State Strategies to Advance Energy Efficiency

Photo credit: MA Department of Energy Resources

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American Council for an Energy-Efficient Economy

Presentation to Montana Legislature Energy & Telecommunications Interim Committee

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The American Council for an Energy-Efficient Economy is a nonprofit 501(c)(3) founded in 1980. We act as a catalyst to advance energy efficiency policies, programs, technologies, investments, & behaviors.

Our research explores economic impacts, financing options, behavior changes, program design, and utility planning, as well as US national, state, & local policy.

Our work is made possible by foundation funding, contracts, government grants, and conference revenue.

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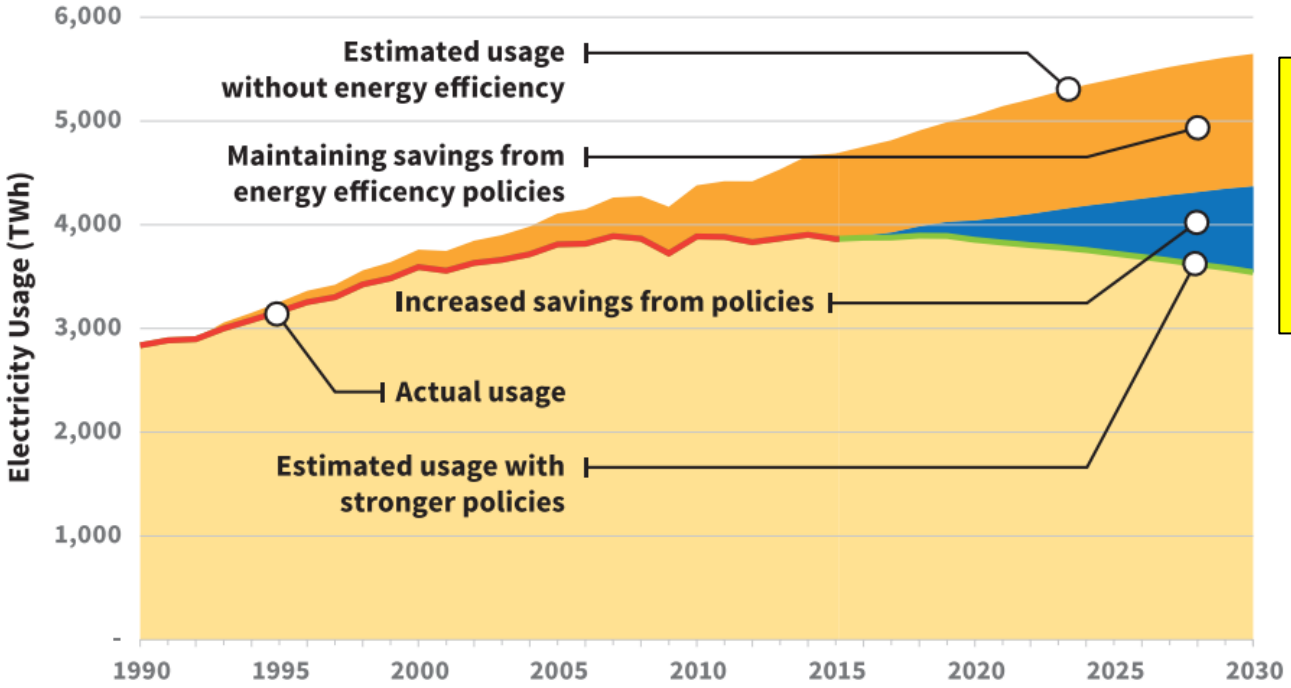
Why Energy Efficiency?

- Energy efficiency is the use of less energy to provide the same or better products, services, or amenities
- Allows more control over energy use, lowers costs, and provides multiple benefits for households, businesses, and the environment



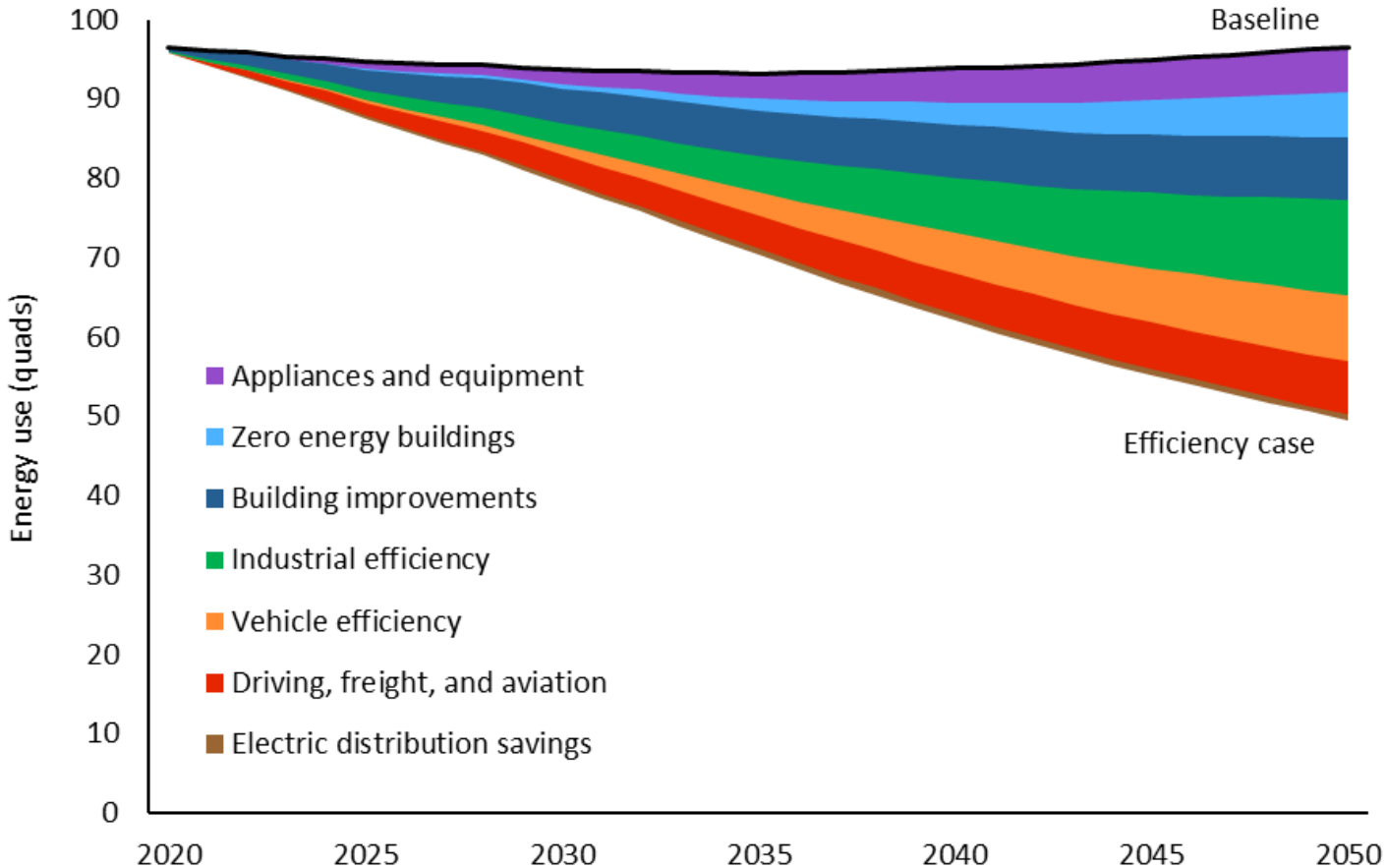
Efficiency has avoided the need to build the equivalent of >300 large power plants since 1990

D. York et al., New Horizons for Energy Efficiency: Major Opportunities to Reach Higher Electricity Savings by 2030 (Washington, DC: ACEEE, 2015). aceee.org/research-report/ u1507

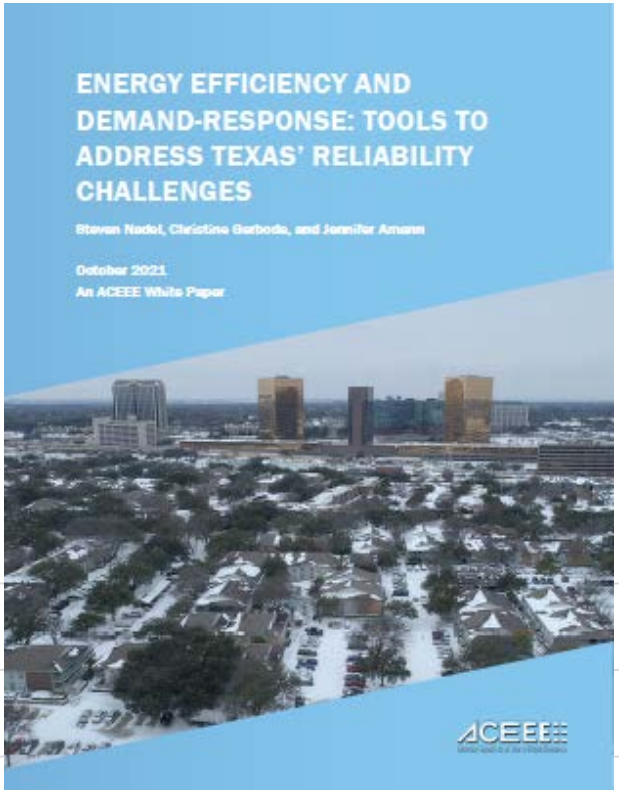
Halfway There: Energy Savings

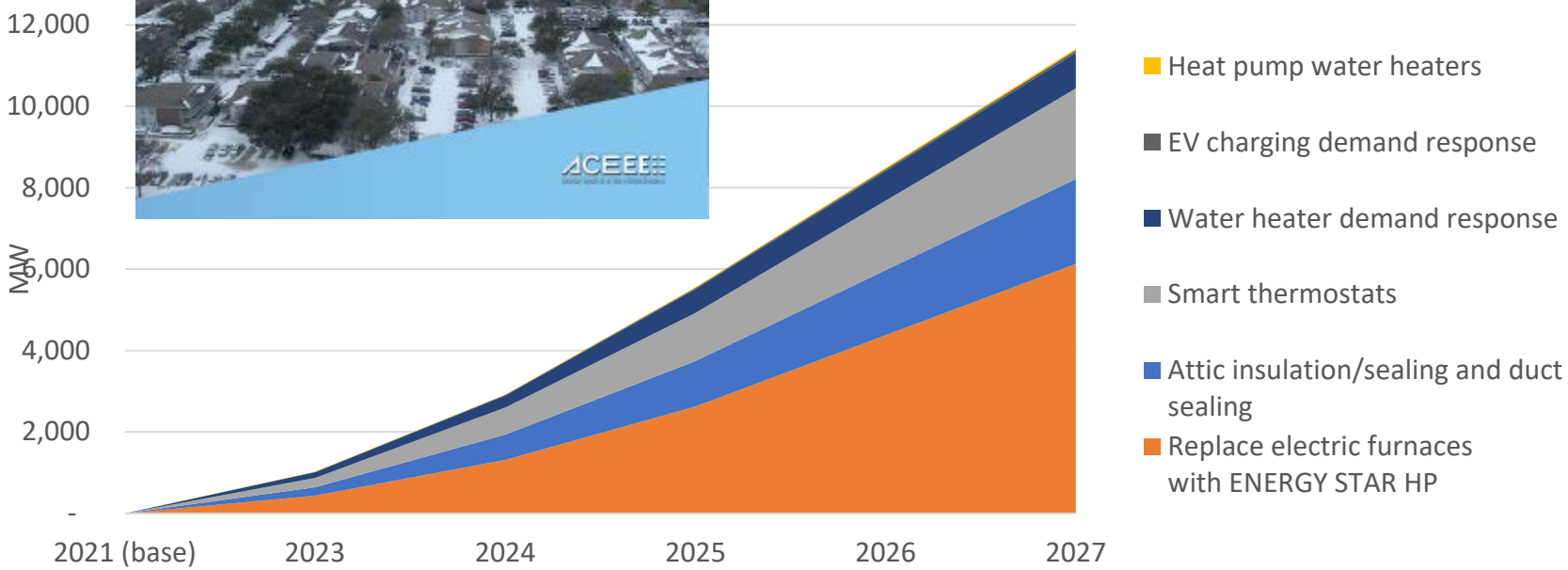
Top opportunities

- Efficient and electric vehicles
- Industrial EE & decarbonization
- Upgrades to existing buildings
- Zero energy new buildings & homes
- Efficient appliances and equipment



U.S. can slash energy use & GHG by half by 2050.





Source: Nadel et al. 2021, ACEEE

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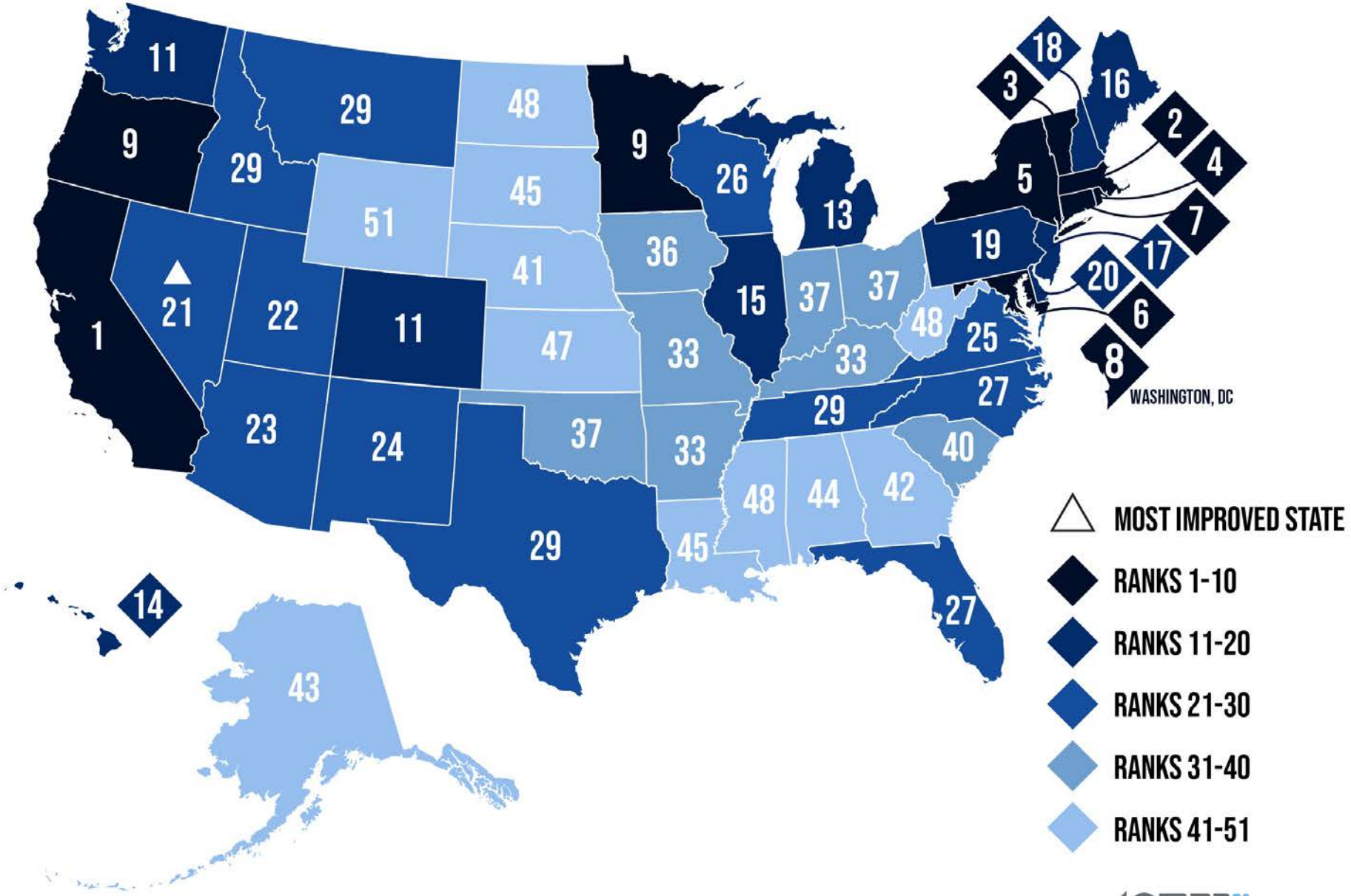
THE 2020 STATE ENERGY EFFICIENCY SCORECARD



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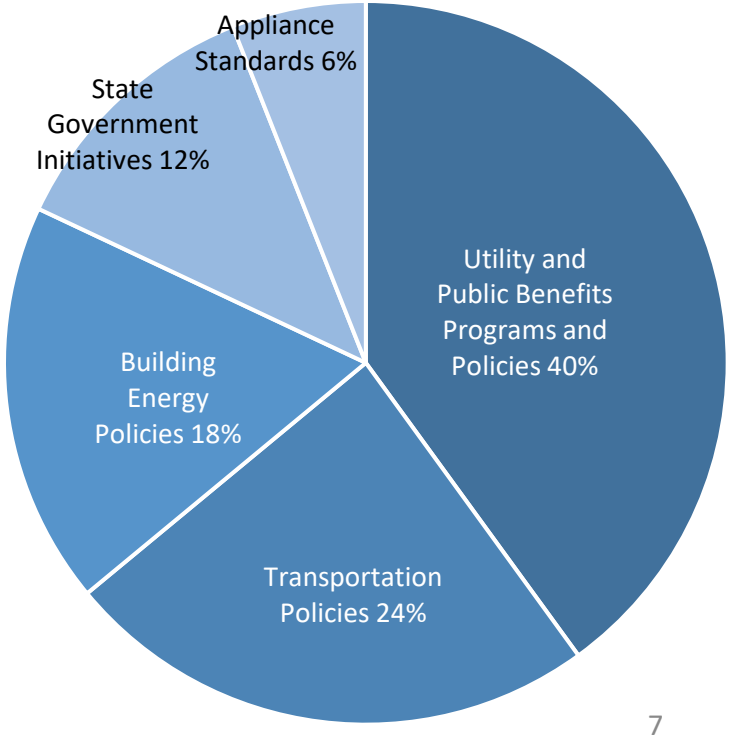
State Scorecard goals

1. Provide an annual benchmark of state energy efficiency policies and progress
2. Offer a comparative tool to direct states toward efficiency policies, best practices, and case studies from high-ranking states and regional neighbors

Photo credit: Idaho Office of Energy and Mineral Resources

Policy Categories & Point Distribution



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Montana in the State Scorecard

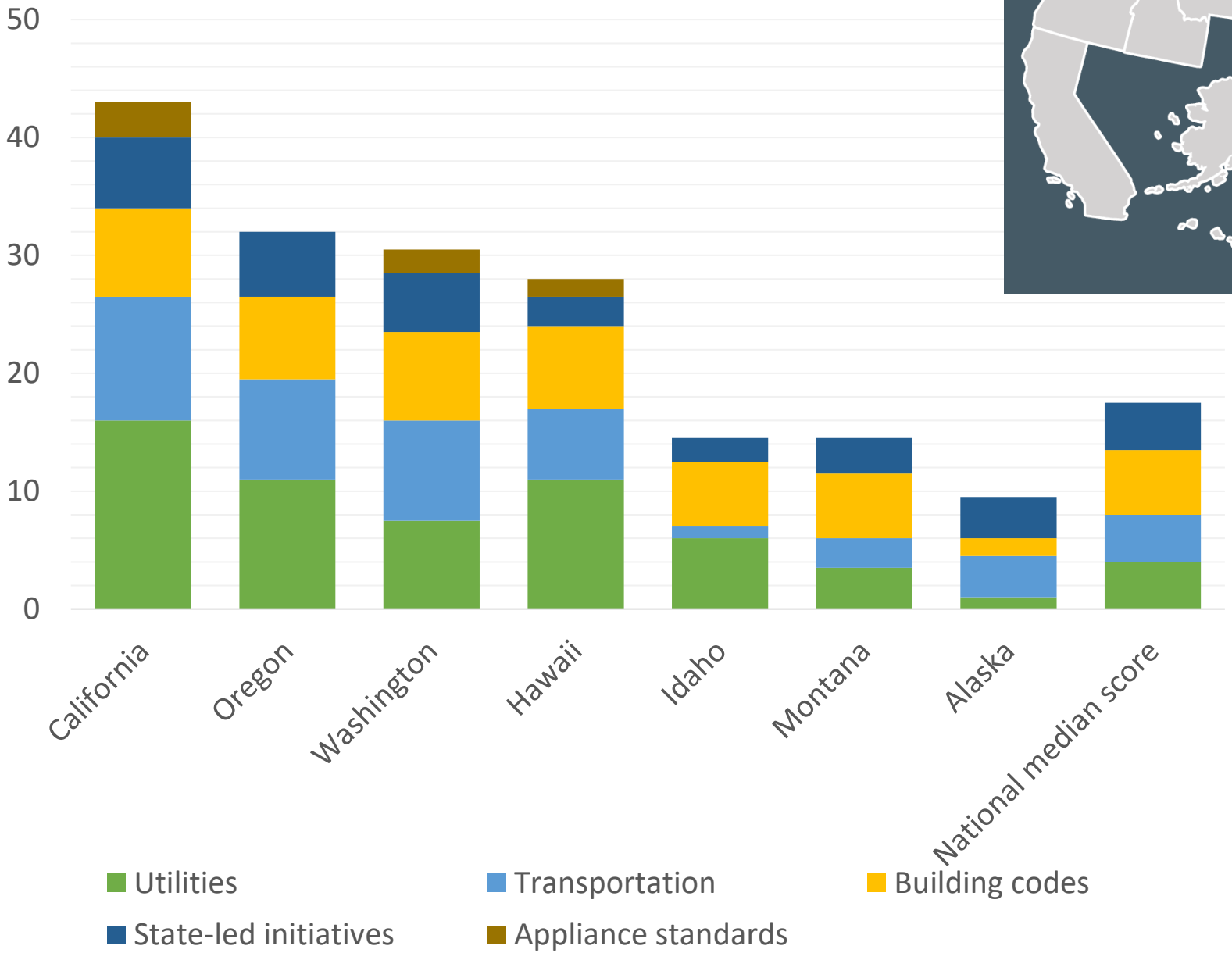
Year	Historic Rank
2020	29
2019	36
2018	37
2017	36
2016	37
2015	31
2014	31
2013	29
2012	25
2011	35
2010	33
2009	30
2008	27
2007	21

- Scored 14.5 out of 50 points (+2 compared to 2019) to finish in 29th
- 2020 utility electric savings: 0.44% (ranked 34th)
- 2020 utility natural gas savings: 0.09% (ranked 28th)

Scoring Category	2020 Point total	Change from 2019
Utilities	3.5 (out of 20)	-
Transportation	2.5 (out of 10)	**+2**
Building Energy Policies	5.5 (out of 9)	-
State Government-Led	3 (out of 6)	-
Appliance Standards	0 (out of 2)	-
Total	14.5 (out of 50)	**+2**

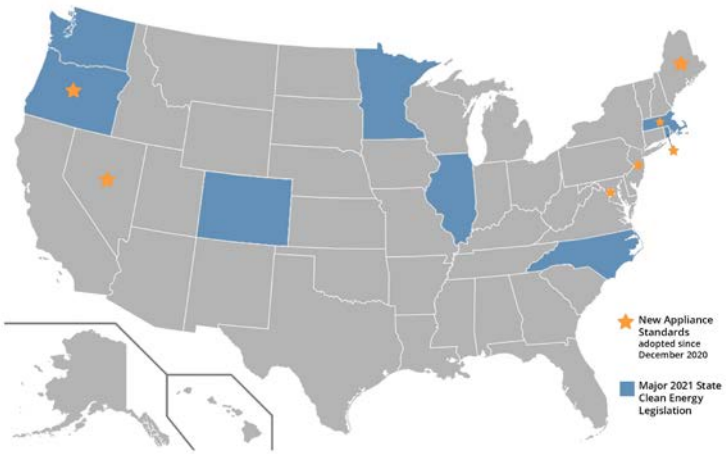
Note: Forthcoming 2022 State Energy Efficiency Scorecard will include a reimagined methodology including ***15 new scoring metrics*** *with an expanded focus on decarbonization, electrification, and equity.*

West – Regional Scores



Recent State Policy Trends

2021 Major State Clean Energy Legislation & Appliance Standards



- New energy laws set ambitious goals to decarbonize state economies with electrification as a growing priority (IL, CO, MA, MN, OR, WA)
- Legislative focus on removing barriers to **beneficial electrification**
  - MN's ECO Act
  - Illinois Climate & Equitable Jobs Act
  - Colorado's SB21-246
- **Building energy codes**
  - Increasing adoption of 2018 IECC
  - 2021 IECC code review underway in many states (CT, IL, MD, MA, NJ, NY, VT)
  - Plans ongoing to develop ambitious statewide stretch codes in MA and IL
- Very active year for **appliance standards** adoption in 2021
  - Six states, including Rhode Island, requiring minimum energy/water use efficiency for 15+ types of products
- Historic opportunity to support clean energy transition
  - $1 trillion Bipartisan Infrastructure Law provides billions in funding for weatherization, building energy codes, home & building upgrades, worker training, & transportation electrification.

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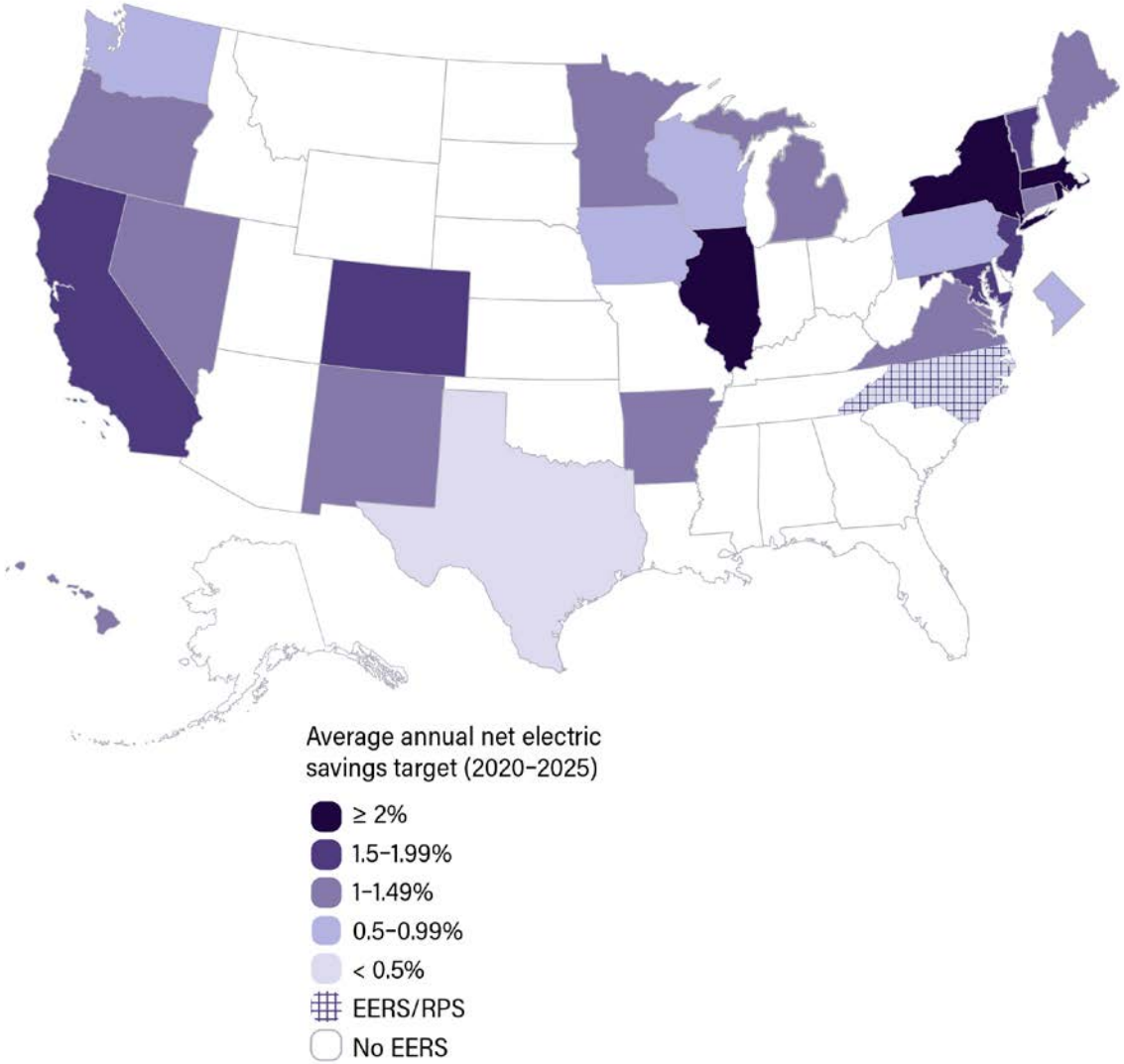
EERS policies are widespread



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What is driving change?

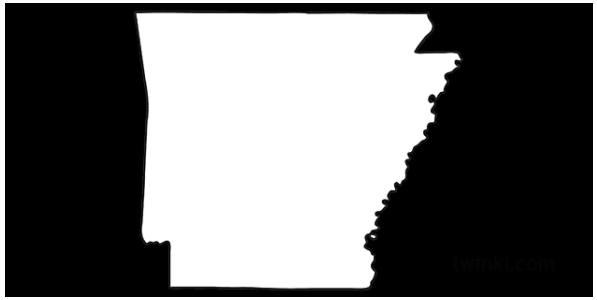
- Market conditions
  - Reduced savings from lighting
  - Increasing Availability of Controls and Flexibility
  - Decreasing Avoided Costs
  - Electrification

- Policy priorities
  - Decarbonization
  - Cost
  - Equity
  - Grid value

EERS design

State	Resource-specific goals	Fuel-neutral goal	Multiple goals (include additional elements beyond energy savings)
California	Yes	-	N/A – Layered approach to energy savings targets, including metrics/indicators tracking progress towards state energy/climate goals
Hawaii	Yes	-	Under discussion: cumulative persisting electricity + peak demand, CO2e and fossil fuel reductions
Massachusetts	Yes	Yes, Btu	Yes: lifetime all fuels MMBTUs, CO2e reductions, Electric/natural gas savings, Summer and winter peak demand savings, Air source heat pump installation target (not a savings goal)
Minnesota	Yes	-	N/A - Studies ongoing
New York	Yes	Yes, Btu	Yes: All fuels MMBtus, Electric savings, Heat pump savings, Natural gas savings (in utility filings)

Arkansas Case Study



- Arkansas ranks among the 10 states with the lowest average retail price for electricity
- 2010 - Arkansas PSC enacted an EERS setting savings targets for electric utilities
  - PSC revisits targets every three years in a dedicated EE proceeding.
- Electric targets have been incrementally raised from 0.25% in 2011 to **1.2% as of 2022**. (Docket No. 13-002-U)
- Home Energy Solutions has continually ramped up savings and improved cost-effectiveness in the past dozen years.
- Credits success to efforts to strengthen and refine relationships with trade ally networks/ contractors capable of delivering reliable high-quality upgrades.

EERS key recommendations

- Understand policy drivers and design solutions to match
- Update resource planning and potential studies to reflect new rules and targets
- Consider multiple goals, potentially including fuel-neutral and resource-specific goals, to meet multiple policy objectives

States are also using many other tools

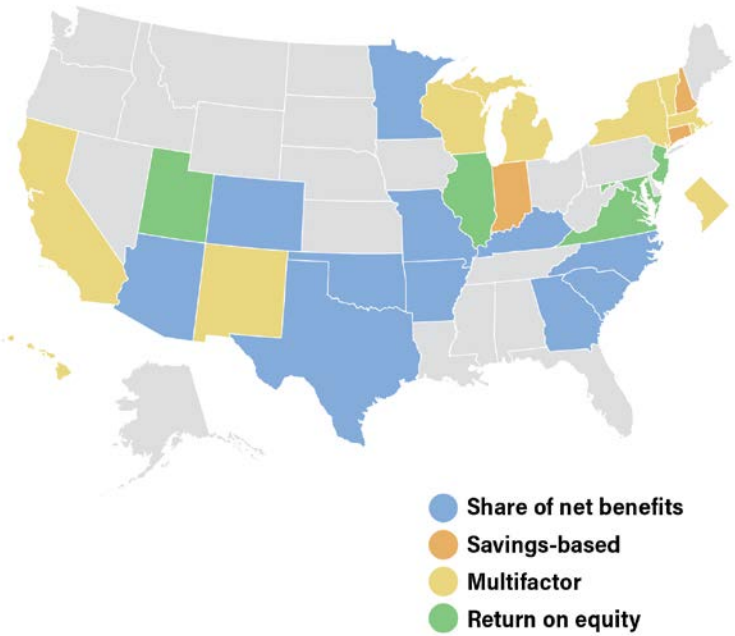
- Carve-outs
- Tracking
- Performance incentives
- Cost-effectiveness rules
- Program design
- Spending
- Separate portfolios

Gold et al. 2019. Next Generation Energy Efficiency Standards. ACEEE

Principles for Performance Incentive Mechanisms

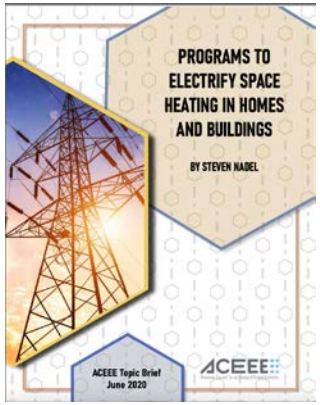
A successful PIM has the following characteristics:

- It is aligned with public policy goals and desired regulatory outcomes;
- It motivates desired utility behavior and supports the utility to grow into new service areas they would not otherwise pursue;
- It balances utility financial rewards with customer and societal benefits; and
- It does not disproportionately reward the utility for an action they are already incented to undertake.

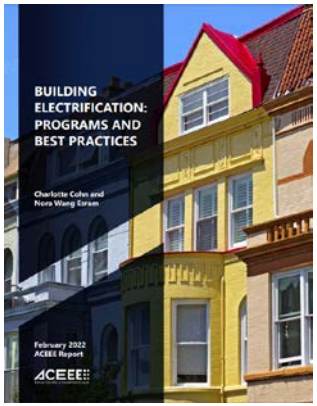


Source: RMI Report, "PIMs for Progress"

States are updating program designs to scale EE + electrification

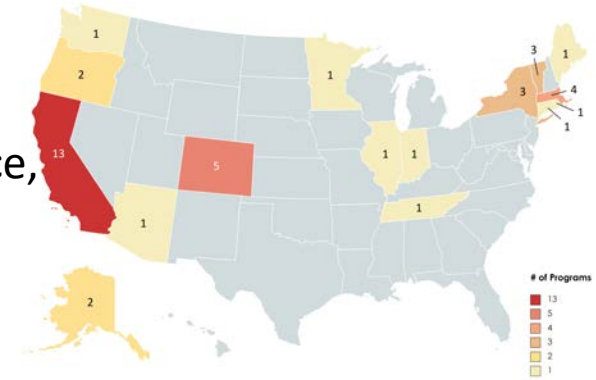


- Electrification in Buildings is growing – programs had a collective annual budget of $166 million
  - Up from $108 million reported in Nadel 2020



Program design trends:

- Encouraging weatherization to reduce loads alongside new heat pumps
  - Offering 'pre-electrification' or 'heat pump ready' programs (e.g, weatherization, envelope programs)
  - 1/3 of programs require weatherization
- Targeting upstream incentives to contractors or distributions
- Updating program materials, incentives to align with reducing total energy use across fuels
  - Contractor training in cold climate heat pump performance, maintenance, etc
  - Offering higher incentives, enabled by all fuel savings and value on GHG reductions



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Historic opportunities from Infrastructure Investment and Jobs Act (2021)

- $3.5 billion for weatherizing low-income homes
- >$1.5 billion for building energy codes, worker training, and new revolving loans/grants for commercial, residential, public school
- $7.5 billion for electric vehicle charging infrastructure
- millions more for industrial energy efficiency
- $68.1 billion to cities and local governments for a wide range of resiliency projects through the second wave of ARPA funding
- Other examples:
  - Deployment of Technologies to Enhance Grid Flexibility
  - Energy Improvement in Rural and Remote Areas

Leading recommendations to states

Put in place, and adequately fund, an energy efficiency resource standard or similar energy savings target.
Leading State Examples: AR, CO, MA, MI, MN, NJ, NY, VA

Adopt updated, more stringent building energy codes, improve code compliance, and enable the involvement of efficiency program administrators in code support.
Leading State Examples: CA, IL, MD, NE, NM, DC, WA

Adopt stringent tailpipe emissions standards for cars and trucks, and set quantitative targets for reducing vehicle miles traveled.
Leading State Examples: CA, CO, MA, NY, OR

Ensure energy efficiency and clean energy investments and opportunities are inclusive and that benefits accrue to all customers, especially households overburdened by energy costs.
Leading State Example: CA, NJ, OR, PA, TN, WA

Resources

- Next-Generation Energy Efficiency Resource Standards (aceee.org/research-report/u1905)
- 2021 State Energy Efficiency Progress Report. (aceee.org/research-report/u2201)
- Building Electrification: Programs and Best Practices (aceee.org/research-report/b2201)
- Building Decarbonization Solutions for the Affordable Housing Sector (aceee.org/research-report/u2204)
- Pathways to Residential Deep Energy Reductions and Decarbonization (aceee.org/research-report/b2103)
- Leading with Equity Initiative (aceee.org/energy-equity-initiative)