0	0	0	0	0	0	0	0	0.0

Note: We do not score the U.S. territories due to lack of data, though hope to expand the scorecard in the future to include them in the rankings.

Figure ES-1. Map of State Energy Efficiency Scorecard Results



We note that although we provide individual state rankings, in terms of measuring commitment to energy efficiency, the difference between rankings is most significant among bins of every ten or fifteen ranks rather than individual scores. For example, the difference between states listed in "top ten" is much less significant than the difference between the tier of top ten and the second or third tier of ten to fifteen. Figure ES-1 and Table ES-1 sort the state rankings in "bins," which is the best way for readers to interpret the results of the scorecard.

The top ten states, as shown in Table ES-2, earn at least 25 out of the possible 50 points, with California, Oregon, and Connecticut taking the top three spots with 40.5, 37, and 36 points, respectively. Each of the next two bins of states earn between 10 and 23 points, while states in the last bin score less than 10 points.

Change from Last Year's Scorecard

This year's "top ten" states, based on their combined scores, are listed in Table ES-2, along with the "top ten" states from last year's scorecard.

Table ES-2. Top Ten States for the 2008 and 2007 Scorecards

2008 Edition		2007 Edition	
1	California	1	California (tie)
2	Oregon	1	Connecticut (tie)
3	Connecticut	1	Vermont (tie)
4	Vermont	4	Massachusetts
5	New York	5	Oregon
6	Washington	6	Washington
7	Massachusetts (tie)	7	New York
7	Minnesota (tie)	8	New Jersey
9	Wisconsin	9	Rhode Island (tie)
10	New Jersey	9	Minnesota (tie)

The 2008 "top ten" are mostly the same as in the 2007 scorecard, with Wisconsin being the sole newcomer to enter these top rankings. These states lead the country in energy efficiency through best practices in most of the eight categories, including successful implementation of utility efficiency programs, transportation efficiency policies, and building energy codes. For example, the states in the top ten all rank in the top ten of the utility and public benefits programs and policies chapter, and seven of the top ten rank among the highest in terms of transportation policies, while five of them rank the highest with regards to building energy codes.

Outside of the top ten, there has been significant movement up the ladder since last year's scorecard. Idaho was the "most improved" state, having moved up twelve spots compared to last year's scorecard. Other states that climbed the rankings are Florida, which moved up ten spots, and Maryland and Ohio, which each ascended eight spots in the rankings, putting all of these states in the second tier in our scorecard and giving them the title of "most improved" states. These states have each expanded their efforts through various means, such as committing more resources to energy efficiency programs, setting long-term and aggressive energy savings goals, or making commitments to improve the efficiency of their own facilities and fleets. Readers should note that while some movement can be attributed to states advancing or expanding their suite of energy efficiency policies, some changes in rank are due to changes in our scoring methodology since last year's scorecard, such as expanding Chapter 1 on utility-sector and public benefits programs and policies to include several additional variables (electric savings, gas program spending and decoupling/utility incentives) and adding a score in Chapter 3 for compliance with state building energy codes. States that do well on these new metrics have moved up in the rankings, while states that do not do as well have moved down.

In addition to the significant strides we have seen from states that are reflected in this year's rankings, we are already seeing signs of the major efforts states are making that will be reflected in next year's scorecard. For example, in September 2008 the Colorado PUC approved plans for one major utility to significantly increase funding for efficiency programs, laying the groundwork to ramp up program efforts in the state. Tennessee passed legislation in 2008 to update its building energy codes, which will become effective in January 2009. Also in September, Michigan passed legislation establishing an Energy Efficiency Resource Standard, which sets a long-term energy savings goal for utilities. The governor is expected to sign this bill shortly. The latest energy savings data from programs in Vermont, which will be reflected in next year's report, have showed that efficiency is meeting nearly 2% of the state's electricity needs, up from 1% in the previous year. And these are just a few examples of the many efforts states are making to improve their energy efficiency. Though, because the Scorecard covers program results and policies generally effective as of June 2008, most of these efforts that will become effective in 2009 will be covered in next year's edition of the Scorecard.

Conclusions

States are leading the nation in advancing energy efficiency policies and programs, which is why it is important to recognize and document best practices among the states, both to encourage other states to follow and to encourage federal action to catch up. This year's scorecard builds on this need for a comprehensive review of state policies by improving scoring metrics to provide a clearer idea of states' commitment to promoting energy efficiency.

Energy efficiency is the only resource that can help states actually *reduce* energy consumption to combat rising energy demand and create a hedge against skyrocketing energy prices — making efficiency the "first fuel" states can use to balance their energy portfolios. And by shrinking the overall reliance on energy supply, efficiency allows new, clean energy resources — such as wind and solar technologies — to make up a growing slice of state energy portfolios. Recently, the National Renewable Energy Laboratory (NREL) undertook a review of state progress on expanding the use of renewable energy and the best practices that enable state development of renewable energy (Brown and Busche 2008). The results of this effort serve as important complement to the review of energy efficiency policies in this scorecard.

INTRODUCTION

Since the 1970s, states have rapidly outpaced the federal government in both spending commitments to energy efficiency and adopting landmark efficiency policies, including appliance and equipment efficiency standards, building energy codes, and energy efficiency resource standards. As more and more states turn to energy efficiency as the "first fuel" in the race for clean and secure energy resources, it is important to document best practices and recognize leadership among the states. Doing so both provides practical models for other states to follow and encourages federal action to catch up with and complement state efforts. With that goal in mind, we developed the second edition of this report.

ACEEE has a history of state scorecards that highlighted utility-sector spending and savings data for energy efficiency programs. The first reports analyzed utility spending on energy efficiency programs in each state, including the *State Scorecard on Utility Energy Efficiency Programs* (Nadel, Kubo, and Geller 2000), a 2002 update (York and Kushler 2002), and *ACEEE's 3rd National Scorecard on Utility and Public Benefits Energy Efficiency Programs* (York and Kushler 2005).

In 2007, ACEEE released *The State Energy Efficiency Scorecard for 2006*, the first of its kind to provide a comprehensive approach to scoring and ranking states on energy efficiency policies. Due to the broad interest in the 2007 report and the continued demand for a state-by-state comparison on energy efficiency, we have updated the scorecard and present this report as its second edition.

In the report, we first discuss the methodology for scoring states and some caveats. Compared to the 2007 scorecard, we have incorporated some structural changes into the scoring methodology, which had a noticeable impact on the overall rankings relative to our 2007 scorecard (see Methodology below). We then present the detailed results in eight chapters, one for each of the policy areas that we review:

1. Utility and Public Benefits Programs and Policies
2. Transportation Policies
3. Building Energy Codes
4. Combined Heat and Power (CHP)
5. Appliance and Equipment Efficiency Standards
6. Lead by Example Initiatives (LBE)
7. Research, Development, and Deployment (RD&D)
8. State Financial and Information Incentives

Finally, we present the Discussion and Conclusions. In these sections, we review how several states' rankings have changed compared to the 2007 scorecard, some as a result of their implementation of new efficiency policies and some due to the structural changes in the Methodology below. By comparing with last year's results, we hope to highlight the most improved states and thus present them as models for other states that are just beginning to implement energy efficiency strategies.

METHODOLOGY

Scoring

To score states on energy efficiency, we first identified eight policy areas that both promote energy efficiency and have been pursued in several states in recent years. Among other things, this set of policies works to procure funding for efficiency, mandate energy savings targets, reduce market and regulatory barriers, establish mandatory codes and standards, and increase public visibility of energy efficiency as an energy resource. We do not report scores for the U.S. territories because the data is unavailable, though we hope to include these in future editions of the scorecard.

Our 2008 update has expanded the scope of policies and makes adjustments on the scoring methodologies compared to the 2007 report. First, Chapter 1 on Utility and Public Benefits Programs and Policies has been broadened to include five individual program and policy metrics, compared to our 2007 Scorecard that incorporated spending on electric programs as the sole metric for ranking states on the magnitude of their utility programs. The chapter now includes: electricity program spending and savings; natural gas program spending; energy savings targets, or Energy Efficiency Resource Standards (EERS), which stood alone as its own policy category in the 2007 report; and utility financial incentives and removal of disincentives. See Chapter 1 for more details on changes in scoring for this policy area.

Second, we have expanded the scoring for Building Energy Codes (Chapter 3) to include a score for compliance, compared to 2007 when we only ranked states on stringency. The introduction of this new metric increased the total number of points possible for the policy category, emphasizing the important role of both stringent and enforced state codes. We note, however, that measuring energy code compliance is difficult because states do not have the funding to collect the vast amount of data needed to estimate the state's level of compliance. We therefore surveyed experts to score states, and present these scores, however imperfect, in order to recognize the crucial role of building code enforcement.

Third, we have expanded our chapter on tax incentives (Chapter 8) to include other financial incentives, such as rebates and loans for energy-efficient improvements, as well as information incentives, which serve consumers by providing them with greater access to information on the energy efficiency of homes being sold on the market. Additionally, the category on tax incentives for energy-efficient vehicles, which in our 2007 report was included in the chapter on tax incentives, has been moved to the chapter on Transportation Policies (Chapter 2).

Table 1 below shows the eight policy categories and the scoring system that assigns a maximum score for each policy category, weighting policy categories based on approximate energy savings impacts (i.e., state policies that result in the highest energy savings have the highest maximum score). The weighting of policy areas was informed by ACEEE staff, outside expert judgment, and recent state and regional studies that have evaluated the relative energy savings impacts from state-level policies (WGA 2006; Elliott et al. 2007a, 2007b; SWEEP 2007). For example, the energy potential studies we reviewed found that utility-sector programs could contribute about 40% of the total energy savings potential. Building energy codes, on average, could contribute about 15% of the total savings potential, and improved CHP policies about 10%. We thus attribute 40% of 50 possible points to utility-sector program metrics, or 20 points. Similarly, we attribute about 15% of the points, or 8 points, to building energy codes, 10%, or 5 points, to improved CHP policies. The other policy area points were estimated using the same methodology, then reviewed by expert judgment and adjusted according to review.

Readers should note that the point allocation method for the transportation policy area (Chapter 2) varies somewhat from the other policies. One study estimates that about 30% of the possible carbon dioxide emission reductions from efficiency policies could come from transportation policies (SWEEP 2007). However, because most of the state policy efforts needed to achieve these levels of savings have not yet been implemented, we discount the total possible points to 6 out of 50 to account for the fact that even the best states aren't coming close to the potential energy savings in the transportation sector. See Chapter 2 for a discussion of transportation efficiency policies.

Within each policy category, we then develop a scoring methodology based on a subset of criteria and assign a score for each state based on extensive review and communication with experts in the field. See each policy chapter for a discussion of its methodology.

Table 1. Overall Methodology: Maximum Scores for each Policy Category

Policy	Maximum Score
1. Utility and Public Benefits Programs and Policies	**20**
Spending on Efficiency Programs (electricity)	5
Annual Savings from Efficiency Programs (electricity)	5
Spending on Efficiency Programs (natural gas)	3
Targets (Energy Efficiency Resource Standards)	4
Utility Incentives/Removal of Disincentives	3
2. Transportation Policies	**6**
3. Building Energy Codes	**8**
Level of Stringency	5
Enforcement/Compliance	3
4. Combined Heat and Power	**5**
5. Appliance and Equipment Efficiency Standards	**4**
6. Lead by Example Initiatives (State Buildings and Fleets)	**2**
7. Research, Development and Deployment	**2**
8. Financial and Information Incentives	**3**
Maximum Total Score	**50**

Caveats

The scoring framework described above is our best attempt to represent the myriad efficiency metrics as a quantitative "score." Any effort to convert state spending data, energy savings data, and adoption of best practice policies, across eight policy areas, into one state energy efficiency score has its obvious limitations. In that light, we present here several important caveats for the reader to note.

Spending ($) and Savings (MWh and MMCf)

When available, "hard" data on verified energy savings by state is one of the best metrics for scoring states on energy efficiency. As presented in Chapter 1, some of these data are available for utility-run and third-party operated statewide programs designed to increase electricity end-use efficiency. An additional data set is spending on programs, which also shows actual commitments to program efforts, though it does not capture how successful programs are in converting dollars spent into actual energy saved. For electric efficiency programs, we provide data for both annual spending and annual savings for 2006. For gas programs, however, we only provide 2006 natural gas spending data because savings data is not available from a national clearinghouse and most states do not report the data.

We provide 2006-year program data because it is the most recent available from the Energy Information Administration (EIA) for electric programs (data for 2007 will be released in November 2008) and not all states were able to provide 2007-year spending for our state-by-state survey. Readers should note, however, that many states have plans to dramatically escalate program efforts in 2008. While the spending and savings data do not capture these plans, the energy savings targets category does capture aggressive state efficiency goals.

"Best Practice" Policy Metrics

Most of the energy efficiency policy areas, unlike the utility and public benefits programs, do not have reported savings or spending data that can be attributed to a particular policy action. For example, *potential* energy savings from building energy codes and appliance efficiency have been documented, although *actual* savings from these policies are rarely evaluated. Therefore, we must rely on "best practice" metrics for these policies. For building energy codes, we rank states according to the level of stringency of their residential and commercial codes. Similar legislation and

regulations, however, do not always results in comparable energy savings. If two states have the same building energy code, but one state has twice the level of code compliance, then energy savings attributed to the policy would therefore be twice as great. This year's scorecard attempts to capture some of these differences in building code compliance by asking experts to score the states on their efforts to enforce codes. There are obvious limitations to this methodology, though the lack of data on building compliance forced us to develop this alternative approach. In doing so, we hope to encourage states to conduct compliance studies and we hope to rely increasingly on such studies in the future for our scoring methodology. See Chapter 3 for a discussion of building energy codes and compliance.

How to Interpret the Results

Although we provide individual state scores and rankings, we note that the difference between rankings is most significant in "bins" of ten or fifteen, rather than differences between individual rankings. The tiers of ten or fifteen, as presented in Figure ES-1, are therefore the best way to interpret the results of the scorecard.

CHAPTER 1: UTILITY AND PUBLIC BENEFITS PROGRAMS AND POLICIES

Background and Methodology

A wide range of state energy efficiency policies and program efforts are targeted toward or occur in the utility sector and/or "public benefits" energy programs, which in many states established new structures and tasked new organizations with the responsibility of administering and delivering energy efficiency programs. For this category, we score states on performance metrics (i.e., program spending and savings results) and enabling policies (energy savings targets and performance incentives). The five subsets to this policy category are:

1. Electricity Program Spending
2. Electricity Program Savings
3. Natural Gas Program Spending
4. Energy Savings Targets
5. Utility Incentives and Removal of Disincentives

Combined, a state can earn up to 20 points from demand-side efficiency program scoring, or 40% of the total possible 50 points, which studies suggest is this policy area's contribution to total potential energy savings. Among efficiency programs, one study suggests that electric programs are achieving three times as much primary energy savings as natural gas programs (SWEEP 2007). We thus allocate 10 points of this category to electric program metrics (annual spending and savings data) and 3 points to natural gas program metrics (annual spending). Savings data for natural gas programs are not tracked through a national clearinghouse and are not readily reported by states, so we therefore do not include these data in the scoring. Supporting policies, such as mandatory energy savings targets and utility incentives and removal of disincentives, are also critical to leveraging energy efficiency funding and encouraging savings. Combined, 7 points are allocated to these supporting state policies to emphasize their role in encouraging efficiency. See Table 2 for a summary of state scoring in the five subsets to this policy category.

Data for this category comes from a number of sources, principally ACEEE's recent national survey of utility-sector efficiency programs,[3] data from the Energy Information Administration (EIA 2007) and Consortium for Energy Efficiency (CEE 2006, 2007), an ACEEE study on utility incentives and removal of financial disincentives (Kushler et al. 2006) with some updates, and selected state and utility program annual reports and related documents.

[3] Forthcoming (late fall of 2008) from ACEEE.

Table 2. Summary of State Scoring on Utility and Public Benefits Programs and Policies

State	Electricity Program Spending	Electricity Savings	Gas Program Spending	Targets (Energy Efficiency Resource Standards)	Utility Incentives and Removal of Disincentives	TOTAL SCORE	Ranking
Maximum Possible Points:	***5***	***5***	***3***	***4***	***3***	***20***	***NA***
Vermont	5	5	3	4	2	19	1
Connecticut	3.5	5	1	3	3	15.5	2
California	3	3.5	2	3	3	14.5	3
Minnesota	3	3	1.5	4	2	13.5	4
Oregon	5	4	2.5	0	2	13.5	4
New York	3	3	1.5	3	2	12.5	6
Massachusetts	3.5	4	3	0	2	12.5	6
Washington	5	3.5	1.5	1	1	12	8
Iowa	4	3.5	3	0	0	10.5	9
New Jersey	2.5	2	2.5	2	1	10	10
Rhode Island	4	5	0	0	1	10	10
Idaho	4.5	3.5	1	0	1	10	10
Wisconsin	3.5	2.5	3	0	1	10	10
Nevada	2	3	0.5	2	1	8.5	14
Hawaii	2	3.5	0	2	1	8.5	14
Colorado	1.5	1	0.5	3	2	8	16
New Hampshire	3	3.5	0	0	1	7.5	17
Maine	2.5	3	1	0	0	6.5	18
Utah	3	2.5	0	0	1	6.5	18
Montana	2.5	2.5	0	0	1	6	20
Maryland	0	0	0.5	3	2	5.5	21
Ohio	1	0	0.5	2	2	5.5	21
New Mexico	0.5	0	1.5	2	0	4	23
Arizona	1.5	1.5	0	0	1	4	23
Kentucky	0.5	1	0.5	0	1	3	25
Texas	1	1	0	1	0	3	25
Illinois	0	0	0	2	1	3	25
Indiana	0.5	0	0	0	2	2.5	28
Florida	1.5	1	0	0	0	2.5	28
District of Columbia	2	0	0	0	0	2	30
North Carolina	0	0	0	1	1	2	30
South Carolina	0.5	0	0	0	1	1.5	32
Georgia	0.5	0	0	0	1	1.5	32
Virginia	0	0	0	1	0	1	34
Pennsylvania	0	0	0	1	0	1	34
Tennessee	0.5	0.5	0	0	0	1	34
Kansas	0	0	0	0	1	1	34

State	Electricity Program Spending	Electricity Savings	Gas Program Spending	Targets (Energy Efficiency Resource Standards)	Utility Incentives and Removal of Disincentives	TOTAL SCORE	Ranking
Arkansas	0	0	0	0	1	1	34
Nebraska	0.5	0	0	0	0	0.5	39
Michigan	0.5	0	0	0	0	0.5	39
South Dakota	0.5	0	0	0	0	0.5	39
North Dakota	0.5	0	0	0	0	0.5	39
Alaska	0	0	0	0	0	0	43
Alabama	0	0	0	0	0	0	43
Mississippi	0	0	0	0	0	0	43
Missouri	0	0	0	0	0	0	43
Delaware	0	0	0	0	0	0	43
West Virginia	0	0	0	0	0	0	43
Louisiana	0	0	0	0	0	0	43
Oklahoma	0	0	0	0	0	0	43
Wyoming	0	0	0	0	0	0	43

Spending on Efficiency Programs for End-Use Electricity

The structure and delivery of ratepayer-funded electric energy efficiency programs[4] have changed dramatically over the past decade, mostly in conjunction with restructuring efforts. In the 1980s and 1990s, such programs were almost the exclusive domain of utilities; they administered and implemented programs under regulatory oversight. With the advent of restructuring, however, numerous states enacted "public benefits" energy programs that in many cases established new structures and tasked new organizations with the responsibility of administering and delivering energy efficiency and related customer energy programs (including low-income energy programs and renewable energy programs). Not all public benefits programs are administered or delivered by non-utility organizations, however. In quite a few cases there is a public benefits funding mechanism, but this goes to the utilities to administer and implement the programs.

Despite the enactment of public benefits programs in some states, restructuring resulted in a precipitous decrease in funding for ratepayer-funded electric energy efficiency programs, from almost $1.8 billion in 1993 to about $900 million in 1998 (nominal dollars). Principal reasons for this decline included uncertainty about newly restructured markets and the expected loss of cost recovery mechanisms for energy efficiency programs. Generally utilities did not see demand-side programs as being compatible with competitive retail markets. Since then, however, efficiency programs have entered a new era of renewed focus and importance. For 2006, we found that total spending on electricity ratepayer-funded programs reached $1.6 billion (see Table 4), up from about $1.45 billion in 2004. Combined with natural gas program spending of about $300 million, discussed later in this chapter, we estimate national spending of about $1.9 billion on efficiency programs in 2006.

[4] By "ratepayer-funded energy efficiency" programs, we mean energy efficiency programs funded through charges included in customer rates or otherwise paid via some type of charge on customer utility bills. This includes both utility-administered programs and "public benefits" programs administered by other entities. We do not include data on separately funded low-income programs, load management programs, or energy efficiency research and development.

The data presented in this section is for electric energy efficiency programs run in 2006 and, depending upon the state, may include data from investor-owned utilities (IOUs), municipal utilities, and cooperative utilities; other public power companies or authorities; and utility ratepayer-funded public benefits programs. (Note: when states have separately funded low-income programs, those amounts are not included in this dataset.[5]) The data is for actual spending, which in many cases may differ from budgeted amounts for energy efficiency programs. We provide 2006-year program data because it is the most recent available from the EIA and not all states were able to provide 2007-year spending for our state-by-state survey. Readers should note, however, that many states have increased spending in 2007 and have plans to dramatically escalate program efforts in 2008, such as Illinois and Nevada. While the spending and savings data do not capture these plans, the energy savings targets category does capture these aggressive state efficiency goals and the resulting commitments that will follow.

States are scored on a scale of 0 to 5 based on levels of energy efficiency spending as a percent of utility revenues. For every 0.25% less than 2.0% spending of revenues, a state's score decreases by 0.5 points. For the two lowest scoring bins, the distribution of points changes slightly to account for states with very minimal spending. Table 3 lists the scoring bins for each level of spending and Table 4 shows state-by-state results and scores for this category.

Table 3. Scoring Methodology for Electricity Efficiency Program Spending

Percent Revenues Spending Range	Score
2.0% or greater	5
1.75% - 1.99%	4.5
1.50% - 1.74%	4
1.25% - 1.49%	3.5
1.0% - 1.24%	3
0.75% - 0.99%	2.5
0.50% - 0.74%	2
0.25% - 0.49%	1.5
0.13% - 0.24%	1
0.05% - 0.12%	0.5
Less than 0.05%	0

Table 4. 2006 Electricity Efficiency Program Spending by State: Total, Percent of Revenues, and Score

State	2006 Total Spending* ('$1000)	Spending as Percent Revenues	Ranking	Score
Vermont	$15,806	2.4%	1	5
Washington	$113,288	2.2%	2	5
Oregon	$63,318	2.0%	3	5
Idaho	$20,422	1.8%	4	4.5
Iowa	$52,241	1.7%	5	4
Rhode Island	$17,178	1.6%	6	4
Connecticut	$69,600	1.5%	7	3.5
Massachusetts	$125,000	1.5%	8	3.5
Wisconsin	$73,285	1.3%	9	3.5

[5] We did not collect data on weatherization program funding, which is almost entirely federally funded — the federal Weatherization Assistance Program (WAP) gives money to states on a formula basis. Some states commit funds to leverage federal money; however, the scope of this project did not permit us to track these data.

State	2006 Total Spending* ('$1000)	Spending as Percent Revenues	Ranking	Score
New Hampshire	$17,540	1.1%	10	3
Utah	$16,800	1.1%	11	3
California	$357,000	1.1%	12	3
New York	$224,897	1.1%	13	3
Minnesota	$48,109	1.0%	14	3
New Jersey	$83,177	0.9%	15	2.5
Montana	$8,309	0.9%	16	2.5
Maine	$11,000	0.8%	17	2.5
Nevada	$24,000	0.7%	18	2
District of Columbia	$8,500	0.7%	19	2
Hawaii	$12,900	0.6%	20	2
Colorado	$11,000	0.3%	21	1.5
Florida	$67,000	0.3%	22	1.5
Arizona	$16,400	0.3%	23	1.5
Ohio	$28,757	0.2%	24	1
Texas	$57,800	0.2%	25	1
Kentucky	$5,944	0.1%	26	0.5
Michigan	$10,000	0.1%	27	0.5
South Carolina	$5,882	0.1%	28	0.5
Georgia	$10,000	0.1%	29	0.5
South Dakota	$619	0.1%	30	0.5
Tennessee	$5,480	0.1%	31	0.5
North Dakota	$513	0.1%	32	0.5
New Mexico	$1,000	0.1%	33	0.5
Indiana	$3,731	0.1%	34	0.5
Nebraska	$866	0.1%	35	0.5
Missouri	$2,175	0.0%	36	0
North Carolina	$3,800	0.0%	37	0
Illinois	$3,222	0.0%	38	0
Pennsylvania	$3,808	0.0%	39	0
Alaska	$162	0.0%	40	0
Kansas	$336	0.0%	41	0
Mississippi	$436	0.0%	42	0
Alabama	$459	0.0%	43	0
Maryland	$90	0.0%	44	0
Virginia	$84	0.0%	45	0
Oklahoma	$16	0.0%	46	0
Arkansas	$0	0.0%	47	0
Delaware	$0	0.0%	47	0
Louisiana	$0	0.0%	47	0
West Virginia	$0	0.0%	47	0
Wyoming	$0	0.0%	47	0
USA TOTAL	$1,598,950	0.5%	NA	NA

*Utility spending is on "ratepayer-funded energy efficiency" programs, or energy efficiency programs funded through charges included in customer utility rates or otherwise paid via some type of charge on customer bills. This includes both utility-administered programs and "public benefits" programs administered by other entities. We do not include data on separately funded low-income programs, load management programs, or energy efficiency research and development.

Annual Savings from Electricity Efficiency Programs

For this category we report annual incremental savings (new energy savings achieved from measures implemented in the reporting year) from electricity energy efficiency programs,[6] as they were reported to ACEEE in a national survey of state-by-state efficiency programs and from utility data reported to the EIA on utility DSM programs[7]. The savings data is for 2006 and is reported as a percent of utility electricity sales in that year. Readers should not that programs which been running for several years at a high level of funding are achieving the highest levels of *cumulative* electricity savings (energy savings that persist over the lifetime of efficiency measures). *Incremental* savings data however are the best way to directly compare state efforts due to the difficulty in tracking the duration of programs and their resulting savings levels.

States are scored on a scale of 0 to 5 based on levels of energy savings as a percent of utility electricity sales. States that achieved savings of at least 1% as a percent of electricity sales earn 5 points and score assignments are then distributed evenly for less than 1%, dropping 0.5 points for every 0.12% of savings. For the lowest scoring bin, the distribution of points changes slightly to account for states with very minimal savings. Table 5 lists the scoring bins for each level of savings and Table 4 shows state-by-state results and scores for this category.

Table 5. Scoring Methodology for Utility and Public Benefits Electricity Savings

Percent Savings Range	Score
1.0% or greater	5
0.88% - 0.99%	4.5
0.76% - 0.87%	4
0.64% - 0.75%	3.5
0.52% - 0.63%	3
0.40% - 0.51%	2.5
0.28% - 0.39%	2
0.16% - 0.27%	1.5
0.10% - 0.15%	1
0.05% - 0.09%	0.5
Less than 0.05%	0

Table 6. 2006 Incremental Electricity Savings by State: Total, Percent of Electricity Sales, and Score

State	2006 Total Incremental Elec. Savings (MWh)	Percent of Electricity Sales	Ranking	Score
Rhode Island	96,048	1.23%	1	5
Vermont	62,872	1.08%	2	5
Connecticut	328,000	1.04%	3	5
Massachusetts	455,000	0.82%	4	4
Oregon	369,827	0.77%	5	4
Washington	630,691	0.74%	6	3.5
California	1,912,000	0.73%	7	3.5
Iowa	314,248	0.73%	8	3.5

[6] We do not report natural gas savings data due to the difficulty of obtaining data and the uncertain nature of the data that is available.

[7] Savings data reported to EIA should be reported as net savings, though it is too difficult to tell whether states in fact report net or gross savings.

State	2006 Total Incremental Elec. Savings (MWh)	Percent of Electricity Sales	Ranking	Score
New Hampshire	73,853	0.67%	9	3.5
Idaho	150,921	0.66%	10	3.5
Hawaii	67,914	0.64%	11	3.5
Nevada	216,000	0.62%	12	3
Maine	74,759	0.61%	13	3
New York	814,293	0.58%	14	3
Minnesota	370,443	0.55%	15	3
Wisconsin	344,232	0.49%	16	2.5
Montana	64,661	0.47%	17	2.5
Utah	121,000	0.46%	18	2.5
New Jersey	227,764	0.29%	19	2
Arizona	123,449	0.17%	20	1.5
Kentucky	118,000	0.13%	21	1
Florida	301,118	0.13%	22	1
Colorado	60,028	0.12%	23	1
Texas	397,305	0.12%	24	1
Tennessee	61,301	0.06%	25	0.5
Nebraska	5,358	0.02%	26	0
Alaska	1,146	0.02%	27	0
South Carolina	14,700	0.02%	28	0
Indiana	12,631	0.01%	29	0
Mississippi	5,463	0.01%	30	0
Alabama	8,445	0.01%	31	0
Missouri	3,873	0.00%	32	0
North Carolina	3,061	0.00%	33	0
North Dakota	257	0.00%	34	0
Georgia	2,534	0.00%	35	0
Pennsylvania	2,279	0.00%	36	0
New Mexico	189	0.00%	37	0
Maryland	169	0.00%	38	0
Ohio	393	0.00%	39	0
Illinois	195	0.00%	40	0
Arkansas	30	0.00%	41	0
Virginia	63	0.00%	42	0
Delaware	0	0.00%	43	0
Kansas	0	0.00%	43	0
Louisiana	0	0.00%	43	0
Michigan	0	0.00%	43	0
Oklahoma	0	0.00%	43	0
South Dakota	0	0.00%	43	0
West Virginia	0	0.00%	43	0
Wyoming	0	0.00%	43	0
District of Columbia	NA	NA	51	0
US Total	7,865,686	0.21%		

Spending on Natural Gas Efficiency Programs

In addition to efficiency programs targeting electricity end-use consumption, we also score states on natural gas efficiency program spending by assigning up to a maximum of 3 points based on 2006 spending data. An important caveat to note is that there is no national clearinghouse for natural gas program data and we therefore we must rely on state-by-state reviews and other data (CEE 2006, 2007). A number of states do not report data for natural gas efficiency program spending and we therefore assign them a zero for this category. States not listed in Table 8 were among those states that did not report spending data. In order to directly compare state spending data, we normalize spending over natural gas end-use consumption by state using data from EIA 2008. Table 7 shows scoring bins for natural gas program spending and Table 8 shows state scoring results. For 2006, we estimate total spending on natural gas programs of nearly $300 million, and combined with electric program spending of about $1.6 billion, we estimate national spending of about $1.9 billion on efficiency programs in 2006.

Table 7. Scoring Methodology for Natural Gas Utility and Public Benefits Spending

Spending Range ($ per MMCf)	Score
$100 or greater	3
$75 - $99	2.5
$50 - $74	2
$25 - $49	1.5
$10 - $24	1
$1 - $9	0.5
$0	0

Table 8. 2006 Natural Gas Program Spending by State

State	2006 Total Spending (Million $)	Spending Relative to State NG Consumption ($ per MMCf)	Ranking	Score
Vermont	$1.5	$187	1	3
Iowa	$29.5	$143	2	3
Wisconsin	$42.8	$132	3	3
Massachusetts	$25.6	$128	4	3
Oregon	$12.1	$87	5	2.5
New Jersey	$32.7	$79	6	2.5
California	$94.1	$64	7	2
Minnesota	$15.2	$49	8	1.5
Washington	$8.2	$42	9	1.5
New York	$21.9	$32	10	1.5
New Mexico	$2.2	$30	11	1.5
Idaho	$0.9	$15	12	1
Maine	$0.1	$15	13	1
Connecticut	$1.4	$15	14	1
Colorado	$2.5	$9	15	0.5
Nevada	$0.6	$8	16	0.5
Maryland	$0.8	$5	17	0.5
Kentucky	$0.2	$1	18	0.5
Ohio	$0.5	$1	19	0.5
Total	$292.8	NA	NA	NA

Note: States not listed here do not report natural gas efficiency spending data.

Energy Savings Targets (Energy Efficiency Resource Standards)

An Energy Efficiency Resource Standard (EERS) is a quantitative, long-term energy savings target for utilities. Under this policy, utilities must procure a percentage of their future electricity needs using energy efficiency measures, typically equal to a specific percentage of their load or projected load growth. Energy savings are then achieved through end-user efficiency programs run by utilities or third-party program operators, sometimes with the flexibility to achieve the target through a market-based trading system. EERS targets are sometimes set in conjunction with state-set spending requirements, such as those that have established a Public Benefits Fund (PBF), and sometimes as a separate policy. Currently eighteen states (see Table 10) have or are in the process of implementing an EERS or similar policy. By "in the process," we mean the utility commission has opened a formal proceeding to set such policies.

A similar policy mechanism to encourage renewable energy production, called a Renewable Portfolio Standard (RPS), has been adopted as a mandatory target in some 25 states (UCS 2008). Several states that have already implemented an RPS subsequently expanded it to include energy efficiency as an eligible resource to meet the targets, thus establishing an EERS. Examples of combined EERS-RPS policies, sometime called "Advanced Energy Portfolios," are found in Nevada, Pennsylvania, and Hawaii.

A state can earn up to 4 points in this category based on the target's level of aggressiveness (see Table 9 for general scoring bins). This differs from the scoring methodology in the 2007 scorecard, when states earned a score based on status of implementation of its EERS. However, because both the levels of energy savings targets and the binding nature of the targets vary significantly among the states, this year we assign state scores according to these metrics. Because most state energy savings targets are set either as a cumulative percent target or as an annual percent target that ramps up, we normalize savings targets to an estimated average annual savings target. Scores may then be adjusted upward by 1 point if the state is already meeting or exceeding the targets, or if both electricity and natural gas are covered under the targets (e.g., Minnesota). Scores are adjusted downward by 1 point if the policy is still pending, not yet implemented, or not binding, meaning it either has an "exit ramp" for utilities to avoid meeting the target or a "cost cap" that limits a spending amount rather than a specific savings target (e.g., Illinois). See Table 10 for scoring results and policy details.

Table 9. Scoring Methodology for Energy Savings Targets

Percent Savings Target or Current Level of Savings Met	Score
1.5% or greater	4
1% - 1.49%	3
0.5% - 0.99%	2
0.1% - 0.49%	1
Less than 0.1%	0

Table 10. State Scores for Energy Savings Targets

State	Description	Approx. Annual Savings Target	Year of Implementation	Binding Target or "Exit Ramp"	Score
Vermont	Efficiency Vermont (EV), an independent "efficiency utility" that delivers efficiency programs for the state, is contractually required to achieve energy and demand goals. EV cumulatively met over 5% of Vermont's electricity requirements by the end of 2006. In 2007-2008, EV is planning to achieve an additional 214 million kWh of savings and 30 MW of summer peak demand reduction, or about 3.6% of 2007-year sales.	1.8%	2000	Binding	4
Minnesota	In December 2006, Governor Pawlenty announced his Next Generation Energy Initiative, calling for 1.5% annual energy savings of both electric and natural gas sales, at least 1% of which must come from utility energy efficiency programs. This plan was enacted in legislation in 2007 and requires utilities to meet the annual targets by 2010.	1-1.5%	2010	Binding	4
California	The state set energy savings goals for investor-owned utilities for 2004 through 2013, which are expected to save about 1% of total forecast electricity sales per year. In 2013, the savings goals are 23,183 GWh and 4,885 MW peak.	1%	2004	Binding	3
Connecticut	In June 2005, the Connecticut legislature modified its Renewable Portfolio Standard to include efficiency. Starting in 2007, the state's utilities must procure a minimum 1% of electricity sales from "Class III" resources such as energy efficiency and CHP, with an additional 1% per year required in 2008, 2009, & 2010.	1%	2007	Binding	3
Colorado	In April 2007, the Colorado legislature adopted a bill that called on the Colorado Public Utilities Commission (CPUC) to establish energy savings goals and provide financial incentives for utilities. In June 2008, the CPUC established an energy savings goal of about 11.5% by 2020 for Xcel Energy's DSM programs, or about 1% annually.	1%	2009	Binding	3
New York	In June 2008, the New York State Public Service Commission approved the Energy Efficiency Portfolio Standard (EEPS), which sets a goal to reduce electricity usage 15% by 2015, a goal initially announced by Governor Spitzer in 2007. The Commission currently has an open proceeding working with utilities and NYSERDA to develop and improve programs.	1.9%	2011	Binding*	3
Maryland	In 2008, Governor O'Malley introduced legislation that requires the state to reduce per-capita electricity consumption 15% by 2015, relative to 2007 consumption. Utilities must meet 2/3^{rds} of the goal and the state must administer programs to reach 1/3rd of the goal.	1.5-1.8%	2008	Binding (utility portion only)*	3

State	Description	Approx. Annual Savings Target	Year of Implementation	Binding Target or "Exit Ramp"	Score
Illinois	In July 2007, the Illinois legislature set energy efficiency and demand response program requirements for utilities. With help from the Illinois Department of Commerce and Economic Opportunity (IDCEO), utilities are to meet annual savings goals of 0.2% of energy delivered in 2008, 0.4% in 2009, and so on, rising to 2.0% annually for 2015 and subsequent years.	1.2% (avg. through 2020)	2008	Cost Cap	2
Hawaii	Under the state's RPS requirements, energy efficiency is allowed to qualify as an eligible resource. Utilities must meet 20% of electricity sales with eligible resources; however, energy efficiency minimums or maximums are not specified.	No specific goal	2004	Binding	2
Nevada	The state's RPS was expanded in 2005 from 15% to 20% of electricity sales, and was amended to allow energy efficiency to meet up to 25% of the total portfolio standard.	Up to 0.6% per year; achieved 0.9% in 2007	2007	Binding	2
New Jersey	New Jersey's utility efficiency goals, which are still under development, contain two main elements: (1) setting energy and demand goals for the administrator of the Clean Energy Program, at 257 million kWh and 452 billion Btu's of natural gas in 2007; and (2) requiring each electricity supplier/provider to meet efficiency goals. The Board of Public Utilities (BPU) is authorized to adopt an electric and gas energy efficiency portfolio standard, with goals as high as 20% savings by 2020 relative to predicted consumption in 2020.	1.7%	Pending*	Not Decided	2
New Mexico	In February 2008, Governor Richardson signed into law HB 305, which directs electric and gas utilities to acquire all cost-effective and achievable energy efficiency resources. Electric utilities must achieve 5% energy savings from 2005 electricity sales by 2014, and 10% by 2020. The Public Regulation Commission (PRC) can set alternative energy efficiency requirements if the electric utility demonstrates it cannot meet the minimum requirements.	0.7% (avg. through 2020)	2014	Exit Ramp	2
Ohio	In 2008, legislation was passed that requires a gradual ramp-up to a 22% reduction in electricity use by 2025. Starting in 2009, electric distribution utilities must achieve 0.3% savings, which ramps up to 1% per year by 2014, then jumps to 2% per year in 2019 through 2025	1.3% (avg. through 2025)	2009	Exit Ramp	2

State	Description	Approx. Annual Savings Target	Year of Implementation	Binding Target or "Exit Ramp"	Score
Texas	Texas became the first state to establish an EERS in 1999, requiring electric utilities to offset 10% of load growth through end-use energy efficiency. After several years of meeting this goal at low costs, in 2007 the legislature doubled the standard to 15% of load growth by 2009, and 20% of load growth by 2010, and directed that higher targets be investigated.	0.3%	1999, 2009 update	Binding	1
Washington	A 2006 ballot initiative requires utilities to acquire all cost-effective energy efficiency. The Northwest Power and Conservation Plan (NWPPC) is expected to be the basis for setting efficiency targets. The most recent NWPPC plan identifies 2,700 average MW of conservation savings as being cost-effective and achievable by 2025, amounting to 10.6% of projected needs in that year if additional conservation is not pursued. By 2010, each qualifying utility shall identify its achievable cost-effective energy efficiency potential through 2019.	TBD	2006	Binding	1
North Carolina	In August 2007, the North Carolina legislature enacted a law requiring public electric utilities in the state to obtain renewable energy power and energy efficiency savings of 3% of prior-year electricity sales in 2012, 6% in 2015, 10% in 2018, and 12.5% in 2021 and thereafter. Energy efficiency is capped at 25% of the 2012-2018 targets, and at 40% of the 2021 target.	Up to 0.75% in 2012; no specific EE goal	2012	Cost Cap	1
Virginia	Utility legislation enacted in 2007 sets a 10% energy savings target for electric utilities in 2022. Details are currently being worked out.	0.6% (avg. through 2022)	Pending*	Not Binding Yet	1
Pennsylvania	Energy efficiency is included as an eligible resource (along with recycled coal) as part of a two-tiered alternative portfolio standard; however, there is no minimum efficiency target. The state's IOUs must meet targets that are given as a percentage of total electricity load: 4.2% in years 1-4; 6.25% in years 5-9; 8.2% in years 10-14; and 10% in years 15 and thereafter.	No specific EE goal	2004	Binding	1

* Details are still being worked out.

Utility Financial Incentives and Removal of Disincentives (Decoupling)

Under traditional regulatory structures, utilities do not have an economic incentive to help their customers become more energy efficient. In fact, they typically have a disincentive because falling energy sales from energy efficiency programs reduce utilities' revenues and profits, an effect that is sometimes referred to as "lost revenues" or "lost sales." Since utilities' earnings are usually based on the total amount of capital invested in selected asset categories (such as transmission lines and power plants) and the amount of electricity sold (kilowatt-hours), the financial incentives are very much tilted in favor of increased electricity sales and expanding supply-side systems.

Understanding this dynamic has led industry experts to devise ways of guaranteeing utilities' rates-of-return while removing the disincentive to promote energy efficiency among utilities' customers. There are two key regulatory mechanisms that address the removal of disincentives and implementation of positive incentives for reducing customer energy use through improved levels of energy efficiency. These mechanisms go beyond ensuring recovery of the direct costs associated with energy efficiency programs, which is a minimum threshold requirement for utilities and related organizations to fund and offer energy efficiency programs. We do not address such basic program cost recovery in our scorecard. The two key mechanisms are fixed cost recovery (decoupling and other lost revenue adjustment mechanisms) and performance incentives. Decoupling refers to the disassociation of a utility's revenues from sales, which makes the utility indifferent to maximizing sales and more likely to promote efficiency programs. Performance incentives are financial incentives that reward utilities (and in some cases, non-utility organizations) for reaching or exceeding program goals. These mechanisms have received a great deal of attention recently with a number of states enacting them in order to support increased energy efficiency initiatives and programs.

For this category, a state can earn up to 3 points for having adopted financial incentive mechanisms for utility electric and/or natural gas efficiency programs and for having implemented or in the process of implementing decoupling for its electricity and/or natural gas utilities (see Table 11).

States are given points according to whether the state has established the following:

1. Decoupling and/or performance incentives for at least one utility or non-utility organization (performance incentives only possibly apply to non-utility organizations that administer programs)—electric or natural gas
2. Decoupling and/or performance incentives for two or more utilities (or non-utility organizations)—electric or natural gas
3. Decoupling AND performance incentives for two or more utilities (or non-utility organizations)

Table 11. Utility Financial Incentives

State	Decoupling (or Related Mechanism)	Performance Incentives	Score
California	Yes	Yes	3
Connecticut	Yes^	Yes	3
Colorado	Yes (Gas)	Yes	2
Indiana	Yes~	Yes	2
Maryland	Yes	No	2
Massachusetts	Yes~	Yes	2
Minnesota	Yes (Elec.)	Yes	2
New York	Yes	No	2
Ohio	Yes~	Yes	2
Oregon	Yes (Gas)	No	2
Vermont	Yes	Yes	2
Arizona	No*	Yes	1

State	Decoupling (or Related Mechanism)	Performance Incentives	Score
Arkansas	Yes (Gas)	No	1
Georgia	No	Yes	1
Hawaii	No*	Yes	1
Idaho	Yes (Elec.)	No	1
Illinois	Yes (Gas)	No	1
Kansas	No	Yes	1
Kentucky	No*	Yes	1
Montana	No	Yes	1
Nevada	No*	Yes	1
New Hampshire	No*	Yes	1
New Jersey	Yes (Gas)*	No	1
North Carolina	Yes (Gas)	No	1
Rhode Island	No	Yes	1
South Carolina	No	Yes	1
Utah	Yes (Gas)	No	1
Washington	Yes (Gas)	No	1
Wisconsin	No*	Yes	1
Missouri	No	No	0
Alabama	No	No	0
Alaska	No	No	0
Delaware	No*	No	0
District of Columbia	No*	No	0
Florida	No	No	0
Iowa	No	No	0
Louisiana	No	No	0
Maine	No	No	0
Michigan	No*	No	0
Mississippi	No	No	0
Nebraska	No	No	0
New Mexico	No*	No	0
North Dakota	No	No	0
Oklahoma	No	No	0
Pennsylvania	No	No	0
South Dakota	No	No	0
Tennessee	No	No	0
Texas	No	No	0
Virginia	No*	No	0
West Virginia	No	No	0
Wyoming	No	No	0

* State approval of decoupling for electric or gas utilities, or both, is pending.
^ No decoupling, but some other mechanism for lost revenue adjustment.
~ Both decoupling and another mechanism for lost revenue adjustment.
Sources: Kushler et al. (2006); RAP (2008); AGA (2008); NRDC (2008a)

Figure 1. Leading States: Utility Sector and Public Benefit Programs and Policies

Leading states for Chapter 1 have made major strides in incorporating energy efficiency into their utility sector and/or public benefits programs, including robust spending on efficiency, high levels of energy savings, aggressive energy savings targets, and supporting policies to remove disincentives to utilities and to reward utilities for meeting goals.

Vermont. Vermont continues to be a leader in Utility and Public Benefits Programs and Policies. Efficiency Vermont, which began operations in 2000, is the state's provider of electric energy efficiency services, funded by an "energy efficiency charge" or "EEC" that is included in electric rates on customers' monthly electric bills. In 2006, state spending on electric efficiency programs was about $15.8 million, which is equivalent to 2.4% of utility revenues, more than any other state and nearly 5 times the national average. State efficiency programs saved about 1% of the state's electric needs in 2006 and in 2007 saved about 1.7%.* State gas efficiency programs also lead the nation, with relative spending levels the highest of any state. In addition to spending and savings data, Vermont has set aggressive energy efficiency targets and established utility performance incentives for the state's "energy efficiency utility" (Efficiency Vermont) to encourage targets to be met. It also recently approved a decoupling plan for Green Mountain Power, one of the state's investor-owned electric utilities.

California. California's utility-sector energy efficiency programs date back to the 1970s and have significantly expanded over the past three decades. The state's investor-owned utilities and publicly-owned utilities administer energy efficiency programs. In 2006, utilities spent about $357 million on utility-sector efficiency programs, equivalent to about 1% of utility revenues. Electricity savings from these programs totaled about 0.7% of the state's electric needs in 2006. Also, decoupling has been in place for many years in California and is an integral policy for California's "big, bold" energy efficiency initiative. In the next few years California will need to further expand their energy use reduction efforts to meet climate change goals enacted into law in 2006, which call for reducing greenhouse gas emissions to 1990 levels by 2020.

Connecticut. Connecticut has operated utility-administered energy efficiency programs for many years. In 2005, that state legislature passed the "Energy Independence Act," requiring 1% of its electricity demand to be met from energy efficiency by 2007, rising 1% per year to 4% in 2010. In 2006, Connecticut utilities spent the equivalent of 1.5% of its utility revenues on efficiency programs and met 1% of the state's electric needs from efficiency, which is five times higher than the national average. The state also has performance incentives in place to encourage and reward utilities for successfully reaching established performance targets. In 2007, the Connecticut legislature further increased efficiency efforts in the state, requiring the state's utilities to acquire "all available energy efficiency and demand reduction resources that are cost-effective, reliable, and feasible." Initial proposals by the state's utilities call for tripling energy efficiency spending over a five-year period to meet this mandate, and reducing sales below current levels by 2017 (Sosland 2008).

*Note: In Table 6, we give state scores according to electricity savings data for 2006, the most recent available year we have data for all fifty states and D.C. Efficiency Vermont's higher electricity savings results for 2007, however, indicate the state will climb in the rankings for this category in next year's scorecard.

CHAPTER 2: TRANSPORTATION POLICIES

The transportation energy efficiency policy score is based on a review of which states have greenhouse gas emissions standards for vehicles, smart growth policies, transit funding, and hybrid-electric vehicle (HEV) tax incentives. Transit funding scores are based on data from the American Association of State and Highway Transportation Officials (AASHTO 2008) and the Bureau of Transportation Statistics (BTS 2007) while the smart growth policies component is based on a ranking of states' oil vulnerability recently released by the Natural Resources Defense Council (NRDC 2008b). To identify HEV tax incentive programs, we relied on DOE's Energy Efficiency and Renewable Energy (EERE) "Clean Cities" database of state and federal incentives (DOE 2007a). States are also implementing policies to require efficiency in their own state fleets, which we review in Chapter 6 on Lead by Example Initiatives.

States can earn a maximum of 6 points for policies to encourage transportation-sector efficiency. While we recognize that the potential for energy savings in the transportation sector is greater than this allocation of points reflects, we only assign 6 points to transportation policies because no state yet comes close to realizing the full savings potential for the sector.

Because greenhouse gas emission standards for vehicles and smart growth policies have the greatest energy savings potential of policies adopted to date, states can obtain up to 2 points for each of them. Smart growth points are assigned based on whether a state has a vehicle-miles traveled reduction target (1 point), mechanisms for coordinated development (0.5 points), or a comprehensive growth management act (0.5 points), as determined by NRDC. We also ranked states by the level of per capita state transit funding. The states that spend most aggressively, defined as those that apportioned $50 per capita or more into transit funding, earn 1 point. Another point was awarded to states that have an HEV incentive program. See Table 12 for a summary of state scores on transportation policies.

Table 12. State Scoring on Transportation Policies

States	Vehicle GHG emissions Standards[a]	Smart Growth Policies[b]	State Transit Funding[c]	Hybrid Electric Vehicle Tax Incentives[d]	Score
Connecticut	2	1	1	1	5.0
New York	2	1.5	1		4.5
Washington	2	1.5		1	4.5
California[e]	2	1	1		4.0
Maryland	2	0.5	1		3.5
Massachusetts	2	0.5	1		3.5
New Jersey	2	0.5	1		3.5
Oregon	2	0.5		1	3.5
Pennsylvania	2	0.5	1		3.5
New Mexico	2			1	3.0
Rhode Island[e]	2	1			3.0
Arizona	2	0.5			2.5
Maine	2	0.5			2.5
Vermont	2	0.5			2.5
District of Columbia			1	1	2.0
Delaware		0.5	1		1.5

States	Vehicle GHG emissions Standards[a]	Smart Growth Policies[b]	State Transit Funding[c]	Hybrid Electric Vehicle Tax Incentives[d]	Score
Alaska				1	1.0
Colorado				1	1.0
Louisiana				1	1.0
Minnesota			1		1.0
South Carolina				1	1.0
Florida		0.5			0.5
Georgia		0.5			0.5
Hawaii		0.5			0.5
Tennessee		0.5			0.5
Virginia		0.5			0.5
Wisconsin		0.5			0.5
Alabama					0.0
Arkansas					0.0
Idaho					0.0
Illinois					0.0
Indiana					0.0
Iowa					0.0
Kansas					0.0
Kentucky					0.0
Michigan					0.0
Mississippi					0.0
Missouri					0.0
Montana					0.0
Nebraska					0.0
Nevada					0.0
New Hampshire					0.0
North Carolina					0.0
North Dakota					0.0
Ohio					0.0
Oklahoma					0.0
South Dakota					0.0
Texas					0.0
Utah					0.0
West Virginia					0.0
Wyoming					0.0

[a] Source: Clean Cars Campaign (2008)
[b] Source: NRDC (2008a)
[c] Source: AASHTO (2008). States that spend at least $50 on mass transit earn 1 point.
[d] Source: DOE (2007a)
[e] Please note that land use policies scores for these states were estimated based on currently available information and are not adapted from the NRDC (2008a) report.

Vehicle Emission Standards

For a vehicle of a given fuel type, greenhouse gas (GHG) emissions are largely proportional to their energy use. In 2002, California passed the Pavley Bill, the first U.S. law to address GHG emissions, including carbon dioxide, in auto exhaust.[8] The law required the California Air Resource Board (CARB) to regulate GHG as part of the California Motor Vehicle Program. In 2004, CARB adopted the rules to regulate GHG. The regulations require automakers to begin in the 2009 model year (MY) to phase in lower-emitting cars and trucks. On average, MY 2012 vehicles will emit 22% fewer GHGs than 2002 vehicles and MY 2016 vehicles will emit 30% fewer. The GHG rules adopted by CARB require a waiver from the EPA before they can go into effect.[9]

The GHG reductions are expected to be achieved almost entirely through improved vehicle efficiency. Several technologies stand out as providing significant, cost-effective reductions in emissions. Among others, these include the optimization of valve operation, turbocharging, and improved multi-speed transmissions.

Fourteen states have adopted California's GHG regulations (see Table 13). In order for vehicle emission standards to go into effect in these 14 states, the EPA must first grant a waiver of federal pre-emption for California's regulations. EPA denied California's request for a waiver in February 2008, based on the conclusion that California lacks the "compelling and extraordinary conditions" required for the waiver to be granted. California and other states have challenged this decision in court.

Table 13. States that Adopted California's GHG Vehicle Emission Standards

State
Arizona
California
Connecticut
Maine
Maryland
Massachusetts
New Jersey
New Mexico
New York
Oregon
Pennsylvania
Rhode Island
Vermont
Washington

Source: Clean Cars Campaign (2008)

Hybrid-Electric Vehicle Tax Incentives

The high cost of advanced technology for fuel-efficient vehicles is a key barrier to their entry into the marketplace. To encourage consumers to purchase these vehicles, states can offer a number of financial incentives, including tax credits, rebates, sales tax exemptions, and other tax-related inducements. Several states have begun to offer tax incentives to individual purchasers of a variety of vehicles types, including alternative-fuel vehicles (AFVs), which typically include vehicles that run on compressed natural gas (CNG) or ethanol, electric vehicles (EVs), low-emission vehicles (LEVs), and hybrid-electric vehicles (HEVs). While AFVs and LEVs can provide substantial environmental benefits by reducing pollution, they do not necessarily improve vehicle fuel efficiency and therefore are not included in our scorecard. We reviewed only states that have adopted tax incentives for HEVs, which incorporate technology that

[8] California Law AB 1493
[9] See CARB's fact sheet: www.arb.ca.gov/cc/factsheets/cc_newfs.pdf

improves vehicle fuel efficiency.[10] Table 14 below outlines the different state tax incentives available by state.

Table 14. State Tax Incentives for Hybrid-Electric Vehicles

State	Tax Incentive
Colorado	Prior to January 1, 2012, a one-time income tax credit is available from the Colorado Department of Revenue for up to 85% of the incremental cost of purchasing an HEV.
Connecticut	Prior to October 1, 2008, hybrids that achieve at least 40 mpg according to the U.S. EPA fuel economy rating are exempt from sales tax.
District of Columbia	The DMV Reform Amendment act of 2004 exempts purchasers of hybrid-electric vehicles from vehicle excise tax and reduces the vehicle registration charge.
Louisiana	Louisiana offers a tax credit worth 20% of the incremental cost of an HEV. The tax credit must not exceed the lesser of $1,500 or 2% of the total cost of the new vehicle.
New Mexico	Through June 30, 2009, the state will provide first-time buyers of HEVs with a combined fuel economy of at least 27.5 mpg with a one-time exemption from vehicle excise tax.
Oregon	A Residential Tax Credit of up to $1,500 is available for the purchase of an HEV. A Business Energy Tax Credit is also available for the purchase of an HEV. The tax credit is 35% of the incremental cost of the system or equipment and is taken over five years.
South Carolina	A state income tax credit equivalent to 20% of the federal tax credit is available to purchasers of hybrid vehicles.
Washington	Effective from January 2009 through January 2011, the state use tax and retail sales tax do not apply to sales of new passenger cars, light-duty trucks, and medium-duty passenger vehicles that utilize hybrid technology and have an EPA-estimated highway gasoline mileage rating of at least 40 mpg.

Source: DOE (2007a)

State Transit Funding

In addition to federal funds for public transit, states also pull funding from their own budgets. A state's investment in public transit is a key determinant of its interest in promoting mass transit opportunities. Transit funding should be accompanied by comprehensive state planning. States that spent $50 or more per capita on mass transit earned 1 point in the overall transportation scorecard. These include Massachusetts, Maryland, New York, Alaska, New Jersey, Delaware, Pennsylvania, Connecticut, California, the District of Columbia, and Minnesota.

Smart Growth Land Use Policies

Raising fuel economy and emissions standards will not adequately address transportation efficiency in the long term if growth in total vehicle miles traveled goes unchecked. U.S. highway vehicle-miles traveled (VMT) is projected to grow 60% by 2030, substantially outpacing population growth in the country.[11] Better land use planning is essential to slowing the growth in VMT.

[10] Several early hybrids provided little fuel economy benefit, because the technology was used to increase vehicle power rather than to improve fuel economy. These hybrids did not sell well and have mostly been discontinued, but this issue remains a concern for hybrid incentive programs.

[11] See http://www.rita.dot.gov/publications/transportation_vision_2030/html/figure_01.html.

Increasingly, states have played an active role in the creation of smart growth legislation. According to the NRDC, state smart growth and public transport policies encourage growth and redevelopment within already existing urban areas and communities, reducing the need to develop further outside cities and towns where entirely new infrastructure is needed and alternatives to driving cannot be found (NRDC 2008a). Such state-implemented policies include:

- VMT reduction targets
- Creation of a comprehensive Growth Management Act (GMA) that outlines growth management legislation and development goals
- Mechanisms for coordinated development to ensure state entities encourage development through the use of coordinated public investments and goals (NRDC 2008a)

Despite the growing popularity of these policies as a means of containing sprawl, several barriers have emerged for states that have pursued smart growth land use reform. These include:

- *State vs. local focus*: Local governments bear the primary responsibility for planning and implementing smart growth. General state transportation planning depends on the collaboration of three main agencies: the state transportation agency (DOT or Highway Department), the transit operator, and the regional metropolitan planning organizations (STPP 2006). However, local governments make most land use decisions, whose impacts often have no political boundaries. States are now recognizing this and are requiring written local comprehensive plans, coordination among neighboring jurisdictions in the planning process, and inter-jurisdictional consistency among the various plans (APA 2002). This type of regional cooperation among communities and government agencies is crucial to comprehensive planning and growth management improvements.

- *Perceived high cost*: Some states consider land use reforms to be too costly. However, numerous studies show that smart growth planning reforms spur significant financial savings, job growth, economic development, revitalization, improved quality of life, and other benefits.

Figure 2. Leading States: Transportation Efficiency

Maryland: Maryland is a strong example of how smart growth policies can influence planning and growth within a state. The state passed the Smart Growth Areas Act in 1997 in order to include smart growth principles in planning and policy-making. Between 2000 and 2001, the Maryland state general assembly voted to dedicate $500 million to the upgrade of mass transit service and infrastructure (APA 2002).

New Jersey: In January 2008, New Jersey passed the "Urban Transit Hub Tax Credit Act," providing businesses that choose to locate in "urban transit hubs" — defined as areas within a one-half mile radius around rail stations — with tax credits. Such a business must invest at least $75,000,000 in a business facility and employ at least 250 people before it can earn tax credits that can be applied to corporate business taxes, insurance premiums tax, or income tax earnings.* New Jersey is also in the process of implementing its statewide "Development and Redevelopment Plan" that is projected to save as much as $2.3 billion in capital costs through the creation of smart growth policies.

*Note: New Jersey Law #346. For more information, please see http://www.ncsl.org/programs/environ/healthyCommunity/healthycommunity_bills.cfm.

CHAPTER 3: BUILDING ENERGY CODES

Background

Buildings consume 72% of the electricity generated and 40% of total energy use in the United States, while accounting for 40% of the carbon dioxide emissions for which the U.S. is responsible (DOE 2007b). This makes buildings an essential target for energy savings. However, because buildings have long lifetimes and are not easily retrofitted, it is crucial to target building efficiency measures prior to construction. Mandatory building energy codes are one way to target energy efficiency by requiring a minimum level of energy efficiency for residential and commercial buildings.

In 1978, California enacted the first statewide building energy code in its Title 24 Building Standard. Several states (including Florida, New York, Minnesota, Oregon, and Washington) followed with state-developed codes in the 1980s. During the 1980s and 1990s, the International Code Council (ICC) and its predecessor developed its Model Energy Code (MEC), which was later renamed the International Energy Conservation Code (IECC). Today, most states use a version of the MEC or IECC for their residential building code, which requires a minimum level of energy efficiency in new residential construction. Most commercial building codes are based on ASHRAE 90.1, jointly developed by the American Society of Heating, Refrigerating and Air Conditioning (ASHRAE) and the Illuminating Engineering Society (IES). The IECC also includes prescriptive and performance commercial building provisions.

Methodology

For this category, states earned scores on two measures of building energy codes: level of stringency of residential and commercial codes (up to 5 points); and level of efforts to ensure compliance of codes (up to 3 points), for a combined score of up to 8 points.

Our review of state building energy codes is based largely on information provided by the Building Codes Assistance Project (BCAP), which maintains maps and state overviews of building energy codes. We assigned each state a score of 0 to 5 for residential and commercial building energy codes, with 5 being assigned to the most stringent codes (see Table 15). We then averaged the two for an overall stringency score (see Table 16). In some cases, we adjusted state scores based on adoption of key standards, such as the Texas code with standards for low solar gain windows. Scoring is based on codes that were adopted as of June 30, 2008. Those states that have already made plans to update their codes, but are effective July 2008 or later, will have new scores reflected in next year's scorecard.

In addition, we score states' level of efforts to comply with their building codes according to the judgment of building energy code experts. Scoring states on compliance is difficult due to the lack of data — very few states actually collect comprehensive data on residential and commercial compliance with state energy codes. States do not have enough funding to employ the number of code officials required to create samples that are large enough to properly represent the level of compliance within a state. In order to collect this information, we relied on a select group of building code experts who rated the states on a scale of 0 to 3 based on states' efforts to comply with and enforce the state's most current building energy codes, such as offering code official training. States are given 3 points for making substantial efforts to guarantee compliance such as training code officials and funding surveys; 2 points for making multiple, but not extensive, efforts; 1 point for some compliance efforts; and 0 points for limited to no efforts. See Table 16 for state scores on building energy codes.

Table 15. Scoring Methodology for State Residential and Commercial Building Energy Codes: Stringency

Score	Residential Building Code	Commercial Building Code
5	Exceeds 2006 IECC or equivalent	Exceeds 2006 IECC or ASHRAE 90.1-2004 or equivalent
4	Meets 2006 IECC	Meets 2006 IECC or ASHRAE 90.1-2004 or equivalent
3	Meets 2003 IECC or equivalent	Meets 2003 IECC or ASHRAE 90.1-2001 or equivalent
2	1998-2001 MEC/IECC (meets EPCA[12]); no mandatory state energy code, but significant adoptions of 2003 IECC in jurisdictions	2001 IECC or ASHRAE 90.1-1999 or equivalent; no mandatory state energy code, but significant adoptions of 2003 IECC in jurisdictions
1	Precedes 1998 MEC/IECC (does not meet EPCA)	Precedes ASHRAE 90.1-1999 or equivalent (does not meet EPCA)
0	No mandatory state energy code	No mandatory state energy code

Table 16. State Residential and Commercial Building Energy Codes: Stringency and Compliance Efforts Scoring

State	Stringency			Compliance Efforts* Score	Overall Score
	Residential State Energy Codes	Commercial State Energy Codes	Score (Average)		
California	5	5	5	3	8
Oregon	5	5	5	3	8
Washington	5	5	5	3	8
Wisconsin	5	5	5	3	8
Florida	5	5	5	2	7
Idaho	4	4	4	2	6
Kentucky	4	4	4	2	6
Utah	4	4	4	2	6
Minnesota	4	3	3.5	2	5.5
New York	4	4	4	1.5	5.5
Georgia	4	4	4	1.5	5.5
Nevada	3	3	3	2	5
Montana	3	3	3	2	5
Iowa	4	4	4	1	5
Virginia	4	4	4	1	5
South Carolina	4	4	4	1	5
New Mexico	4	4	4	1	5
Texas	3	3	3	2	5
Vermont	2	4	3	2	5
New Jersey	4	4	4	1	5
North Carolina	3	3	3	1.5	4.5
Maryland	4	4	4	0.5	4.5

[12] Under the federal Energy Policy and Conservation Act, states are required to review and adopt the MEC/IECC and the most recent version of ASHRAE Standard 90.1 for which DOE has made a positive determination for energy savings (currently 90.1-1999) or submit to the Secretary of Energy its reason for not doing so.

State	Stringency			Compliance Efforts* Score	Overall Score
	Residential State Energy Codes	Commercial State Energy Codes	Score (Average)		
New Hampshire	4	4	4	0.5	4.5
Pennsylvania	4	4	4	0.5	4.5
Rhode Island	4	4	4	0.5	4.5
West Virginia	3	3	3	1.5	4.5
Illinois	2	4	3	1.5	4.5
Connecticut	3	3	3	1	4
Louisiana	4	4	4	0	4
Oklahoma	3	3	3	1	4
Nebraska	3	3	3	1	4
Arkansas	3	3	3	1	4
Ohio	3	4	3.5	0	3.5
Hawaii	1	2	1.5	2	3.5
Massachusetts	3	2	2.5	1	3.5
Colorado	2	2	2	1	3
Delaware	2	2	2	1	3
District of Columbia	2	2	2	1	3
Kansas	0	4	2	1	3
Arizona	2	2	2	1	3
Alaska	4	0	2	1	3
Maine	0	4	2	0	2
Michigan	1	2	1.5	0	1.5
Missouri	1	1	1	0.5	1.5
Indiana	1	1	1	0	1
Tennessee	1	0	0.5	0	0.5
Alabama	0	0	0	0	0
Mississippi	0	0	0	0	0
North Dakota	0	0	0	0	0
South Dakota	0	0	0	0	0
Wyoming	0	0	0	0	0

Source: Stringency scores derived from BCAP (2008) and DOE (2008b), as of June 2008. Compliance scores based on ACEEE survey of building code experts.

California earns the maximum score of 8 points because its state-developed code is considered to be more stringent than the highest IECC standards and also to have one of the highest rates of compliance. Oregon, Washington, and Wisconsin also earned the maximum score for their efforts. States that have not adopted a mandatory state energy code, or have poor or unverifiable rates of compliance, earn a score of 0. Currently there are twelve states that do not have statewide, mandatory energy codes for either residential or commercial buildings: Kansas, Maine, Alaska, Illinois, Arizona, Tennessee, Alabama, Mississippi, Missouri, North and South Dakota, and Wyoming. Nineteen states have poor or unverifiable rates of compliance.

Figure 3. Leading States: Building Energy Codes

California: California's state-developed energy code (Title 24 standards) is generally considered to be the most stringent and best enforced energy code in the U.S. California's Title 24 stands out because it is stringent, has high compliance rates in field verification studies, offers flexibility through performance-based specifications, and is actively supported through technical assistance.

Washington: Through Chapter 51-11 of the Washington Administrative Code, Washington has developed a stringent statewide energy code that meets or exceeds both IECC 2006 and ASHRAE 90-1.2004 and also boasts one of the highest rates of compliance in the U.S. Washington's residential and commercial energy codes, updated in November 2006, became effective July 1, 2007. The code includes performance requirements, such as thermal efficiency requirements for HVAC equipment, but also provides a prescriptive approach to allow for flexibility and innovation in compliance.

CHAPTER 4: COMBINED HEAT AND POWER

Combined Heat and Power (CHP) systems generate electricity and thermal energy in a single, integrated system. CHP is more energy efficient than separate generation of electricity and thermal energy, because heat that is normally wasted in conventional power generation is recovered as useful energy. That recovered energy is used to satisfy an existing thermal demand, such as the heating and cooling of the building or water supply. CHP systems can save customers money and reduce overall net emissions.

A state could earn up to 5 points based upon its adoption of regulations and policies that encourage the deployment of combined heat and power (CHP) systems. There are multiple ways in which states can actively encourage or discourage the deployment of CHP. Financial, technical, and regulatory factors all impact the extent to which CHP is deployed. The five factors considered when scoring CHP for the 2008 Scorecard are:

- Standard interconnection rules
- Status of CHP-friendly standby rates
- Presence of CHP financial incentive programs
- Presence of output-based emissions regulations (OBR)
- Inclusion of CHP/waste heat recovery in a state RPS or EERS

Many states are in the process of developing or improving a number of these policies for CHP. Generally, credit was not given for a policy unless it was in place — enacted by a legislative body or promulgated as an order from an executive body. Some states that formerly had policies in place have since removed or in other ways nullified these policies; in these situations, we did not give credit for the policy in question.

The most heavily weighted policy is the presence of an **interconnection standard** that explicitly establishes parameters and procedures for the interconnection of CHP systems. We relied upon several secondary sources — such as the Database for State Incentives for Renewable Energy (DSIRE 2008) and the Environmental Protection Agency's CHP Partnership database (EPA 2008a) — as well as primary sources such as public utility commission dockets, and interviews with commission staff and utility representatives. Having multiple levels (or tiers) of interconnection is important to CHP deployment, because smaller systems are offered a faster — and often cheaper — path toward interconnection compared to larger systems. Scaling these transaction costs to project size makes economic sense, because customers with larger projects — and thus larger potential economic gains — often have more incentive to spend time and money to interconnect their more complex systems than do customers with smaller projects facing smaller economic returns. Additionally, interconnection standards that have higher size limits are preferred, as are standards that are based upon widely accepted industry standards, such

as the IEEE 1547 standard.[13] Finally, having clearly delineated procedural steps toward interconnection and easily accessible information is viewed favorably.

The second most weighted policy is the **standby rates** used by the largest utilities in each state to charge for standby service provided to CHP systems. We relied upon secondary information that came from the Environmental Protection Agency's CHP Partnership, as well as primary information from utilities and public utility commissions to score states for this category. Standby rates are generally composed of two elements: energy charges, which reflect the actual standby energy used by a CHP system; and demand charges, which are charges based upon either a single demand peak during a defined period, or a specific amount of contracted demand based upon the system's size. Generally, standby rates that base a larger percentage of their total standby charge on energy charges are viewed as more favorable than rates that are based heavily on demand charges. Energy charges reflect the true economics of CHP better than demand charges, because demand charges may often increase significantly based upon a single demand peak during a single 15-minute period. Demand charges can further discourage CHP when a "ratchet" is employed, which keeps the heightened demand charge high for a multi-month period. Some ratchets last for a year or longer.

The third most weighted CHP policy is the presence of **incentives for CHP**. Tax incentives are viewed as more permanent than grant programs, which are generally not embedded in state legislation. Tax incentives for CHP take many forms, but are often credits taken against business or real estate taxes. Rebates, grants, and favorable loan structures are all ways in which CHP can be encouraged at the state level, and the leading states have mixtures of multiple types of incentives. Additional information on incentives for CHP is available from EPA through its CHP Partnership (EPA 2008a) and from the Database for State Incentives for Renewable Energy (DSIRE 2008).

The fourth most weighted policy is the presence of **output-based emissions regulations (OBR)**. These are air quality regulations that take the useful energy output of CHP systems into consideration when quantifying a system's criteria pollutant emissions. Many states employ emissions regulations for generators by calculating levels of pollutants based upon the fuel input into a system. For CHP systems, electricity *and* useful thermal outputs are generated from a single fuel input; calculating emissions based solely on input ignores the additional power created by the system, using little or no additional fuel. Output-based emissions acknowledge that the additional useful energy output was created in a manner generally cleaner than separate generation of electricity and thermal energy. Additional information for policies in this category is also available from EPA via its Partnership Web site.[14]

The final policy used to calculate states' overall CHP scores is the eligibility of **CHP for credit in a renewable portfolio standard (RPS) or energy efficiency resources standard (EERS)**. RPS and EERS policies define a particular amount of a state's electric resources that must be derived from renewable energy or energy efficiency resources, respectively, as is discussed in Chapter 1. Most states with RPS or EERS policies set goals for future years. These goals are generally a percentage of total electricity sold that must be derived from renewable or efficiency resources, with the percentage of these resources increasing as a percentage of total electricity sold in future years. Not only are utilities required to meet the state goals, but these standards are often paired with financial incentives or support programs to implement and encourage eligible technologies. Thus, when CHP is explicitly listed as eligible for RPS or EERS credit, it creates a large incentive to deploy the technology.

States are scored for CHP on a scale of 0 to 5 on their efforts to encourage CHP though regulatory and financial mechanisms, specifically through the five policy categories listed in Table 17.

[13] This standard establishes criteria and requirements for interconnection of distributed resources (DR) with electric power systems (EPS). It provides requirements relevant to the performance, operation, testing, safety considerations, and maintenance of the interconnection. For more information, visit http://www.ieee.org/portal/site.
[14] http://www.epa.gov/chp/state-policy/output.html

Table 17. State Scoring for CHP

State	Interconnection	OBR	Incentives	RPS or EERS	Standby Rates	Total Score
California	●●	●	●		3	5
Connecticut	●●	●	●	●	2	5
New York	●●	●	●		2	5
Ohio	●	●	●	●	2	5
Wisconsin	●●	●	●		3	5
Illinois	●	●	●		3	5
Oregon	●●	●	●		3	5
Texas	●●	●		●	3	5
New Jersey	●●	●	●		3	5
Washington	●	●	●	●	2	4
Pennsylvania	●		●	●	3	4
Massachusetts	●●	●			2	3
Maryland	●●				3	3
Colorado	●			●R	3	3
Delaware	●	●			3	3
Hawaii	●			●	2	3
District of Columbia	●^		●		5	3
Indiana	●	●			3	3
Maine		●		●	5	3
Minnesota	●●		●		3	3
Vermont	●		●		2	3
Florida	●R		●		2	3
Idaho			●		3	3
Michigan	●		●		1	3
North Carolina	●			●	2	3
Alaska			●		3	2
Arizona	●^				3	2
New Hampshire		●			3	2
New Mexico	●		●		1	2
South Dakota	●^			●R	2	2
Missouri		●			3	2
Arkansas			●		2	1
Kansas	●				1	1
Mississippi			●		2	1
Montana					3	1
North Dakota			●		2	1
Rhode Island					3	1
South Carolina	●^		●		1	1
West Virginia					3	1
Alabama			●		1	1
Iowa	●^				1	1
Kentucky					2	1
Nebraska					2	1
Nevada					2	1
Oklahoma			●		1	1

State	Interconnection	OBR	Incentives	RPS or EERS	Standby Rates	Total Score
Tennessee					2	1
Utah				●	1	1
Virginia	●^				1	1
Georgia					1	0
Louisiana					1	0
Wyoming					1	0

Standard Interconnection Notes: ● = Statewide standard interconnection rules exist that include CHP as an eligible technology; ●●= Exemplary standard interconnection rules exist that include CHP.
General Notes: ●^ = Proposed. ●R = CHP is not specifically eligible, though recycled and waste energy is included.

Figure 3. Leading States: Combined Heat & Power

California: California has CHP-friendly standby rates, streamlined interconnection standards for systems up to 10 MW, and emissions regulations that acknowledge the benefits of CHP systems by including a mechanism to credit useful thermal output. The state also promotes CHP through financial incentives. Its Self-Generation Incentive Program (SGIP) provides rebates for electric utility customers who install clean distributed generation.

New York: New York was the second state to adopt uniform interconnection standards for distributed generation systems, and adopted modifications in 2002 to streamline the application process. In 2004, the maximum capacity of interconnected systems was increased from 300 kW to 2 MW and interconnections were expanded to the state's more complex distribution systems, or "networked" systems, which exist in large, urban areas including New York City. Through the New York State Research and Development Authority's Distributed Generation and Combined Heat & Power program, the state has provided significant financial incentive and technical assistance to encourage CHP deployment. Over the last seven years, these programs have invested over $94 million, about 75% of which has resulted in permanent equipment in the field with a capacity of about 192 MW.

Connecticut: Connecticut has developed interconnection standards applicable to CHP systems as large as 10 MW, and has established multiple size tiers so that smaller systems may benefit from easier interconnection processes. Its emissions regulations provide credit for thermal output for highly efficient CHP systems, and CHP is explicitly listed as an integral part of the state's renewable portfolio standard.

CHAPTER 5: APPLIANCE AND EQUIPMENT EFFICIENCY STANDARDS

Background

Every day in our homes, offices, and public buildings, we use appliances and equipment that are much less energy efficient than other available models. While the usage and energy cost for a single device may seem small, the extra energy consumed by less efficient products collectively adds up to a significant amount of wasted energy. Real and persistent market barriers, however, inhibit sales of more efficient models. Appliance efficiency standards overcome these barriers by requiring manufacturers to meet minimum efficiency levels for all products, therefore removing the most inefficient products on the market.

States lead the way when it comes to establishing standards for appliances and other equipment. California was the first state to introduce appliance standards in 1974. Many states, such as New York and Massachusetts, followed soon after. The federal government did not institute national standards until

1998 through the passing of the National Appliance Energy Conservation Act (1988), which created national standards based on those that had been incorporated by California.

Today the federal government uses the standards set by states as a model for federal appliance standards. However, federal preemption poses a problem for states that wish to increase the stringency of their own appliance standards. Under the general rules of federal preemption applied by the Energy Policy Act of 2005 (EPAct) and the Energy Independence and Security Act of 2007 (EISA), states that have set standards prior to federal enactment may enforce their state standards up until the federal standards become effective; states that have not yet set standards are preempted immediately. States that wish to implement their own standard after federal preemption must apply for a waiver. This is an effective policy for spreading appliance efficiency across the nation, but significantly restricts the ability of states to go above and beyond federal mandates.

Methodology

A state can earn up to 4 points for their adoption of appliance efficiency standards. We score states based on the number of appliance efficiency standards not presently preempted by federal standards adopted in 2005 and 2007. Each state earns a score of 0 to 4: 4—more than ten product standards; 3—seven to ten product standards; 2—four to six product standards; 1—one to three standards, and; 0—no standards. See Table 18 for state scores on appliance efficiency standards. States not listed here had no efficiency standards.

Table 18. State Scoring for Appliance Efficiency Standards

State	Number of Standards Enacted since 2002 (Not Preempted by Federal Legislation)	Date Most Recent Standards Adopted	Score
California	13	2008	4
Oregon	10	2008	3
Connecticut	9	2008	3
Rhode Island	7	2008	3
Washington	5	2008	2
Maryland	5	2007	2
New York	3	2008	1
Arizona	3	2005	1
Massachusetts	2	2008	1
Vermont	2	2008	1
District of Columbia	2	2009	1
Nevada*	1	2008	1
New Jersey	1	2007	1

Source: Appliance Standards Awareness Project (ASAP) 2008 and DSIRE 2008, as of June 2008
*Nevada earns a point for its adoption of lighting efficiency standards due to its influence in paving the way for the 2007 federal law.

California, scoring a maximum of 4 points, continues to take the lead on appliance efficiency standards, having been the first state to adopt appliance standards in 1974. Not only has California enacted the greatest number of standards, the products covered have also had the greatest success withstanding federal preemption. Although several states have taken significant efforts to expand their own standards, such as Oregon, Connecticut, Rhode Island, and Washington, EPAct 2005 and EISA 2007 created federal standards that preempted many of those state standards.

Figure 4. Leading States: Appliance and Equipment Efficiency Standards

California: California was the first state in the country to adopt appliance and equipment efficiency standards. The authority to adopt appliance and equipment efficiency standards was bestowed upon the California Energy Commission as stipulated under the Warren-Alquist Act, which was enacted in 1974. California's 2006 Appliance Efficiency Regulations became effective on December 30, 2005, replacing all previous versions. The regulations create standards for 21 categories of appliances, including standards for both federally-regulated and non-federally-regulated appliances.

***Rhode Island*:** In 2005, the Energy and Consumer Savings Act established minimum energy efficiency standards for twelve commercial and residential products, nine of which were immediately preempted by the federal Energy Policy Act later that year. In 2006, S 2844, which included amendments to its 2005 legislation, was signed to create standards for an additional eight products, of which only one was preempted by the Energy Independence and Security Act of 2007. The Office of Energy Resources is the state agency responsible for the adoption and certification of efficiency standards in Rhode Island.

CHAPTER 6: LEAD BY EXAMPLE (LBE) INITIATIVES

Background

A state's own facilities, fleets, and operations offer a unique opportunity for state governments to lead by example, incorporating energy efficiency measures into their facilities and achieving significant energy cost savings. States that take action to improve efficiency in their own buildings and vehicles therefore represent leaders in energy efficiency. Efficiency improvements in state buildings and fleets can be substantial, achieving savings on energy bills, which thereby frees up public money for other purposes, and increasing the public visibility of energy efficiency.

State and local governments operate many facilities, including office buildings, public schools, colleges, and universities, and the energy costs to run these facilities can account for as much as 10% of a typical government's annual operating budget. Lead by Example programs can reduce energy consumption in state buildings and thereby reduce state energy costs through lowered operations and maintenance costs. Of additional significant benefit, states that administer effective energy management programs and promote energy efficiency and clean energy solutions are encouraging economic development in local and regional communities. To learn from other state best practices in Lead by Example programs, see the National Governor's Association's Center for Best Practices (NGA 2008).

Specific Lead by Example initiatives that states are pursuing include energy-efficient appliance and equipment purchase requirements, energy efficiency targets for state buildings, and energy efficiency targets for state fleets. Energy-efficient appliances, such as those that meet voluntary ENERGY STAR specifications, typically use 10-50% less energy than standard models. By requiring the purchase of efficient appliances and equipment, state facilities can reduce overall energy consumption and make strides toward meeting energy efficiency targets. In addition to efficient appliances and equipment, efficient new and existing buildings use 20-50% less energy than standard buildings. Mandatory energy savings targets for new and existing state buildings encourage states to invest in efficient new building construction and retrofit projects, resulting in lower energy bills.

State governments operate fleets of about 500,000 vehicles, ranging from about 1,000 to more than 50,000 per state. In doing so, states incur operation and maintenance costs of about $2.5 billion, ranging from $7 million to $250 million (NCFSA 2007). Increasing the fuel efficiency of these vehicles creates an opportunity to significantly reduce fuel costs and create a hedge against rising fuel prices.

Methodology

Our review of state lead by example initiatives is largely based on EPA's policy review of LBE programs and policies (EPA 2008). States earn a maximum of 2 points in the LBE category: 0.5 points each for energy savings targets in new and existing state buildings and for energy-efficient product procurement; and 1 point for fleet efficiency mandates. Legislation, plans, policies, and executive orders all count as LBE programs as long as specific action on the part of an identified agency is required (i.e., plans that promote, but do not require LBE action, are not included). For state fleet initiatives, states only earn a point if the plan or policy makes a specific, mandatory requirement for increasing state fleet efficiency. State fleet biofuel requirements that give a voluntary option to count efficient vehicles toward a procurement requirement are thus not included.

Table 19. State Lead by Example Initiatives

State	New and Existing State Building Requirements (0.5 points)	Energy-Efficient Product Procurement (0.5 points)	Efficient Fleets (1 point)	Score
California	0.5	0.5	1	**2**
Florida	0.5	0.5	1	**2**
Connecticut	0.5	0.5	1	**2**
Hawaii	0.5	0.5	1	**2**
Louisiana	0.5	0.5	1	**2**
Minnesota	0.5	0.5	1	**2**
New Hampshire	0.5	0.5	1	**2**
Utah	0.5	0.5	1	**2**
Vermont	0.5	0.5	1	**2**
Virginia	0.5	0.5	1	**2**
Pennsylvania	0.5	0.5	1	**2**
Maine	0.5	0	1	**1.5**
Montana	0.5	0	1	**1.5**
Rhode Island	0.5	0	1	**1.5**
New York	0.5	0.5	0	**1**
North Carolina	0.5	0.5	0	**1**
Iowa	0.5	0.5	0	**1**
Texas	0.5	0.5	0	**1**
Massachusetts	0.5	0.5	0	**1**
Illinois	0.5	0.5	0	**1**
Arizona	0.5	0.5	0	**1**
Michigan	0.5	0.5	0	**1**
Ohio	0.5	0.5	0	**1**
Alabama	0.5	0.5	0	**1**
Delaware	0.5	0.5	0	**1**
District of Columbia	0.5	0.5	0	**1**
Maryland	0.5	0.5	0	**1**
New Jersey	0.5	0.5	0	**1**
Colorado	0.5	0.5	0	**1**
Wisconsin	0.5	0	0	**0.5**
Missouri	0.5	0	0	**0.5**
Oregon	0.5	0	0	**0.5**
Washington	0.5	0	0	**0.5**
Kentucky	0.5	0	0	**0.5**

State	New and Existing State Building Requirements (0.5 points)	Energy-Efficient Product Procurement (0.5 points)	Efficient Fleets (1 point)	Score
Nevada	0.5	0	0	**0.5**
New Mexico	0.5	0	0	**0.5**
South Carolina	0.5	0	0	**0.5**
Georgia	0	0	0	**0**
Tennessee	0	0	0	**0**
Alaska	0	0	0	**0**
Arkansas	0	0	0	**0**
Idaho	0	0	0	**0**
Indiana	0	0	0	**0**
Kansas	0	0	0	**0**
Mississippi	0	0	0	**0**
Nebraska	0	0	0	**0**
North Dakota	0	0	0	**0**
Oklahoma	0	0	0	**0**
South Dakota	0	0	0	**0**
West Virginia	0	0	0	**0**
Wyoming	0	0	0	**0**

Figure 5. Leading States: State Lead by Example Initiatives

California: In 2004, Executive Order S-20-04 was issued that requires state agencies and departments to reduce their energy consumption by 20% of 2003 levels by 2015, directs the Division of the State Architect to develop new green guidelines for public schools, and requires all state agencies to purchase ENERGY STAR qualified equipment when cost-effective. California's Green Building Action Plan includes specific requirements to help the state meet its goal, such as requiring new buildings to meet LEED-NC Silver or higher and existing buildings to meet LEED-EB standards no later than 2015. The state also has an initiative to increase efficiency in its vehicle fleet. A law was passed in 2006 that modified an existing law that required a 10% reduction in energy used by the state fleet. The bill requires the CEC to define a minimum allowable mpg for state fleet passenger and light-duty vehicles by June 1, 2007. After January 1, 2008, new fleet purchases must adhere to this standard.

***Florida*:** In July 2007, Governor Charlie Crist signed Executive Order 07-126, which requires that only new vehicle purchases with the greatest fuel efficiency in a given class be approved and applies greenhouse gas standards to the state's procurement process, including appliance and equipment procurement. The order also directs the Florida Department of Management Services to set LEED green building standards for the state's new and existing state-owned buildings. The 2006 Florida Energy Plan also calls for a reduction of energy consumption in state facilities by 25% from 2002 levels by 2007.

CHAPTER 7: RESEARCH, DEVELOPMENT AND DEPLOYMENT (RD&D)

In 1990, several state energy research, development, and deployment institutions established the Association of State Energy Research and Technology Transfer Institutions (ASERTTI) in response to the increasing need for state initiatives in RD&D. In addition to providing a variety of services to promote the creation, development, and commercialization of new technologies for energy efficiency, state RD&D efforts can address a number of market failures that exist in the energy services marketplace that impede the diffusion of new technologies (Pye and Nadel 1997).

Individual state research institutions exist primarily to provide expertise and knowledge to their states from which policymakers can draw in order to advance successful efficiency programs. Through research and development, they also provide the impetus for commercial investment and manufacturing of the new technologies that these institutions conceive. Additionally, these research institutions provide valuable knowledge spillovers to other states through the sharing of information — which is facilitated through membership with ASERTTI, allowing other states to benefit from their research. States without these institutions can then use this shared information as a roadmap in order to advance their own efficiency programs.

Methodology

The RD&D review is based on state participation in ASERTTI and size of effort relative to population as assessed by ACEEE staff. A state can receive up to 2 points in this category. See Table 20 for state scores.

Table 20. Research, Development, and Deployment

State	Score
California	2
New York	2
North Carolina	2
Iowa	2
Wisconsin	2
Florida	1
Texas	1
Massachusetts	1
Connecticut	0.5
Illinois	0.5
Missouri	0.5
Oregon	0.5
Hawaii	0
Louisiana	0
Minnesota	0
New Hampshire	0
Utah	0
Vermont	0
Virginia	0
Pennsylvania	0
Maine	0
Montana	0
Rhode Island	0
Arizona	0
Michigan	0

State	Score
Ohio	0
Alabama	0
Delaware	0
District of Columbia	0
Maryland	0
New Jersey	0
Colorado	0
Washington	0
Kentucky	0
Nevada	0
New Mexico	0
South Carolina	0
Georgia	0
Tennessee	0
Alaska	0
Arkansas	0
Idaho	0
Indiana	0
Kansas	0
Mississippi	0
Nebraska	0
North Dakota	0
Oklahoma	0
South Dakota	0
West Virginia	0
Wyoming	0

Figure 6. Leading States: State Research, Development, and Deployment Initiatives

New York: The New York State Energy Research and Development Authority (NYSERDA, www.nyserda.org) is the epitome of an effective and influential research and development institution. Created in 1975 under Article 8, Title 9 of the State Public Authorities Law, NYSERDA "strives to facilitate change through the widespread development and use of innovative technologies to improve the State's energy, economic, and environmental wellbeing." NYSERDA is primarily funded through system benefits charges on state ratepayers, a mechanism that has recently been extended through June 30, 2011. NYSERDA focuses its RD&D efforts on many areas, from agriculture to transportation, and it also runs the New York Energy $mart program, which was originally created to promote competitive markets for energy efficiency services. The Energy $mart program currently receives annual funding of $175 million.

***Iowa*:** Created by Section 266.39C of the Iowa Code, the Iowa Energy Center's mission is to advance renewable energy and efficiency through research, education, and demonstration. Funded by gas and electricity ratepayers, it spent $3.9 million in 2007, of which 80% was directed towards research and education. Amongst its many goals, the Iowa Energy Center strives to advance efficiency and renewable energy within the state through research and development while providing a model for the state to decrease its dependence on imported fuels.

CHAPTER 8: FINANCIAL AND INFORMATION INCENTIVES

Background

State financial incentives for energy efficiency are an important instrument for increasing the use of technologies that provide benefits to both residents and the state overall. Information incentives, such as home disclosure laws, give consumers greater purchasing power due to greater awareness of the energy efficiency of homes on the market, which can have a significant impact on the economic value of a home. Financial incentives can take many forms: rebates or loans for energy-efficient improvements, direct income tax credits for individuals or businesses; exemptions or reduced sales tax on eligible products; and income tax deductions for individuals and businesses. Tax incentives can lower the net cost of efficient products to consumers, reducing the additional costs relative to standard models. Tax incentives can also raise consumer awareness of eligible products, encouraging manufacturers and retailers to more actively market these products. As sales increase, prices come down, eventually allowing the products to function in the market without tax incentives.

Methodology

We rely on the *Database of State Incentives for Renewable Energy* (DSIRE 2008) to gather information on current state tax and other financial incentive programs for buildings and equipment efficiency. Points are not given for utility-sponsored financial incentive programs, but rather state incentives only. States earn 1 point for each major incentive program and are capped at a maximum of 3 points (see Table 21). Points are allocated depending on the strength of the programs: for example, a state with several minor programs (Minnesota) is considered equivalent to a state with one or two major programs (Delaware). States are also given credit for home disclosure laws, which require homeowners to disclose information about the energy efficiency of their homes when the homes are placed on the market. Only three states currently require efficiency disclosure: Kansas, Nevada, and Texas. These energy efficiency home disclosure laws were taken into account when calculating the overall scoring.

Oregon receives the maximum score of 3 points for its various programs, which include the Residential and Business Energy Tax Credits, two major incentive programs that provide credits for purchases of energy-efficient appliances and HVAC systems, as well as for technologies that supply renewable energy, like wind and photovoltaics. Currently twenty states and the District of Columbia have no major financial incentive programs and therefore earned a score of 0.

Table 21. State Financial and Information Incentives

State	Score	State	Score
Oregon	3	Oklahoma	1
Idaho	2	Massachusetts	1
Maryland	2	Washington	1
Delaware	2	Kentucky	1
Illinois	2	Tennessee	1
Minnesota	2	Texas	1
Pennsylvania	2	Kansas	1
Nevada	1.5	Maine	1
Alaska	1	Mississippi	1
Montana	1	Nebraska	1
Connecticut	1	New Hampshire	1
New York	1	North Carolina	1
New Mexico	1	Ohio	1
California	1	Vermont	1
Louisiana	1	Virginia	1

State	Score
Arizona	0.5
District of Columbia	0
South Carolina	0
Colorado	0
Georgia	0
Alabama	0
Arkansas	0
Florida	0
Hawaii	0
Indiana	0
Iowa	0
Michigan	0

State	Score
Missouri	0
New Jersey	0
North Dakota	0
Rhode Island	0
South Dakota	0
Utah	0
West Virginia	0
Wisconsin	0
Wyoming	0

Figure 7. Leading States: State Financial and Information Incentives

Oregon: Oregon has run tax incentive programs since 1979 and is generally considered to run the most comprehensive state energy efficiency tax incentive program. In 2006, Oregon's Residential and Business Energy Tax Credit programs, whose combined annual spending equaled $73.8 million, were estimated in one year to have increased state output by $142.7 million. 1,240 new jobs were created, along with an increase in state and local tax revenues of $10 million and a decrease in residential and commercial energy costs of $48 million.

Minnesota: Three significant loan programs provide Minnesota homeowners substantial opportunity to increase the energy efficiency of their homes or rental properties with low-interest loans. The Home Energy Loan Program allows for a maximum loan of $10,000 for terms up to 5 years for various efficiency improvements, which includes insulation and appliances. The Minnesota Housing Finance Agency's (MHFA) Rehabilitation Loan Program provides loans for both single- and multi-family units, at a maximum of $25,000 and $100,000, respectively, for terms up to 15 years. The Rental Energy Loan program provides low-interest loans to owners of residential rental properties for efficiency improvements, such as energy-efficient appliances, at a maximum of $10,000 for terms up to 5 years.

DISCUSSION

The results of the scorecard are presented again in Table 1 below, and the last column shows the state's change in ranking compared to the 2007 scorecard. Readers should note an important caveat: changes in state rankings are due to *both* changes in the scoring methodology as well as changes in state efficiency programs and policies. Following the table, we provide some key highlights on changes in state rankings, discuss the notable states making new commitments to energy efficiency over the past year, and suggest further areas of research for future editions of the scorecard.

Table 22. Summary of Overall State Scoring on Energy Efficiency

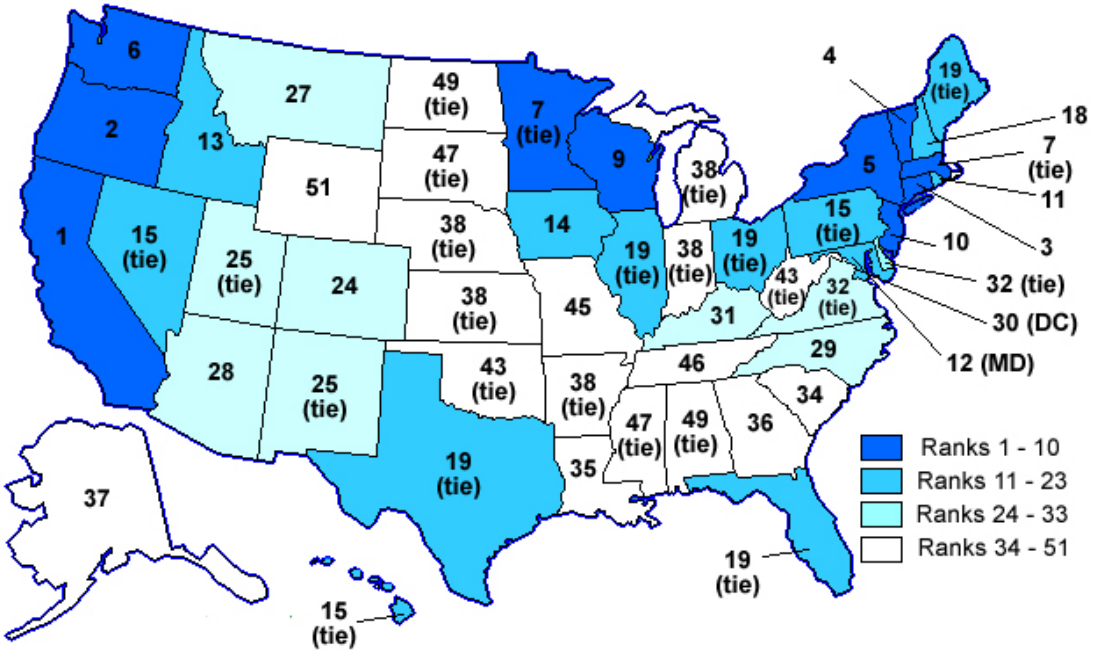
Rank	State	Utility and Public Benefits Efficiency Programs and Policies Score	Transportation Score	Building Code Score	Combined Heat and Power (CHP) Score	Appliance Standards	State Lead by Example a	RD&D	Financial and Information Incentives	TOTAL SCORE	Change in Rank from 2007 Results
	Maximum Possible Points:	*20*	*6*	*8*	*5*	*4*	*2*	*2*	*3*	*50*	
1	California	14.5	4	8	5	4	2	2	1	40.5	0
2	Oregon	13.5	3.5	8	5	3	0.5	0.5	3	37.0	3
3	Connecticut	15.5	5	4	5	3	2	0.5	1	36.0	-2
4	Vermont	19	2.5	5	2.5	1	2	0	1	33.0	-3
5	New York	12.5	4.5	5.5	5	1	1	2	1	32.5	2
6	Washington	12	4.5	8	4	2	0.5	0	1	32.0	0
7	Massachusetts	12.5	3.5	3.5	3	1	1	1	1	26.5	-3
7	Minnesota	13.5	1	5.5	2.5	0	2	0	2	26.5	2
9	Wisconsin	10	0.5	8	5	0	0.5	2	0	26.0	3
10	New Jersey	10	3.5	5	5	1	1	0	0	25.5	-2
11	Rhode Island	10	3	4.5	1	3	1.5	0	0	23.0	-2
12	Maryland	5.5	3.5	4.5	3	2	1	0	2	21.5	8
13	Idaho	10	0	6	3	0	0	0	2	21.0	12
14	Iowa	10.5	0	5	0.5	0	1	2	0	19.0	-1
15	Hawaii	8.5	0.5	3.5	2.5	0	2	0	0	17.0	0
15	Pennsylvania	1	3.5	4.5	4	0	2	0	2	17.0	-1
15	Nevada	8.5	0	5	0.5	1	0.5	0	1.5	17.0	3
18	New Hampshire	7.5	0	4.5	1.5	0	2	0	1	16.5	0
19	Maine	6.5	2.5	2	2.5	0	1.5	0	1	16.0	-4
19	Florida	2.5	0.5	7	3	0	2	1	0	16.0	10
19	Ohio	5.5	0	3.5	5	0	1	0	1	16.0	8
19	Texas	3	0	5	5	0	1	1	1	16.0	-8
19	Illinois	3	0	4.5	5	0	1	0.5	2	16.0	7
24	Colorado	8	1	3	2.5	0	1	0	0	15.5	-9
25	New Mexico	4	3	5	1.5	0	0.5	0	1	15.0	-1
25	Utah	6.5	0	6	0.5	0	2	0	0	15.0	2
27	Montana	6	0	5	1	0	1.5	0	1	14.5	-6
28	Arizona	4	2.5	3	1.5	1	1	0	1	14.0	-5
29	North Carolina	2	0	4.5	3	0	1	2	1	13.5	1
30	District of Columbia	2	2	3	2.5	1	1	0	0	11.5	-8
31	Kentucky	3	0	6	0.5	0	0.5	0	1	11.0	4
32	Delaware	0	1.5	3	2.5	0	1	0	2	10.0	-2
32	Virginia	1	0.5	5	0.5	0	2	0	1	10.0	6
34	South Carolina	1.5	1	5	1	0	0.5	0	0	9.0	-4
35	Louisiana	0	1	4	0	0	2	0	1	8.0	7
36	Georgia	1.5	0.5	5.5	0	0	0	0	0	7.5	2
37	Alaska	0	1	3	1.5	0	0	0	1	6.5	3
38	Michigan	0.5	0	1.5	3	0	1	0	0	6.0	-5
38	Indiana	2.5	0	1	2.5	0	0	0	0	6.0	2

Rank	State	Utility and Public Benefits Efficiency Programs and Policies Score	Transportation Score	Building Code Score	Combined Heat and Power (CHP) Score	Appliance Standards	State Lead by Example a	RD&D	Financial and Information Incentives	TOTAL SCORE	Change in Rank from 2007 Results
38	Kansas	1	0	3	1	0	0	0	1	6.0	-4
38	Nebraska	0.5	0	4	0.5	0	0	0	1	6.0	-3
38	Arkansas	1	0	4	1	0	0	0	0	6.0	7
43	West Virginia	0	0	4.5	1	0	0	0	0	5.5	-8
43	Oklahoma	0	0	4	0.5	0	0	0	1	5.5	1
45	Missouri	0	0	1.5	1.5	0	0.5	0.5	0	4.0	1
46	Tennessee	1	0.5	0.5	0.5	0	0	0	1	3.5	-3
47	Mississippi	0	0	0	1	0	0	0	1	2.0	2
47	South Dakota	0.5	0	0	1.5	0	0	0	0	2.0	1
49	North Dakota	0.5	0	0	1	0	0	0	0	1.5	2
49	Alabama	0	0	0	0.5	0	1	0	0	1.5	-3
51	Wyoming	0	0	0	0	0	0	0	0	0.0	-2

Differences among States

In this scorecard, we attempt to plausibly score states on their varying commitments to energy efficiency policies and programs. Readers should note, however, that minor differences in overall state rankings, such as the difference between one to a few ranking positions, should not be viewed as significant. Differences between "bins" of ten states or so, however, provide more real comparisons among state efficiency commitments. See Figure 8 below, which shows the four "bins" of state energy efficiency rankings.

Figure 8. Map of State Energy Efficiency Scorecard Results



Changes in Scoring Methodology

The inclusion of building energy code compliance in our scoring for Building Energy Codes has noticeable impacts on the rankings for certain states. For example, Vermont tied for first place in last year's rankings; though partly due to a low score for building energy code compliance, the state falls to 5th in this year's rankings. Also, Minnesota and Rhode Island scored similarly in our 2007 scorecard on energy code stringency and were tied for 9th in overall ranking. However, Minnesota has a much better record of code compliance, which earned it the maximum number of points. Rhode Island, on the other hand, received a poor rating on compliance. The discrepancy in total points for this category helped Minnesota jump a few spots in the rankings, overtaking Rhode Island by several spots. Minnesota earned a ranking of 7th in our 2008 scorecard; Rhode Island, however, dropped to 11th.

The Utility and Public Benefits Programs and Policies analysis also changed significantly. In addition to spending on electric efficiency programs, which we reported last year, we also report this year annual savings from electric programs, annual spending on natural gas programs, and a review of policies to provide incentives to utilities for meeting targets and to remove disincentives for utilities that otherwise discourage energy efficiency. States that have high electric program spending but do not earn many points on these other metrics generally moved down in rank. Also, this year we move the review of energy savings targets, or EERS, to Chapter 1, provide a more detailed score for these targets depending on level of aggressiveness, and give states a maximum of 4 points instead of last year's 5 points. For example, Texas dropped in the rankings this year partly due to a lower score on its EERS. While the state's score for its EERS was one of the highest in our 2007 scorecard, that did not take into account the level of the energy savings target. The state's goal, which requires utilities to offset 20% of load growth by 2010, is roughly equivalent to an annual savings target of about 0.4%. This annual target is modest relative to other states, and therefore earns fewer points in this year's scoring. Last year Colorado also earned 5 points for its EERS, though under this year's scoring metrics the state target earns 3 points.

Other states, including the District of Columbia, Montana, and West Virginia, fell several spots in the rankings by seven to nine positions, due to both differences in methodology and changes in efficiency efforts. The drop in D.C.'s score is partially attributed to the lapse of its financial incentives, such as those for purchasing energy-efficient equipment or investing in efficient buildings, which have not been renewed. A lower score for Montana's financial incentives, which was due to a expansion in the scope of

criteria and shift to a best practice scoring method rather than based on the type of incentives offered, was one factor in the state's drop in the rankings. Also, the state did not perform as well on the expanded criteria in Chapter 1 compared to last year's program spending alone, and therefore dropped slightly in the overall rankings. Last year West Virginia reported spending about 0.1% of its revenues or $0.55 per capita on efficiency programs, whereas this year the state reported no spending and earned 0 points in Chapter 1, contributing to its drop in the rankings.

More generally, as some states moved up in rankings, other states had to move down. Drops of just of few ranks generally indicate that a state was standing still while some other states passed them.

"Most Improved" States

Below we highlight the most notable upward movements in the overall state rankings, which, as we explained above, were in part a result of changes in our scoring methodology. Movements in the rankings were also a result of states expanding their efficiency policies and programs.

The sole newcomer to the "top ten" in 2008 is the state of **Wisconsin**. This change is primarily due to the state's new investments and commitment to energy efficiency programs and policies. In last year's scorecard, for example, the state ranked 13th on utility and public benefits spending, which was based on 2004 spending on electric efficiency programs of about $54 million. In this year's scorecard, the state moved up to 9th on electric efficiency program spending, based on its 2006-year spending of $73 million, a 36% increase from 2004 spending. The state also spends about $43 million on natural gas efficiency programs, which was not included in last year's scorecard. Wisconsin has adopted more stringent building energy codes since last year's report, which also contributed to its rise in ranking.

Idaho is one example of a state ramping up its investments in energy efficiency programs. Between 2004 and 2006, the state nearly tripled its spending on electric utility-sector efficiency programs to more than $20 million, which is equivalent to about 1.8% of its utility revenues. In this year's scorecard, the state ranks 4th in electric utility program spending, up from 18th in last year's report. This leap in utility program spending was a large factor in Idaho being the most improved from the 2007 scorecard, having moved up twelve spots.

The additional points **Florida** received for increasing the stringency of its building energy codes since our 2007 scorecard, its high rate of energy code compliance score, and its recent Lead by Example initiatives set into place by Governor Crist catapulted them up ten spots to 19th. Florida is one of the four most improved states along with Idaho, Maryland, and Ohio.

Maryland jumped eight spots in the rankings this year, from 20th to 12th, largely because the state passed legislation earlier in 2008 that created an Energy Efficiency Resource Standard with the goal of reducing per capita electricity consumption by 15% by 2015, relative to 2007 consumption. Also, the state earned points for its fixed cost recovery through natural gas decoupling, which was not reviewed in last year's scorecard. **Ohio** also moved up eight spots in the rankings, partly due to its higher ranking in the utility-sector chapter based on legislation passed in 2008 that sets a long-term electricity savings target for utilities. The state also earned credit in the expanded financial incentives chapter for its advanced energy grant program for manufacturing facilities.

Louisiana also scaled the ladder this year due to transportation points earned for hybrid tax incentives and land use policies, as well as advancing the efficiency of its state-run facilities and operations. While previously the state was ranked 42nd, it now ranks seven spots higher at 35th.

Virginia introduced an Energy Efficiency Resource Standard in 2007 that requires 10% savings of 2006 electricity sales by 2022. This piece of legislation helped Virginia climb six spots in the table, from 38th to 32nd. Virginia has also taken large strides in improving the energy efficiency of its state facilities, which has placed them in a tie for 1st (along with ten other states) in the Lead by Example category.

Looking Ahead to 2009

In addition to the many states that have moved up in the rankings compared to last year's report, we see signs that states are continuing to raise the bar on energy efficiency. Next year, we will see notable improvements from these states. For example, in September 2008, the **Colorado** PUC approved plans for one major utility to significantly increase funding for efficiency programs, laying the groundwork to ramp up program efforts in the state. **Tennessee** passed legislation in 2008 to significantly update its residential building energy codes to the 2003 IECC, which will become effective in January 2009. In September 2008, **Michigan** passed legislation establishing an Energy Efficiency Resource Standard, which sets a long-term energy savings goal for utilities. The latest energy savings data from programs in **Vermont**, which will be reflected in next year's report, have showed that efficiency is meeting nearly 2% of the state's electricity needs, up from 1% in the previous year. Also we hear states such as **Virginia** declaring action on energy efficiency in the upcoming year. And these are just a few examples of the many efforts states are making to improve their energy efficiency. Though, because the Scorecard covers program results and policies generally effective as of June 2008, most of these efforts that will become effective in 2009 will be covered in next year's edition of the Scorecard.

Future Areas of Research

The scoring framework we described at the beginning of this report is our best attempt to represent the myriad efficiency metrics as a quantitative "score." Any effort to convert state spending data, energy savings data, and adoption of best practice policies, across eight policy areas, into one state energy efficiency "score" has its obvious limitations. We suggest here a few areas of future research to continue to refine our scoring methodology.

One of the most glaring limitations is access to reliable data on results from energy efficiency efforts. Many states do not gather the data on performance of energy efficiency policy efforts, forcing us to score them using a "best practices" for some of the policy areas. For example, scoring states on building energy code compliance was difficult because states do not have the funding to collect the required data to estimate a state's level of compliance. While states should be applauded for adopting stringent building energy codes, the success of these codes at reducing energy consumption is indeterminable if we are unable to verify that they are actually being incorporated. This year's inclusion of building energy code compliance is an improvement over last year's scorecard, and we hope to continue to refine a survey of state code compliance in the future.

To score states on utility and public benefits programs, ideally we wanted to report program spending and savings for both electricity and natural gas across all sectors. This chapter, however, largely captures data for residential and commercial efficiency programs, which is reported by state utility and non-utility program administrators. Little information exists on state spending and savings data for industrial efficiency programs, which are often run by other, smaller program administrators. Furthermore, we were only able to procure energy savings data for electricity programs; despite our efforts, we could not gather reliable information on program savings for natural gas because there is no national clearinghouse for natural gas program data.

This year's scorecard includes research, development, and deployment as its own chapter, though we continued to rely on expert judgment of state RD&D efforts to score the states. Next year we anticipate a more quantitative analysis of state RD&D initiatives as a means to rank states.

In addition to research into the state energy efficiency policy areas reviewed in the scorecard, ACEEE is also interested in tracking the energy consumption and energy intensity patterns at the state level. These metrics would complement the policy and program performance scoring covered in this scorecard.

CONCLUSIONS

States are leading the nation in advancing energy efficiency policies and programs, which is why it is important to recognize and document best practices among the states, both to encourage other states to follow and to encourage federal action to catch up. This year's scorecard builds on this need for a

comprehensive review of state policies by improving scoring metrics to provide a clearer idea of states' commitment to promoting energy efficiency.

Efficiency is the only resource that can help states actually *reduce* energy consumption to combat rising energy demand and create a hedge against skyrocketing energy prices — making efficiency the "first fuel" states can use to balance their energy portfolios. And by shrinking the overall reliance on energy supply, efficiency allows new, clean energy resources — such as wind and solar technologies — to make up a growing slice of state energy portfolios. Recently, the National Renewable Energy Laboratory (NREL) undertook a review of state progress on expanding the use of renewable energy and the best practices that enable state development of renewable energy (Brown and Busche 2008). The results of this companion report serve as an important complement to the review of energy efficiency policies in this scorecard.

Many states have improved their ranking from last year's scorecard; some states have stagnated. Those that have risen in the rankings — especially those that have climbed up significantly — have achieved this through various means, such as allocating greater funds to efficiency programs, adopting stricter energy codes, and offering financial incentives to both energy producers and consumers. Although the top ten states have remained mostly the same as in our 2007 scorecard, their rankings have shifted somewhat, and one state, Wisconsin, managed to break into the top ten in 2008, in large part because of its new investments in energy efficiency programs. Elsewhere in the overall rankings, however, there was much fluctuation. As we mentioned above, some of the fluctuation was due to the change in scoring methodology, and some due to a state's initiative in advancing efficiency policies.

Unfortunately it is often difficult to determine the strides states are taking because they lack the funding required to report pertinent program data. Advancing efficiency policies is a laudable achievement, but the inability to measure the success of these programs undermines part of their purpose: to act as an educational tool for federal and state governments to utilize in order to advance their own energy efficiency programs. As states continue to improve current programs and implement new ones, it will be increasingly important to document these practices extensively.

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