

# Scaling Up Energy Efficiency: Saving Money, Creating Jobs, and Slashing Emissions



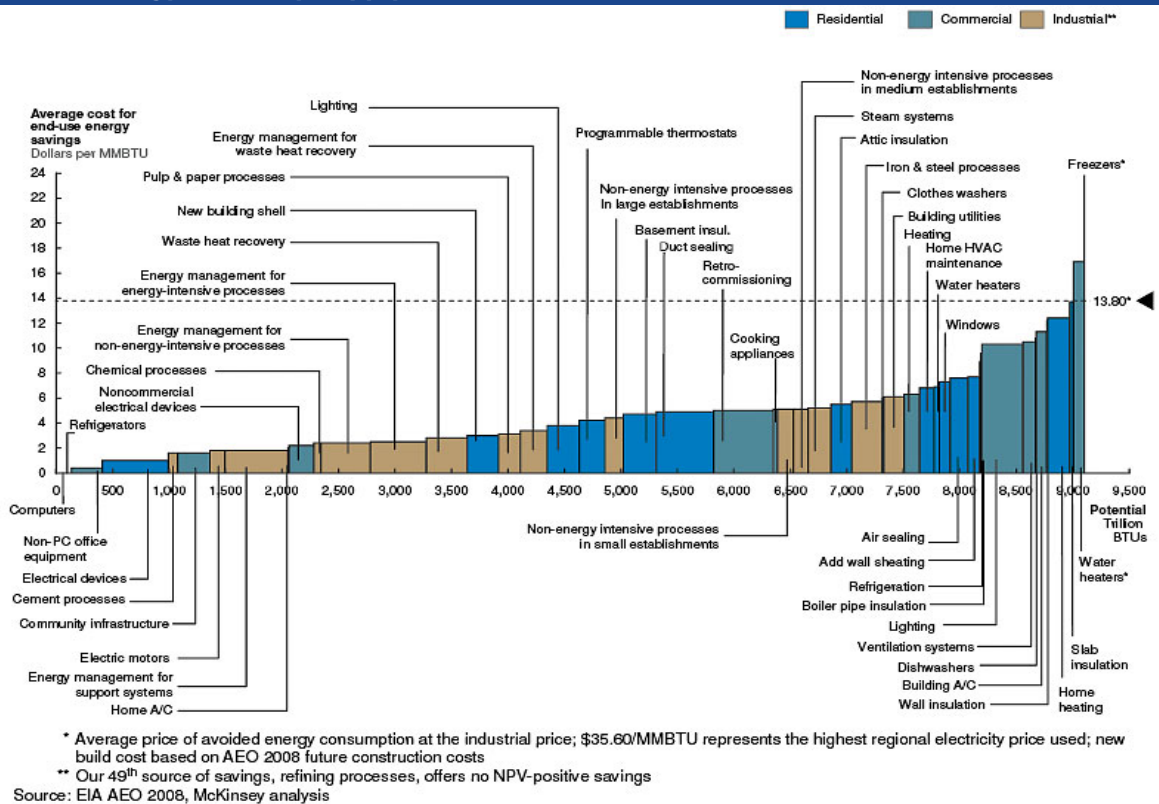
Energy efficiency is a proven resource with significant potential to dramatically reduce power plant emissions and to do so at low cost. Power plants represent 40 percent of the nation's total climate-changing pollution. NRDC's innovative proposal to slash this pollution, *Closing the Power Plant Carbon Pollution Loophole*, illustrates this potential. Meanwhile, more than half of U.S. states have already made commitments to achieving aggressive levels of energy savings, and several have demonstrated it is possible to quickly ramp up the infrastructure necessary to cut carbon pollution on a large scale.

## **EFFICIENCY OFFERS HUGE POTENTIAL FOR ENERGY AND COST SAVINGS**

Significant cost-effective energy efficiency remains untapped in every sector, and in every geographic region, despite the opportunities for enormous benefits. A McKinsey & Company study shows that investments in efficiency could cut U.S. energy consumption by 23 percent by 2020, save

customers nearly \$700 billion, and create up to 900,000 direct jobs (plus countless more when consumers spend their savings elsewhere).<sup>1</sup> Figure 1 illustrates the magnitude of options available to save energy (such as sealing leaky buildings and upgrading to more efficient appliances) and money if efficiency—our cheapest available resource—replaces conventional power sources.

**Figure 1: U.S. Energy Efficiency Supply Curve — 2020**



Several other studies show equal or greater promise for cost-effective savings. However, no one knows the upper limit because design biases found in most existing studies make even their sizeable projections low. In addition, as companies innovate and produce more advanced products, they will develop new cost-effective applications to improve energy.

To date, we have not come close to capturing the immense capacity for cost-saving efficiency. Market barriers impede the consumer's ability to make energy-efficient choices, and outmoded regulatory approaches in many states discourage utilities from investing in efficiency despite it being generally cheaper and less risky than financing power plants. Fortunately, we can overcome these obstacles with energy-saving programs, minimum-efficiency standards, research and development, and regulatory reform. Putting these policies and programs in place will allow the United States to reach the efficiency targets integral to the Natural Resources Defense Council's (NRDC) groundbreaking proposal, which calls for states and the federal government to partner in setting new carbon pollution standards to cut emissions from existing power plants by 26 percent from 2005 levels by 2020. The NRDC plan also provides a strong driver for states to require utilities to invest more in the low-cost, non-emitting efficiency resource.

### ENERGY EFFICIENCY IS A PROVEN RESOURCE

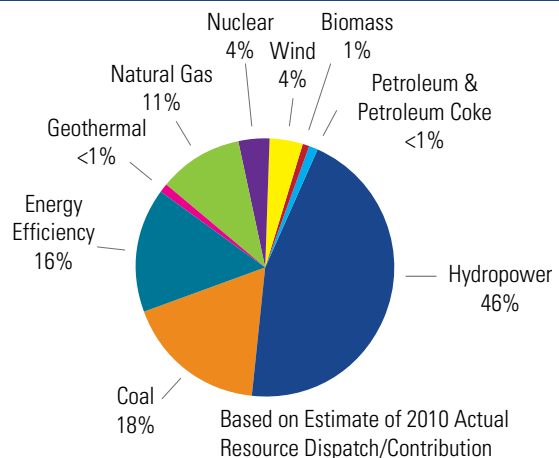
Energy efficiency can provide the equivalent of at least 10 to 20 percent of total electricity sales within a decade. Efficiency can also lower a utility's cost of providing service while diversifying its portfolio, improving service reliability, and reducing its risk. Several states and planning regions,

including those cited in the following section, already treat efficiency as a resource by explicitly including it in their planning and procurement processes in a way that directly reduces the need for other dirtier power supplies.

### The Northwest

Energy efficiency is at the core of the blueprint guiding the operation and procurement of electricity resources in the Pacific Northwest region of Washington, Oregon, Idaho, and Montana served by the Bonneville Power Administration (BPA) and individual utilities. Developed by the Northwest Power and Conservation Council (NWPCC), the plan finds

**Figure 2: Energy Efficiency is the Northwest Region's Third-Largest Resource**



Modified from: Northwest Power and Conservation Council

that cost-effective efficiency can meet 85 percent of new demand over the next 20 years and, combined with more renewable energy, could delay investments in future fossil-fuel power plants.<sup>2</sup> The NWPCC estimates energy efficiency is now one of the top three electricity resources in this region with some of the lowest electricity rates in the nation, having already avoided the construction of more than 10 to 12 large power plants (see figure 2).<sup>3</sup>

## New England

The New England Independent System Operator's (ISO-NE) long-term forecast projects that because of anticipated savings from energy efficiency, there will be no growth in electricity consumption and low growth in peak demand over the coming decade. The region's six states invested \$1.2 billion from 2008 to 2011 to boost efficiency, and they expect to leap to \$5.7 billion between 2015 and 2021.<sup>4</sup> As a result, ISO-NE believes the region can defer 10 transmission upgrades once considered necessary to ensure reliability.

## QUICK SCALE-UP IS POSSIBLE

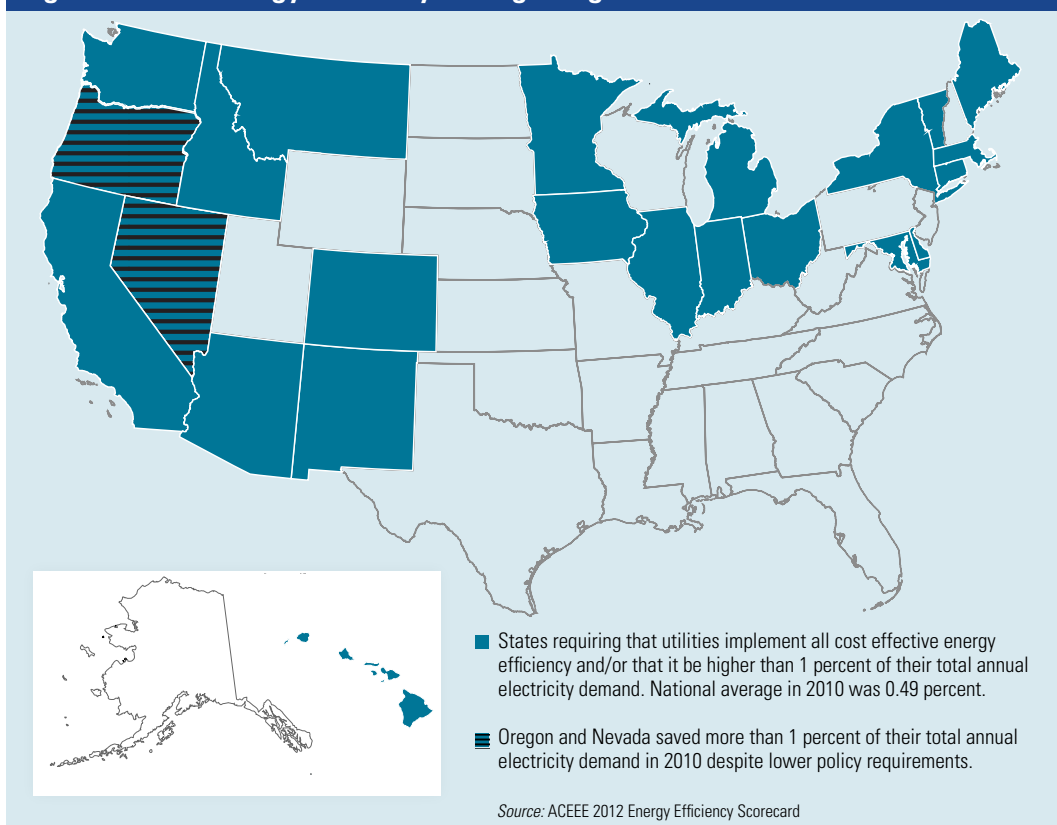
The ability to scale up energy efficiency quickly and significantly has already been established by several states not historically active in this area, and many are so confident of continued success that they have established savings requirements at levels of, or exceeding, a 2 percent annual reduction in electricity consumption, which is the amount envisioned in NRDC's proposal to establish new carbon pollution standards for existing power plants. States can

achieve this savings through efficiency programs *and* new appliance standards and building codes, so there is no need to achieve the full 2 percent from efficiency programs alone. Also:

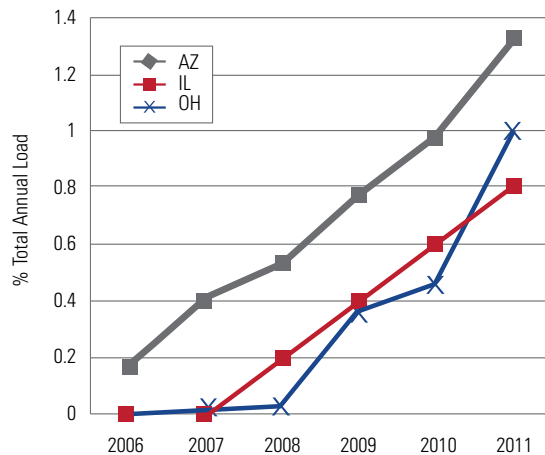
- Utilities are scaling up customer-funded investments in electric efficiency programs nationwide, increasing from \$2.7 billion in 2007 to nearly \$7 billion in 2011, with a corresponding surge in energy savings.<sup>5</sup>
- More states are adopting significant energy-savings goals: 22 states have targets higher than a 1 percent annual total load reduction (six are above 2 percent) and/or a requirement to pursue all cost-effective energy efficiency (see figure 3).<sup>6</sup>
- Several states ramped up very quickly, going from zero or near zero to as much as 1 percent total annual load reduction in just three to four years. Some good examples are noted in figure 4.

Even better news is that we are in no danger of tapping out energy efficiency as a resource. For instance, states with a long history of achieving high levels of energy and cost savings continue to increase them and make progress. Two good examples are Vermont and California, which more than doubled energy-efficiency savings between 2006 and 2010, with Vermont reaching 2.32 percent in total annual reductions in consumption, and California achieving 1.79 percent.<sup>7</sup> Other regions and states, including the Pacific Northwest and New York, also have decades-long histories of significant cost-effective energy savings with ever-increasing targets.

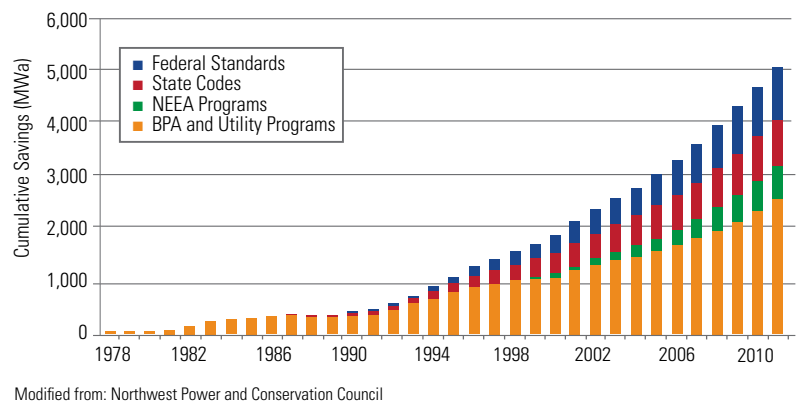
**Figure 3: State Energy-Efficiency Savings Targets**



**Figure 4: Efficiency Program Savings as Percent of Total Annual Load**



**Figure 5: Since 1978 Utility and BPA Programs, Energy Codes and Federal Efficiency Standards Have Produced More than 5,000 MWa of Savings**



## EFFICIENT BUILDING CODES AND APPLIANCE STANDARDS MAKE TARGETS EASIER TO REACH

The targets and reported savings discussed in this paper are primarily from customer-funded efficiency programs. However, implementing more stringent residential and commercial building codes and appliance standards could roughly double those levels over time, making it easier to meet the goal in NRDC's proposal to reduce emissions from existing power plants. Building codes are an important state policy for overcoming market barriers to greater efficiency in new buildings and those being renovated. Unfortunately, these codes are not evenly adopted or enforced nationwide. Meanwhile, America is seriously underinvesting in research and development that could help lay the foundation for more efficient building and appliance standards, even though standards are proven to be significant contributors to overall energy savings as has been demonstrated in the Northwest region (see figure 5) and in California.

## REACHING OUR ENERGY-EFFICIENCY AND EMISSION-REDUCTION GOALS

Studies show the possibilities for reductions in electricity consumption are huge, available everywhere, and well within

the range called for in NRDC's innovative proposal to cut emissions from existing power plants. Energy-efficiency investments already have avoided the need for hundreds of large plants, and several states have proven we can quickly expand the infrastructure needed to contribute to large-scale decreases in emissions. Serious commitments to more stringent building codes and appliance standards that are evenly adopted and enforced nationwide can roughly double those savings over time, proving that customer-funded efficiency programs are not the only available route to boosting energy efficiency in the immediate future.

These tools, combined with regulatory reform addressing investment barriers, can help us dramatically expand energy efficiency now to combat climate change, save money, create jobs, and clean the air we breathe.

Read more about NRDC's plan for using the Clean Air Act to sharply reduce carbon pollution from existing power plants:  
<http://www.nrdc.org/air/pollution-standards/>

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 Natural Resources Defense Council, [www.nrdc.org](http://www.nrdc.org)

### Endnotes

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