

EXECUTIVE SUMMARY

The 2016 State Energy Efficiency Scorecard

The past year has been an exciting time for energy efficiency, with several states strengthening efficiency policies and programs, and policymakers publicly recognizing the diverse benefits these initiatives provide. Utilities across the United States invested approximately \$7.7 billion in energy efficiency over the past year. Meanwhile, states are also spurring efficiency investment through advancements in building energy codes, transportation planning, and leading by example in their own facilities and fleets. These investments reap large benefits, giving businesses, governments, and consumers more control over how and when they use energy. While some uncertainty hangs over the EPA's Clean Power Plan as it awaits judicial review, many states continue to plan innovative strategies to reduce greenhouse gas (GHG) emissions through energy efficiency. As a cost-effective compliance option, efficiency is a valuable addition to any state's policy toolkit, saving money, driving investment across all sectors of the economy, creating jobs, and reducing the environmental impact of energy use.

Governors, legislators, regulators, businesses, and citizens are increasingly recognizing that energy efficiency is a critical state resource that keeps money in the local economy. As a result, many innovative policies and programs that promote energy efficiency originate at the state level. *The 2016 State Energy Efficiency Scorecard* reflects these successes through a comprehensive analysis of state efforts to support energy efficiency.

This is the 10th edition of the *Scorecard*. As in the past, this year's report ranks states on their policy and program efforts, not only assessing performance but also documenting best practices and recognizing leadership. By providing an annual benchmark of the progress of state energy efficiency policies, the *Scorecard* encourages states to continue strengthening their commitment to efficiency, thereby promoting economic growth and environmental benefits.

The 2016 *Scorecard* assesses state policies and programs that improve energy efficiency in our homes, businesses, industries, and transportation systems. It examines the six policy areas in which states typically pursue energy efficiency:

- Utility and public benefits programs and policies
- Transportation policies
- Building energy codes and compliance
- Combined heat and power (CHP) policies
- State government-led initiatives around energy efficiency
- Appliance and equipment standards

KEY FINDINGS

Figure ES1 shows the states' rankings, dividing them into five tiers for easy comparison. Later in this section, table ES1 provides details of each state's scores. An identical ranking for two or more states indicates a tie.

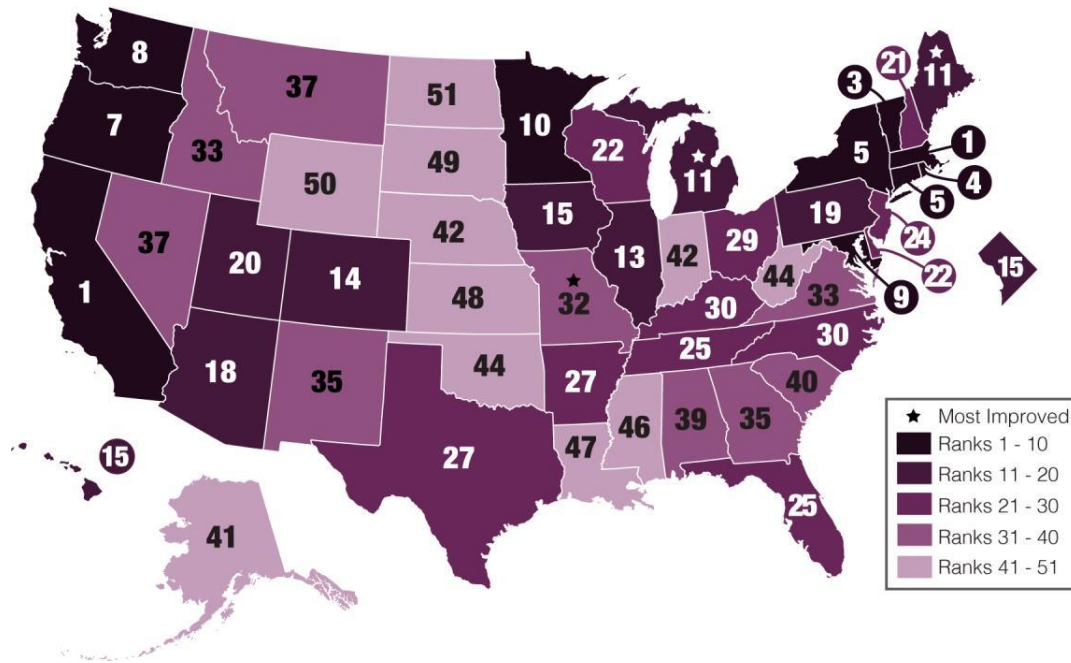


Figure ES1. 2016 State Scorecard rankings

In a dramatic photo finish, **California** and **Massachusetts** tied for the top spot this year. This marks Massachusetts's sixth consecutive year in first place, but the first time it shared the spotlight with the Golden State (which last held the title in 2010). A perennial leader in many of the *Scorecard's* policy areas, California can credit this year's rise in the rankings to a notable increase in electricity savings thanks to strong policies designed to ramp up energy efficiency programs. For example, the California Clean Jobs Act allocates sizeable funding to energy efficiency projects in schools, and the state recently implemented a cap-and-trade program under the California Global Warming Solutions Act of 2006. California continued to raise the bar in 2015 with the passage of two bills: Senate Bill 350, which requires a doubling of energy efficiency savings from electricity and natural gas end-uses by 2030, and Assembly Bill 802, which promotes building benchmarking, enables access to whole-building data, and requires the California Energy Commission and the California Public Utilities Commission to reassess baselines for energy efficiency measures.

Massachusetts continues to make notable progress as well, recently increasing its electricity efficiency targets to almost 3% and adopting the newest IECC and ASHRAE standards as part of the ninth edition of the state's building energy codes. Much of the state's achievement is based on its continued commitment to energy efficiency under the Green Communities Act of 2008. Among other things, the legislation has spurred additional investment in energy

efficiency programs by requiring utilities to save a large and growing percentage of energy every year through efficiency measures.

Joining California and Massachusetts in the top tier are **Vermont** and **Rhode Island**, followed by **Connecticut** and **New York** in a fifth-place tie. Each of these states has been among the leaders in the past, showing the continuing commitment and progress of the top-tier states.

Oregon, Washington, Maryland, and Minnesota rounded out the top 10 this year. Each of these states has well-established efficiency programs and continues to push the boundaries by redefining the ways in which policies and regulations can enable energy savings.

States Rising and Falling

The most-improved states this year were **Missouri, Maine, and Michigan**. They posted the largest point increases over their previous year's score.

With the most dramatic improvement of any state this year, **Missouri** added 5 points to leap an impressive 12 positions in the rankings. The Show-Me State showed improvements across the board, adding points in utility savings, transportation, building energy codes, CHP, and state government-led programs. For example, Missouri partnered with the Midwest Energy Efficiency Alliance to develop a compliance study of residential building energy codes. The state has also enabled several Property Assessed Clean Energy (PACE) programs, which allow local governments to provide financing for energy efficiency and renewable energy projects that property owners pay back through property tax assessments. In addition, efforts to strengthen energy efficiency are a cornerstone of Missouri's recently released 2015 Comprehensive State Energy Plan, which lays out a roadmap to continue to build upon the state's success.

Maine also added points thanks to its increased energy efficiency investments and the resulting electricity savings. Moving into its third Triennial Plan in 2017, Maine continues to raise the bar with its recent adoption of incremental electric efficiency targets of roughly 2.4%. While these targets are the fourth highest in the country, it is important to note that state lawmakers sent mixed messages this year by passing legislation to return a sizeable portion of Regional Greenhouse Gas Initiative (RGGI) revenues to certain large electric customers, funds that otherwise would have gone toward measures to strengthen efficiency and reduce greenhouse gas emissions.

Michigan also earned additional points in the building energy codes category, with its 2015 Residential Code taking effect earlier this year and new commercial codes expected to take effect next year. Also garnering points were a state-run LED conversion program for small businesses and not-for-profit organizations, as well as the state's commercial and industrial PACE efforts. We gave credit for PACE for the first time in this year's *Scorecard* to recognize innovative state efforts to leverage private capital toward efficiency goals.

Other states have also made progress in energy efficiency.

Rhode Island, which has ranked among the top five since 2014, moved out of its 2015 tie for fourth place to claim that spot solely for itself this year by scoring an additional 3 points. The Ocean State was the only one to earn a perfect score for utility and public benefits programs and

policies, and it led all states in net incremental electricity savings as a percentage of retail sales. Rhode Island is poised to continue its success thanks to a strong and diverse portfolio of state government policies – including rebates, loan programs, and PACE financing – to encourage energy efficiency.

New York, which continues to lay the regulatory foundations for its utility system of the future through its Reforming the Energy Vision (REV) proceeding, posted an increase in electricity savings. Earlier in the year, the Empire State also completed major updates to its state building energy codes, incorporating the 2015 IECC and ASHRAE 90.1-2013 standards. **Utah** and **Tennessee** made similar gains thanks to updates to state building energy codes this year. **Arkansas** committed to extend its energy efficiency goals and gained points for state government-led policies, including a home energy loan program and PACE financing.

By contrast, 23 states fell in the rankings this year, and 21 lost points, both because of changes in their performance and adjustments to our methodology, including more emphasis on energy savings achieved by utilities. **Illinois** fell the farthest, losing 4.5 points and falling three positions in the rankings. This drop shows the need for states to consistently update and improve their policies. Although Illinois has energy savings targets in place, spending cannot exceed an established cost cap, so regulators have approved lower targets in recent years.

Results by Policy Area

Rhode Island, **Massachusetts**, and **Vermont** were the leading states in utility-sector energy efficiency programs and policies (see Chapter 2). These three states also topped this category in 2014 and 2015. With long records of success, all three continued to raise the bar on cost-effective programs and policies. Rhode Island earned maximum points in this category for the third year in a row by achieving incremental electricity savings of close to 3% of retail sales.

Savings from electricity efficiency programs in 2015 totaled approximately 26.5 million megawatt-hours (MWh), a 3.1% increase over the 2014 savings reported in last year's *State Scorecard*. These savings are equivalent to about 0.7% of total retail electricity sales across the nation. Gas savings for 2015 were reported at 345 million therms, an almost 8% decrease from 2014, likely due at least in part to historically low prices.

Total spending for electricity efficiency programs reached \$6.3 billion in 2015. Adding this to natural gas program spending of \$1.4 billion, we estimate total efficiency program expenditures of approximately \$7.7 billion, an increase over the \$7.3 billion reported for 2014.

Twenty-six states continue to enforce and adequately fund energy savings targets to drive investments in utility-sector energy efficiency programs. The states with the most aggressive targets included **Massachusetts**, **Rhode Island**, and **Arizona**. This year, **Massachusetts**, **Maine**, and **Connecticut** all adopted new and more stringent three-year savings targets, while **Arkansas** extended savings targets for both electricity and natural gas through 2019. Also making headlines was **New Hampshire**, which approved its long-awaited energy efficiency resource standard (EERS) in the summer. **New York**'s REV continues to take shape, although concrete long-range energy efficiency targets are still pending. Other states have faced

challenges to their EERS policies. In **Ohio**, a freeze passed by state legislators continues through 2016, even though most utilities in the state are still meeting targets.

California, Massachusetts, and New York continue to lead the way in energy-efficient transportation policies (see Chapter 3). California's requirements for reducing GHG emissions have prompted several strategies for smart growth. Massachusetts promoted smart growth development in cities and municipalities through state-delivered financial incentives. New York is one of the few states in the nation to have a vehicle miles traveled (VMT) reduction target.

A variety of states joined **California** and **Illinois** in achieving top scores for building energy codes and compliance this year, including **Massachusetts, New York, Texas, Vermont, and Washington** (see Chapter 4). Only a few states have adopted or made progress toward adoption of the most recent DOE-certified codes for both residential and commercial new construction. These include **Illinois, Massachusetts, New Jersey, Utah, Vermont, and Washington**.

Massachusetts, Maryland, and California scored highest for their CHP policies (Chapter 5), while **California, Colorado, Connecticut, Massachusetts, Minnesota, New York, Tennessee, and Washington** led the way in state government initiatives (Chapter 6). All of these states offer financial incentives to consumers and state and local governments, and they also invest in R&D programs focused on energy efficiency.

California continues to lead the nation in setting appliance standards (Chapter 7), having adopted standards for more than 100 products. Within the past year, it became the first state to adopt standards for LEDs and small-diameter directional lamps; it also updated its standards for HVAC air filters, fluorescent dimming ballasts, and heat pump water chilling packages.

Table ES1 gives an overview of how states fared in each scoring category.

Table ES1. Summary of state scores in the *2016 State Scorecard*

Rank	State	Utility & public benefits programs & policies (20 pts.)	Transportation policies (10 pts.)	Building energy codes (7 pts.)	Combined heat & power (4 pts.)	State government initiatives (7 pts.)	Appliance efficiency standards (2 pts.)	TOTAL SCORE (50 pts.)	Change in rank from 2015	Change in score from 2015
1	California	15	10	7	4	7	2	45	1	1.5
1	Massachusetts	19.5	8.5	7	4	6	0	45	0	1
3	Vermont	19	7	7	2	5	0	40	0	0.5
4	Rhode Island	20	6	5	3.5	5	0	39.5	0	3
5	Connecticut	14.5	6.5	5.5	2.5	6	0.5	35.5	1	0
5	New York	10.5	8.5	7	3.5	6	0	35.5	4	3
7	Oregon	11.5	8	6.5	2.5	5.5	1	35	-3	-1.5
8	Washington	10.5	8	7	2.5	6.5	0	34.5	0	1
9	Maryland	9.5	6.5	6.5	4	5.5	0	32	-2	-3
10	Minnesota	12.5	4	6	2.5	6	0	31	0	0
11	Maine	10.5	5.5	3	3	5	0	27	3	3.5
11	Michigan	10.5	4	6.5	1.5	4.5	0	27	3	3.5
13	Illinois	8.5	5	7	2	4	0	26.5	-3	-4.5
14	Colorado	7.5	4.5	5	1	6	0.5	24.5	-2	0
15	DC	5.5	7.5	6	1	4	0	24	-1	0.5
15	Hawaii	11.5	4.5	4	1	3	0	24	4	2.5
15	Iowa	10	3	6	1.5	3.5	0	24	-3	-0.5
18	Arizona	10.5	3	3	1.5	3	0	21	-1	-1
19	Pennsylvania	3.5	5	4.5	2.5	5	0	20.5	-2	-1.5
20	Utah	7	2	5.5	1	4.5	0	20	3	3
21	New Hampshire	9.5	1.5	4	1	3.5	0	19.5	-1	0
22	Delaware	1	6.5	5.5	1.5	4.5	0	19	2	2.5
22	Wisconsin	8	1.5	4	1.5	4	0	19	0	1
24	New Jersey	4	6	4	1.5	2	0	17.5	-3	-1.5
25	Florida	1	5	5.5	1	3.5	0	16	2	0.5
25	Tennessee	1	5	3	1	6	0	16	6	3
27	Arkansas	7	1	4	0	3.5	0	15.5	4	2.5
27	Texas	0	2.5	7	1.5	4.5	0	15.5	-1	-0.5
29	Ohio	6.5	0	3	1.5	4	0	15	-2	-0.5
30	Kentucky	3	1	5	0.5	5	0	14.5	-1	0.5
30	North Carolina	2	3.5	4	1	4	0	14.5	-6	-2
32	Missouri	2	2.5	3	1	5	0	13.5	12	5
33	Idaho	3.5	1	5	0.5	3	0	13	-4	-1
33	Virginia	-0.5	4.5	4	0	5	0	13	-2	0
35	Georgia	1.5	4.5	3.5	0.5	2.5	0	12.5	2	0
35	New Mexico	4	0.5	3.5	1.5	3	0	12.5	-4	-0.5
37	Montana	2	0.5	5	1	3.5	0	12	-6	-1
37	Nevada	3	0.5	4	0.5	4	0	12	-6	-1
39	Alabama	2	0	6	0	3	0	11	2	1.5
40	South Carolina	1	3	3	0	3.5	0	10.5	0	0.5
41	Alaska	0	2	2	1	5	0	10	1	1
42	Indiana	4	1.5	2	0.5	1.5	0	9.5	-4	-1.5
42	Nebraska	1.5	0.5	5	0	2.5	0	9.5	0	0.5
44	Oklahoma	3.5	1	2	0	1.5	0	8	-6	-3
44	West Virginia	-0.5	3	4.5	0.5	0.5	0	8	1	0
46	Mississippi	1	1	1.5	0.5	3	0	7	1	-0.5
47	Louisiana	0.5	1.5	2.5	0.5	1.5	0	6.5	1	0.5
48	Kansas	0	1	1.5	0.5	3	0	6	-3	-2
49	South Dakota	2.5	0.5	0.5	0.5	1	0	5	-1	-1
50	Wyoming	0.5	1	1	0	2	0	4.5	0	-1
51	North Dakota	0	1	1	0.5	0.5	0	3	0	-1

As in 2015, we included three US territories in our research this year: Puerto Rico, Guam, and the US Virgin Islands. While we did score these territories, we did not include them in our general rankings. All of them have taken some steps toward ensuring that building energy codes meet the requirements of the American Recovery and Reinvestment Act, but they have yet to invest heavily in energy efficiency in other sectors. The best-performing of these, Puerto Rico, would rank 44th if it were a state. Table ES2 shows their scores.

Table ES2. Summary of scores for US territories in the *2016 State Scorecard*

Territory	Utility & public benefits programs & policies (20 pts.)	Transportation policies (10 pts.)	Building energy codes (7 pts.)	Combined heat & power (4 pts.)	State government initiatives (7 pts.)	Appliance efficiency standards (2 pts.)	TOTAL SCORE (50 pts.)	Change in score from 2015
Puerto Rico	0	2.5	2.5	0.5	2.5	0	8	1
Guam	0	0.5	3	0	1	0	4.5	1
US Virgin Islands	0	0	2.5	0	0.5	0	3	0

STRATEGIES FOR IMPROVING ENERGY EFFICIENCY

Establish and adequately fund an EERS or similar energy savings target. EERS policies set specific energy savings targets that utilities or independent statewide program administrators must meet through customer energy efficiency programs. They serve as an enabling framework for cost-effective investment, savings, and program activity. EERS policies can catalyze increased energy efficiency and its associated economic and environmental benefits.

Examples: Massachusetts, Maine, Arizona, Hawaii, Rhode Island

Adopt updated, more stringent building energy codes, improve code compliance, and involve efficiency program administrators in code support. Buildings use more than 40% of the total energy consumed in the United States, making them an essential target for energy savings. Mandatory building energy codes are one way to ensure a minimum level of energy efficiency for new residential and commercial buildings.

Examples: California, Maryland, Illinois, Texas

Set quantitative targets for reducing VMT, and integrate land use and transportation planning. Like buildings, transportation consumes a substantial portion of the total energy used in the United States. Although the recent federal fuel economy standards will go a long way in helping to reduce fuel consumption, states will realize even greater energy savings by codifying targets for reducing VMT as well as integrating land use and transportation planning to create sustainable communities with access to multiple modes of transportation.

Examples: California, New York, Massachusetts, Oregon

Treat cost-effective and efficient CHP as an energy efficiency resource equivalent to other forms of energy efficiency. Many states list CHP as an eligible technology within their EERS or renewable portfolio standard, but they relegate it to a bottom tier. ACEEE recommends that

states give CHP savings equal footing, which requires that they develop a specific methodology for counting energy savings attributed to its utilization. If CHP is allowed as an eligible resource, EERS target levels should be increased to account for CHP potential and to ensure that CHP does not displace traditional energy efficiency measures.

Example: Massachusetts

Expand state-led efforts – and make them visible. Initiatives here might include establishing sustainable funding sources for energy efficiency incentive programs; investing in energy efficiency-related research, development, and demonstration centers; and leading by example by incorporating energy efficiency into government operations. States have many opportunities to lead by example, including reducing energy use in public buildings and fleets, demonstrating the market for energy service companies (ESCOs) that finance and deliver energy-saving projects, and funding research centers that focus on breakthroughs in energy-efficient technologies.

Examples: New York, Connecticut, Alaska

Explore and promote innovative financing mechanisms to leverage private capital and lower upfront costs of energy efficiency measures. Although utilities in many states offer some form of on-bill financing program to promote energy efficiency in homes and buildings, expanding lender and customer participation has been an ongoing challenge. States can help address this challenge by passing legislation, increasing stakeholder awareness, and addressing legal barriers to the implementation of financing programs. A growing number of states are seeking new ways to maximize the impact of public funds and invigorate energy efficiency by attracting private capital through emerging financing models such as PACE and green banks.

Examples: Missouri, New York, Rhode Island