

Health and Cost Benefits of Energy Efficiency Policies

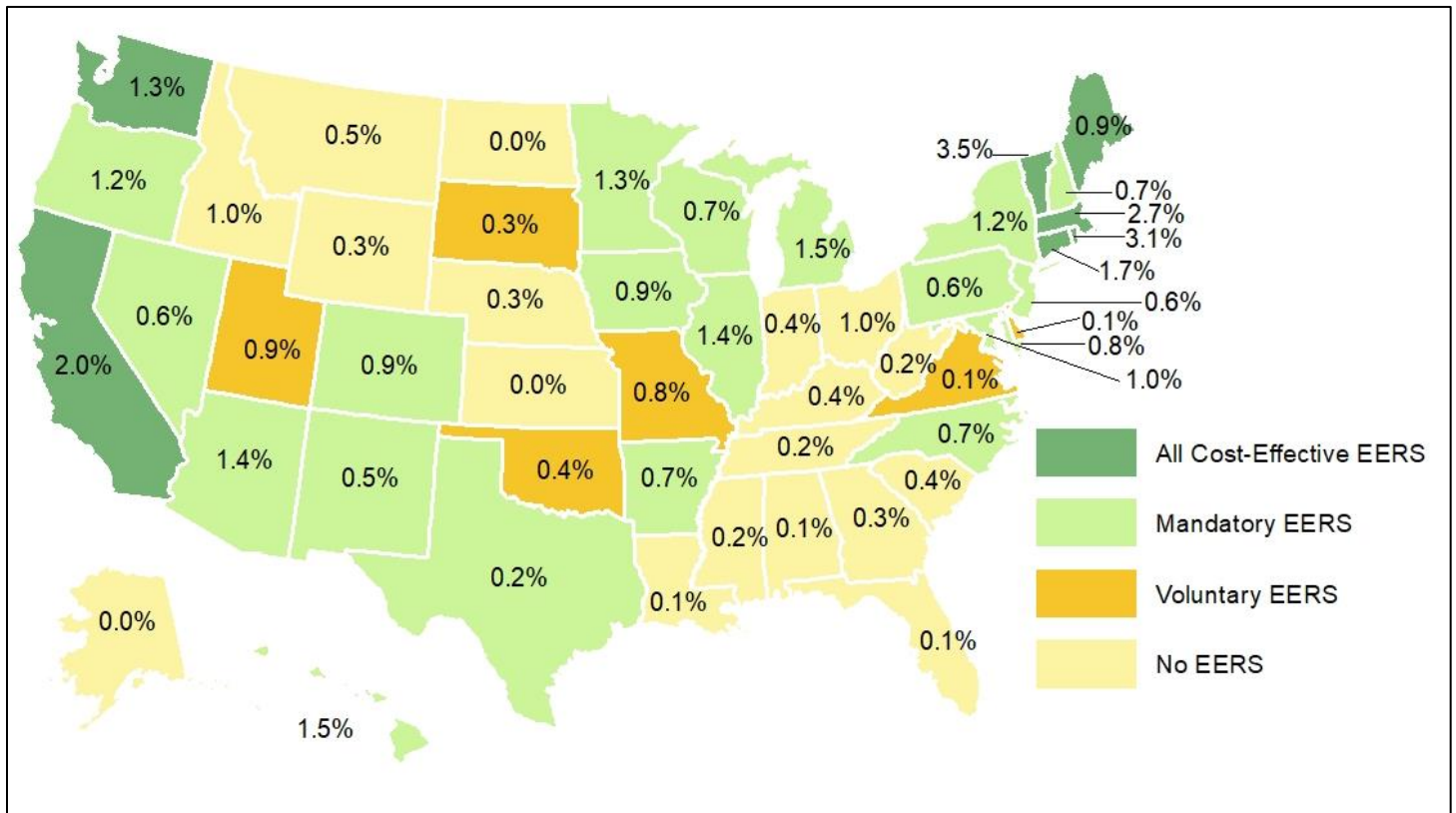
This Applied Economics Clinic policy brief—prepared on behalf of Green Energy Consumers Alliance—assesses the impact of various energy efficiency policies on energy savings. We find that the more fully energy efficiency policies account for the benefits of energy efficiency, the more energy they save; states that account for participant health benefits, societal health benefits or mandate the implementation of all cost-effective efficiency measures save more energy on average than states that do not. In states that lack energy efficiency policies, fewer energy efficiency measures are implemented—leaving benefits on the table.

Energy efficiency standards

Throughout the United States, Energy Efficiency Resource Standards (EERS) establish specific targets for electric and gas utilities to provide energy efficiency savings. Currently, 33 U.S. states have some form of EERS (see Figure 1). Of these, six states make their EERS voluntary: utilities can choose whether to participate.

Of the remaining 27 states with mandatory EERS, only seven states require utilities to pursue all efficiency measures that are “cost effective”—that is, measures that result in more benefits than costs. In states without an all-cost effective mandate, utilities may choose not to pursue certain efficiency measures, despite the net benefits these programs would bring.

Figure 1. U.S. energy efficiency program savings (percent of annual electric sales, 2017)



Source (Figure 1 and Table 1 below): American Council for an Energy-Efficient Economy (ACEEE). October 2019. The 2019 State Energy Efficiency Scorecard. Available at: <https://aceee.org/sites/default/files/publications/researchreports/u1908.pdf>.

Energy savings from efficiency

Energy efficiency savings (measured as a percent of total annual electric sales) vary from state to state: from no recorded savings at all in Alaska and Kansas to a high of 3.5 percent in Vermont (see Figure 1 above).

In 2017, energy efficiency savings averaged 0.8 percent of total utility sales across all U.S. states (see bottom row in Table 1). The eighteen states with no EERS had lower savings than the national average (0.3 percent), as did the six states with voluntary EERS (0.4 percent). In contrast, the 27 states with mandatory EERS had average savings of 1.2 percent.

Table 1. U.S. average energy efficiency savings

	2017 average energy savings	Number of States
No EERS	0.3%	18
Voluntary EERS	0.4%	6
Mandatory EERS	1.2%	27
All Cost-Effective Mandate	2.2%	7
No All Cost-Effective Mandate	0.9%	20
All States	0.8%	51

Note: Includes 50 states plus the District of Columbia.

The greatest difference in savings can be observed between states with and without all-cost effective mandates. The seven states with all cost-effective mandates had average energy efficiency savings of 2.2 percent, compared to those without which averaged 0.9 percent.

Mandatory efficiency policies result in more energy savings: States with a voluntary EERS save scarcely more energy than states with no EERS at all. Requiring utilities

to pursue all efficiency measures with net benefits (via an all-cost effective mandate) results in much greater energy savings than leaving efficiency benefits on the table.

Benefits of energy efficiency

The benefits of energy efficiency can be directly related to the cost of energy (by lowering energy bills for families and businesses and lowering the cost of the operating the energy system for utilities) or to other non-energy benefits (such as improved air quality).

Energy efficiency benefits are experienced by:

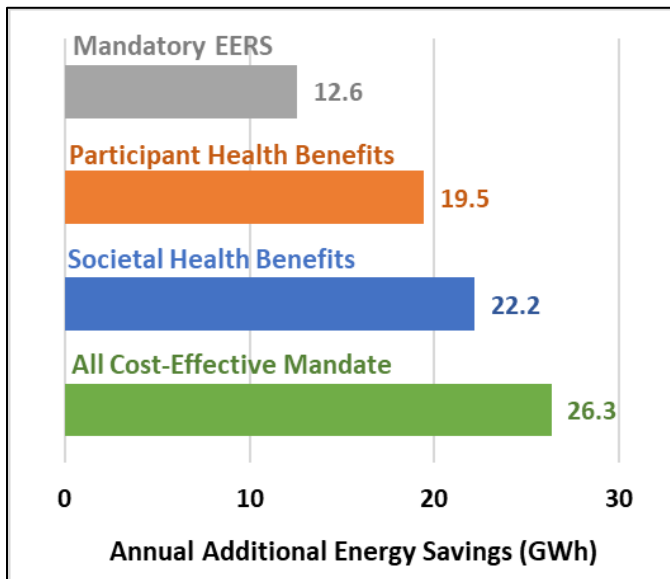
- the **utility**, for example, by lowering the cost to operate the energy system;
- the **participants** of energy efficiency programs, for example, by lowering customer bills via reduced energy use; and/or
- **society at large**, for example, by lowering harmful emissions that contribute to a higher incidence of respiratory diseases like asthma and to climate change.

States typically evaluate efficiency measures to determine which have net benefits (meaning the benefits outweigh the costs) before they are implemented. In states that have an “all cost-effective mandate” any efficiency measure for which benefits outweigh must be pursued.

Health benefits of energy efficiency

In December 2018, the American Council for an Energy-Efficient Economy (ACEEE) assessed sixteen states with mandatory EERS programs and the kinds of impacts included in their net benefit evaluations: 9 included benefits to efficiency participants, 13 included the health benefits of energy efficiency to society, and 11 had an all-cost effective mandate (see Figure 2 below: blue indicates the states were assessed by ACEEE).

Figure 4. Additional savings from adding new EERS programs in 18 states



- *If they adopted EERS programs that included participant health benefits?* These 18 states would save an additional 19.5 GWh each year (enough to supply the annual electric needs of the District of Columbia).
- *If they adopted EERS programs that included societal health benefits?* These 18 states would save an additional 22.2 GWh each year (enough

to supply the annual electric needs of New Mexico).

- *If they adopted EERS programs that included an all cost-effective mandate?* These 18 states would save an additional 26.2 GWh each year (enough to supply the annual electric needs of New York State).

These additional energy savings from new EERS programs would be accompanied by other, non-energy benefits like health benefits the families that would utilize less energy than before—for example, by improving indoor air quality and reducing the incidence of heat or cold-related mortality—or for society at large—for example, by reducing overall health care costs due to improved air quality. Importantly, these energy savings would also contribute to the fight against climate change by reducing the harmful emissions produced by fossil fuel generation; a key priority for both Massachusetts and Rhode Island in their efforts to dramatically reduce emissions, increase renewable energy generation, and pursue all cost-effective energy efficiency measures.

Works Cited

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