

Energy Facts



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Doing More and Using Less: Regulatory Reforms for Electricity and Natural Gas Utilities Can Spur Energy Efficiency

I. DELIVERING PERFORMANCE IMPROVEMENTS AND COST SAVINGS THROUGH EFFICIENCY

Using energy more efficiently in the nation's buildings, appliances, and equipment will allow us to achieve the same or better levels of comfort and performance while lowering energy bills, improving service reliability, creating jobs, and reducing pollution. However, progress toward these goals is being blocked by market barriers that hinder consumers' ability to make energy-efficient choices and regulatory barriers that discourage utilities from investing in efficiency—even though it typically costs less than half as much and carries less risk than competing energy investments.

Several tools are available for overcoming these barriers to realize the enormous benefits efficiency can provide for consumers. Chief among them are energy efficiency programs, minimum efficiency standards, and research and development. While all of these policies are critical to capture all cost-effective energy savings, this issue brief focuses specifically on the policies needed to support energy efficiency programs, one key element of an integrated effort to improve efficiency.



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Customers want energy services that are affordable, reliable, and environmentally sensitive. NRDC recommends that legislators, regulators, and governing boards of publicly owned and cooperatively owned utilities adopt the following policies to spur utilities to collaborate with their customers to take advantage of all cost-effective energy efficiency opportunities:

1. Make cost-effective energy efficiency the highest priority energy resource.

- Require utilities to procure all cost-effective energy efficiency before investing in other energy resources.
- Set aggressive energy saving and demand reduction targets to capture the full potential for cost-effective savings.

2. Align utility business models and financial incentives with customer interests in affordable energy services.

- Allow utilities to recover the prudently incurred costs of energy efficiency programs.
- Remove disincentives by breaking the link between recovery of authorized fixed costs and sales.
- Provide performance-based shareholder incentives for investor-owned utilities to ensure that investments in cost-effective energy efficiency opportunities are at least as attractive as alternative investments in generation and grid resources.

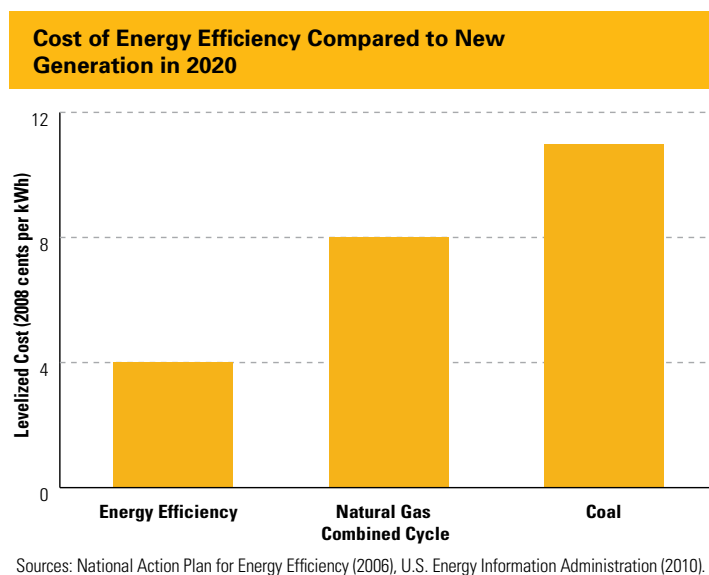
3. Conduct independent evaluation and measurement of energy savings, using processes and protocols that promote transparent decision making.

4. Ensure that energy efficiency program portfolios comprehensively address all major uses of energy by residential, business, and industrial customers and include programs targeted to assist lower-income households.

Energy efficiency provides the opportunity to do more by using less. We can jumpstart the clean energy economy, create jobs, save consumers and businesses money, improve air quality, and curb global warming by unlocking this enormous opportunity.

II. REALIZING THE ENERGY EFFICIENCY OPPORTUNITIES: LOWER ENERGY BILLS, MORE JOBS, AND LESS POLLUTION

A study by the global consulting firm McKinsey & Company found that investments in efficiency could realistically cut U.S. energy consumption by 23 percent by 2020. These efficiency gains could save consumers nearly \$700 billion (net of the energy efficiency costs) and create as many as 900,000 direct jobs by 2020 and provide many more jobs as consumers reinvest their savings into the economy.¹ Other analyses have found an even larger potential for savings from efficiency nationwide.² In a typical household, efficiency improvements can save more than \$700 per year, or one-third of the \$2,200 average annual utility bill.³



Energy efficiency is the cheapest resource utilities can use to meet their customers’ needs and improve energy reliability and security. Efficiency programs around the nation generally cost less than 4 cents per kilowatt hour (kWh), which is less than half the cost of avoided supply-side resources.^{4,5} And with every one dollar invested in efficiency programs usually providing customers with at least two dollars in benefits, efficiency makes a great investment.⁶ Moreover, the full savings are even greater because energy efficiency also avoids the health and environmental costs of dirtier alternatives.

Energy efficiency is the least expensive and fastest way to cut pollution. The electricity and natural gas industries account for *more than half* of the nation’s carbon dioxide emissions, the primary pollutant causing global warming.⁷ Electricity generation is also responsible for a large portion of the nation’s air and toxic pollution, including about two-thirds of sulfur dioxide emissions and 19 percent of nitrogen oxide emissions, which cause smog as well as respiratory and heart problems such as aggravating asthma and increasing the chance of heart attacks and strokes.⁸ Electricity generation also contributes 72 percent of mercury air emissions,

which is a potent neurotoxin that causes developmental problems.⁹ The extraction of fossil fuels used to generate power and provide natural gas service causes additional global warming and air pollution, contaminates drinking water, and harms wildlife and their habitats.

Of the many important clean energy strategies needed to curb global warming, efficiency provides the single largest and most cost-effective opportunity to cut global warming pollution, all while providing enormous clean air, job creation, and economic benefits.¹⁰

III. BREAKING THROUGH THE BARRIERS TO ACHIEVE \$700 BILLION IN POTENTIAL SAVINGS

As U.S. Secretary of Energy and Nobel Laureate Dr. Steven Chu put it, “Energy efficiency isn’t just low-hanging fruit; it’s fruit lying on the ground.”¹¹ If \$700 billion in savings are so easily within reach, one must wonder why households and businesses are not doing all they can to realize those savings. There is abundant evidence that market barriers are impeding consumers’ ability to make energy-efficient choices and that outmoded regulatory barriers are discouraging utilities from making investments in efficiency even though they are generally cheaper and less risky than investments in power plants.¹²

Why Are Accurate Energy Prices Alone Not Sufficient to Spur Energy Efficiency?

Many studies show that non-price market barriers, such as inadequate information or time, are the reason abundant cost-effective savings are being left on the table. That means that even accounting for the very real health and environmental costs of our energy use (which energy prices do not do) would not be sufficient to ensure that customers take advantage of all cost-effective energy efficiency. Strong energy efficiency policies, programs, and standards are and will remain essential to capture all cost-effective efficiency savings.

example of this “split incentive”). These are just a few of the numerous and pervasive market barriers that stand in the way of adopting cost-effective energy efficiency. Experts and experience teach us that these barriers must be addressed by strong policies and effective, sustained programs to help customers capture the full benefits of energy efficiency.

Utilities can be crucial partners in the effort to overcome these barriers and help consumers increase energy efficiency, but most utilities around the country operate in a regulatory environment that provides unintended but powerful disincentives toward investing in energy efficiency. There are different types of utilities providing electricity and natural gas service to consumers around the country. Utilities can be privately owned by shareholders, publicly owned by federal, state, or local authorities, or cooperatively owned. In the electric utility industry, nearly 70 percent of customers are served by investor-owned utilities and nearly 30 percent are served by publicly owned or cooperatively owned utilities.¹³ In some states, utilities own generation plants and transmission lines as well as the local power distribution system. In other states, utilities are distribution companies only. State regulators or governing boards, depending on the type of utility, set rates for electricity and natural gas and establish rules for service.

For most utilities, both public and private, the revenue they need to recover their authorized fixed costs for providing service (repaying debt is a good example) is linked to energy sales. Any reduction in sales from the levels assumed in setting rates threatens their financial health; conversely, any unpredicted increase in sales provides a windfall. Worse yet for investor-owned utilities, in most jurisdictions investments in efficiency offer no earnings opportunity and instead require utilities to forego potential earnings from new power plants, wires, or pipes that will no longer be needed.

Overcoming these barriers to align the best interests of customers and utilities and achieve all cost-effective efficiency opportunities is possible by implementing the proven policies and programs described in the following section.

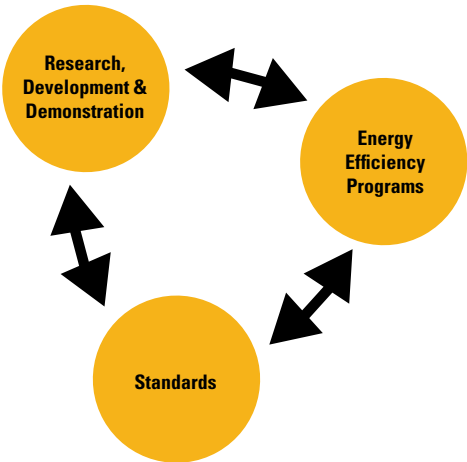
The Power of Partnerships with Utilities to Achieve Energy Efficiency Goals

Utilities are responsible for making the day-to-day decisions and long-term investments needed to provide reliable and affordable service. Since helping customers use energy more efficiently is often the cheapest way to meet those goals, whether it be to keep the lights on in our homes or ensure the comfort of our offices, utilities should be investing in efficiency opportunities whenever doing so is cheaper than investing in new power plants, wires, or pipelines. Although consumers ultimately make the decisions about how efficiently they use energy in their homes and offices, utilities can be key efficiency partners—although by no means the only partner—since utilities reach every customer and have detailed knowledge of how energy is used.

IV. ENCOURAGING STATE AND LOCAL POLICYMAKERS TO UNLOCK THE EFFICIENCY OPPORTUNITY

State legislators, regulators, and governing boards of publicly owned utilities have the tools necessary to unlock enormous savings from energy efficiency. (For federal policy recommendations see NRDC fact sheets *Unlocking the Power of Energy Efficiency in Buildings* and *Kick-Starting Building Efficiency*.¹⁴ While this issue brief focuses on the policies needed to support energy efficiency programs, capturing all cost-effective savings requires an integrated package of policies that includes:

Continually Improving Efficiency Through Integrated Policies



- sustained implementation of energy efficiency programs that provide information, assistance, and rebates to help consumers overcome the barriers they face;
- minimum efficiency standards to ensure that new buildings and appliances are not energy “guzzlers”; and
- research and development of new advanced technologies and practices.

Consumers want reliable energy services at the lowest reasonable cost and with the least possible environmental impact. Boosting energy efficiency is the best way to meet those objectives. Utilities, which reach every consumer, have intimate knowledge of how energy

is used, and are the largest investors in the nation’s energy infrastructure, must be partners in this endeavor. As part of their responsibility to maintain essential services that contribute to public health and safety, state and local policymakers are most often the ones to oversee utilities. These policymakers should update their policies and practices to enable utilities to become full partners with their customers and to invest in energy efficiency whenever it is the most cost-effective way to respond to consumer demand.

Many states have already implemented some or all of these policies, and they are reaping the benefits. The American Council for an Energy-Efficient Economy (ACEEE) regularly issues a “scorecard” analyzing states’ progress on energy efficiency. Some states are on track to capture all cost-effective savings, but approximately half of the states in the nation are barely scratching the surface of the potential savings.¹⁵

Focusing Attention on Energy Services and Utility Bills Rather Than Energy Consumption and Rates

Energy services are essential to modern life and economies. Reliable energy services power everything from basics (e.g., light and heat) to modern electronics (e.g., computers and communication technologies), dramatically improving quality of life and driving our economic prosperity. Utility customers care about these energy services and how much they pay for them in their monthly bill, not the amount of energy they consume as measured in kilowatt-hours or therms. Adopting policies that encourage utilities to provide the best possible energy services at the lowest reasonable overall cost to customers is more important than focusing only on the lowest rate for each kWh or therm.

Energy efficiency offers a powerful tool to improve energy services, lower bills, and reduce pollution all at once.



Unlocking the Power of Energy Efficiency in Buildings



Kick-Starting Building Efficiency

V. POLICY RECOMMENDATIONS FOR REFORMING UTILITY BUSINESS MODELS AND CAPTURING ALL COST-EFFECTIVE ENERGY EFFICIENCY

Policymakers, regulators, and utilities alike have recognized the enormous benefits of energy efficiency. But investments to provide the necessary information, assistance, and incentives to customers—even at \$5.5 billion per year nationwide in 2010—are still only a fraction of those needed to reach the full potential.¹⁶ Utilities need the right policy and regulatory signals to redirect investments away from more costly infrastructure and towards helping customers become more energy efficient.

While utilities are by no means the only important actor to achieve efficiency savings, their participation is critical. Without utilities as partners, any energy efficiency effort would be “swimming upstream” against the powerful incentives to increase sales faced by most utilities today.

Who Should Administer the Efficiency Program Portfolio?

Different states have enlisted different entities, including utilities, non-profit organizations, and state agencies, to administer their efficiency program portfolios. The best structure depends on the specific circumstances in a jurisdiction; different approaches have worked well in different states and regions. Regardless of whether or not the utilities themselves administer the efficiency programs, they must be full partners with the administrators—and bring their relationships, knowledge, and investments—to enable the programs to reach their full potential. All the policies discussed in this issue brief remain essential regardless of what entity administers the efficiency programs.¹⁷

How can regulators and public power governing boards change the framework within which utilities operate to enable utilities and their customers to take full advantage of energy efficiency and its benefits? NRDC recommends the following policies:

1. MAKE COST-EFFECTIVE ENERGY EFFICIENCY THE HIGHEST PRIORITY ENERGY RESOURCE.

As the cheapest, cleanest resource available to meet customers’ energy service needs, legislators, regulators, and governing boards should adopt clear directives making cost-effective energy efficiency utilities’ first-priority resource and should set aggressive energy savings targets.

A. Require utilities to procure all cost-effective energy efficiency before investing in other resources.

Utilities manage portfolios of resources to meet customers’ energy needs, often including numerous sources such as energy efficiency, demand response, renewable energy, fossil-fuel-fired power plants, and transmission. Regulators and governing boards should require utilities to demonstrate that they are planning to invest in all cost-effective energy efficiency *before* authorizing investments in other more expensive and dirtier resources. By definition, cost-effective energy efficiency is cheaper than alternative investments, so making it the first priority can help ensure utilities take advantage of the cheapest resource first.

Assembling the most reliable, least risky, and lowest-cost portfolio requires integrated planning over time horizons that extend 10 to 20 years or longer. Energy efficiency can be a significant resource in such integrated portfolios, providing a resource equivalent to at least 10 to 20 percent of annual electricity sales within a decade and continuing to grow over time.¹⁸ Efficiency lowers the cost of providing service, diversifies the portfolio, improves reliability, and reduces risk. As such, efficiency should not be considered just a social program operating on the sidelines and instead should be fully integrated into utilities’ planning and procurement.¹⁹

B. Set aggressive energy saving and demand reduction targets to capture the full potential for cost-effective savings.

To ensure that utilities take advantage of all cost-effective energy efficiency, policymakers should set annual targets for energy savings and demand reduction. These targets should be based on rigorous analyses of the achievable cost-effective potential in each utility’s service territory and should require utilities to aggressively ramp up their programs to capture the full potential.²⁰ Sustained efficiency programs steadily accumulate savings every year, growing to be a significant resource in short order. The steady growth in energy savings can make efficiency particularly valuable compared to “lumpy” investments in new power plants that may have a portion of their capacity sit idle for years until the full resource is needed.

Two important indicators to determine whether an efficiency program portfolio is adequately aggressive are: (1) the energy savings relative to the available cost-effective potential and (2) the energy savings and targets relative to achievements and targets in other jurisdictions. Aggressive efficiency programs around the country today typically achieve net annual first-year savings of at least 1 to 2 percent of annual electricity sales and 1 to 1.5 percent of annual natural gas sales.²¹ Achieving these savings typically requires investments of at least 2 to 4 percent of electric utility revenues and 1 to 2 percent of natural gas utility revenues in efficiency programs.²² Many leaders

around the country are now aiming even higher, setting more aggressive targets, and realizing greater savings.²³ And since energy efficiency program savings are measured relative to minimum requirements established by building codes and appliance efficiency standards or standard market practice, savings from efficiency programs should be expected to be even higher in states that have not implemented stringent building codes or appliance efficiency standards. Upgrades to building codes and appliance efficiency standards should count towards achieving the energy saving targets, and targets should be set high enough to encompass savings that can be achieved through both efficiency programs and improvements in standards.

Taking a Comprehensive Look at Cost Effectiveness

A cost-effective portfolio of energy efficiency programs provides benefits that outweigh its costs, as measured by the Total Resource Cost (TRC) test. The TRC analysis takes a comprehensive view of these costs and benefits by including the total incremental costs of the energy-efficient measures that are installed (regardless of who pays for them) and the cost of implementing the efficiency programs and then compares that total with the benefits provided to the participant and all the utility's customers such as the avoided supply-side resource costs, including generation, transmission, distribution, and environmental costs.²⁴ A cost-effective portfolio of energy efficiency programs, as determined by the TRC test, helps meet the overarching objective of providing customers with reliable energy services at the lowest total cost.

NRDC recommends that regulators and governing boards require only that the portfolio of energy efficiency programs taken as a whole be cost-effective, with some flexibility to allow inclusion in the portfolio of individual programs or measures that when judged by cost alone might be less attractive, but enable program administrators to take comprehensive and innovative approaches to improving efficiency.

Regulators and governing boards should also avoid using cost-effectiveness tests that are too narrow in perspective. For example, the Ratepayer Impact Measure (RIM) test focuses only on short-term rate impacts for customers who do not participate in the efficiency programs. Because it uses such a narrow perspective, it often eliminates numerous highly cost-effective efficiency measures that, if adopted, will reduce customers' energy bills, lower overall energy costs, and put downward pressure on rates for all customers over the long term. Instead of only focusing on short-term rate impacts, regulators and governing boards should aim to minimize the total cost to all customers receiving reliable energy services. Just as investments in supply-side resources do not hinge on the impact on "non-participants" in load growth, investments in cost-effective demand-side resources should not depend on having no impact on any customer. Robust energy efficiency programs should ensure that all customers have an opportunity to participate and lower their bills.

2. ALIGN UTILITY BUSINESS MODELS AND FINANCIAL INCENTIVES WITH CUSTOMER INTERESTS IN AFFORDABLE ENERGY SERVICES.

All utilities have an obligation to maintain financial health. While public utilities only have debt investors, and private utilities have both debt and equity investors, both types of utilities have similar obligations to those who have provided capital to create and maintain their distribution, transmission, and/or generation systems. Under traditional policies and regulation, aggressive energy efficiency efforts can threaten both public and private utilities' ability to meet those financial obligations, creating unintended but powerful disincentives for investments in energy efficiency.

Regulators and governing boards should update these policies to ensure utilities' incentives are fully aligned with those of their customers in receiving reliable and affordable energy services, and to enable utilities to meet their financial obligations while taking advantage of the lowest-cost resource that efficiency provides for customers.

A. Allow utilities to recover the prudently incurred costs of energy efficiency programs.

Since energy efficiency programs are an important part of how utilities can cost-effectively meet their customers' energy service needs, regulators and governing boards should authorize utilities to recover the prudently incurred costs of implementing a well-designed portfolio of efficiency programs. Different jurisdictions use various ratemaking mechanisms to enable utilities to recover these costs, including authorizing efficiency program costs in general rate cases, as separate surcharges, or as part of general procurement costs. Since most of the costs relate to customer participation in programs, which can be hard to predict, cost recovery methods should allow the utility to meet all demand under the programs without providing the utility with excess revenue if participation is less than expected. Regardless of the specific mechanism used, regulators and governing boards should adopt mechanisms to assure utilities that they will recover prudently incurred costs on a timely basis.²⁵

Regulators and boards can either authorize utilities to expense energy efficiency program costs as they are incurred or to capitalize them for amortization over some period of years (in a manner similar to capital investments in power plants, pipes, and wires). Expensing is generally preferable to capitalizing efficiency program costs for two key reasons: First, it minimizes rate impacts, since costs are recovered as they are incurred (just as many utilities are allowed to recover the costs of fuel and power in the same year they are incurred) and the costs

are not accumulated in unrecovered balances that get steadily bigger as additional programs are added over time. Second, capitalization requires that the private or public utility obtain cash from investors to fund the program, which requires a return to the investor in the form of interest and/or profit. If investor-owned utilities earn a rate of return on the capitalized costs, it provides an incentive to *spend* more money rather than to save more energy; expensing avoids this perverse incentive, and should be paired with performance-based incentives for investor-owned utilities to better align shareholder incentives with customer interests.

B. Remove disincentives by breaking the link between sales and recovery of authorized fixed costs.

For most utilities, both public and private, energy sales drive the revenues they need to recover authorized fixed costs of service; the more electricity and natural gas they sell, the higher their revenues to cover both their fixed and variable costs. Therefore, any reduction in sales from the levels assumed in setting rates threatens their financial health and any increase in sales has the opposite effect. This creates a powerful disincentive for investments and other utility involvement in energy efficiency efforts. Eliminating this disincentive is essential regardless of whether or not the utility itself administers the efficiency programs; efficiency efforts will be significantly impeded if they have to compete against utilities with powerful incentives to increase sales.²⁶

Much of a typical utility's cost of serving customers is independent of energy use in the near term (e.g., paying for generation, transmission, and distribution equipment already installed).²⁷ But since customers pay bills based on how much energy they use, increases or decreases in consumption will affect *recovery* of these fixed costs, even though the costs themselves do not change. Although some may be tempted to respond by converting fixed costs into fixed charges, it would be counterproductive; higher fixed charges would significantly reduce customers' rewards for reducing energy use and have a regressive impact, making it even harder to provide affordable bills for low-income consumers. Fortunately, there is a straightforward and effective solution that makes the recovery of fixed costs independent of energy sales, while maintaining volumetric rates that give customers the incentive to conserve or use energy efficiently (i.e., continuing to have customers pay bills based on how much energy they use).²⁸

Regulators and governing boards can use regular, small adjustments in rates (typically less than 3 percent up or down) to ensure that utilities recover their authorized fixed costs—no more and no less.²⁹ The small rate adjustments correct for differences between *actual* sales volumes and the *projected* sales that were used to set a utility's rates, either restoring to the utility or giving back to customers the money that was under- or over-collected as a result of fluctuations in retail sales. This ensures that utilities: (1) recover the prudently incurred fixed costs that were approved by their regulator or governing board; (2) do not make a windfall by encouraging higher sales; and (3) are not penalized when energy efficiency programs and other demand-side efforts reduce sales. Regulators around the country have adopted this policy at an accelerating pace over the last few years; half the states in the nation now have policies to break the link between recovery of fixed costs and sales for natural gas and/or electric utilities.

C. Provide performance-based shareholder incentives for investor-owned utilities to ensure that cost-effective energy efficiency opportunities are at least as attractive as investments in generation and grid resources.

Investor-owned utilities (IOU) have a fiduciary responsibility to their shareholders, and the financial incentives created by regulations guide their decision-making and investments. All regulation creates financial incentives for IOUs, so the question for regulators is not *whether* to adopt incentives but how to *align* them with the public interest. Regulators should make investing in the lowest cost, least risky, and most environmentally sensitive portfolio of resources the most profitable option for utilities. The National Association of Regulatory Utility Commissioners' recommendation to its members more than two decades ago to "ensure that the successful implementation of a utility's least-cost [investment and procurement] plan is its most profitable course of action" remains an urgent priority today.³⁰

Investor-owned utilities already have incentives to invest in power plants, pipes, and wires. There must now be comparable incentives for cost-effective energy efficiency in order to "level the playing field." Policy directives alone can spur a modest level of efficiency programs, but to be aggressive in developing a long-term commitment to increasing customer energy efficiency, regulators must align those policy directives and financial incentives to encourage utilities to evolve their core business model.

For incentive mechanisms to be effective, they should: (1) be based on verified *performance*, not investments; (2) create a *win-win* opportunity for customers and shareholders; (3) provide a balance of potential *risks* and *rewards*; and (4) align with policy goals such as maximizing net benefits to customers. States have used different types of incentive mechanisms to spur energy efficiency.³¹ Most either provide utilities an opportunity to earn a reward based on how much they spend on efficiency programs, or to share in the savings they provide customers through efficiency programs. The problem with the former approach, which treats efficiency investments similar to power plant investments, is that it rewards utilities for *spending* money, not *saving* customers money. NRDC recommends the latter performance-based "shared savings" mechanisms as they are the only type that meet all of the principles described above to align shareholder and customer interests.³²

A shared savings mechanism should provide investor-owned utilities an earnings opportunity by offering shareholders a portion of the net benefits customers receive (that is, the benefits from avoiding costlier energy sources less the cost of the efficiency programs) as a reward for excellent performance at saving energy and lowering customer bills, provided minimum performance thresholds are met. The utilities' performance should be measured based on verified savings that have been independently evaluated. Certain factors, such as estimates of "free riders" (program participants who would have made the efficiency upgrade even without the program) and "free drivers" (energy savings from customers who were influenced by the program but did not formally participate), should be determined upfront in the program design and planning process and fixed for the program cycle. Regulators should assess the utilities' performance and determine any rewards on a regular schedule and the total potential incentives should be capped to ensure that they stay within expectations for both shareholders and customers. With this type of mechanism, the more utilities help their customers save, the more they can earn.

3. CONDUCT INDEPENDENT EVALUATION AND MEASUREMENT OF ENERGY SAVINGS, USING PROCESSES AND PROTOCOLS THAT PROMOTE TRANSPARENT DECISION MAKING.

Regulators and governing boards should ensure that the efficiency programs' savings are measured and evaluated on a regular basis by independent, qualified experts. Professional evaluators use a variety of methods, including statistical billing analyses and engineering analyses using verified field data, to evaluate program energy and demand savings.³³ Regulators and governing boards should provide guidelines and evaluation protocols to ensure the evaluations are conducted in a transparent and collaborative manner and to ensure that methodologies and results are consistent with evaluations that are conducted in other jurisdictions. The results of these "impact evaluations" are critical to:

- ensure that utilities can use the savings as a reliable resource in place of supply-side generation, wires, and pipelines;
- properly account for the savings in utility planning and demand forecasting;
- measure the efficiency programs' performance relative to targets;
- confirm the efficiency programs' cost-effectiveness;
- improve program performance;
- assess investor-owned utilities' performance when implementing shared-savings performance-incentive mechanisms; and
- quantify emission reductions achieved by the programs.

Additional evaluations, such as "process evaluations" and "market assessments" are also essential to understand the many markets for energy efficiency products and services and to continually improve program designs.

4. ENSURE THAT ENERGY EFFICIENCY PROGRAM PORTFOLIOS COMPREHENSIVELY ADDRESS ALL MAJOR USES OF ENERGY BY RESIDENTIAL, BUSINESS, AND INDUSTRIAL CUSTOMERS, AND INCLUDE PROGRAMS TARGETED TO ASSIST LOWER-INCOME HOUSEHOLDS.

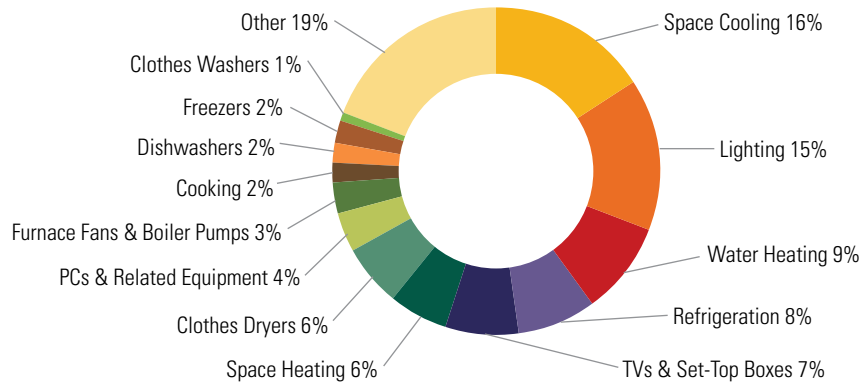
Given the many different ways consumers use energy, the opportunities to improve efficiency are numerous and varied, requiring a multifaceted approach to capture all cost-effective savings. A comprehensive program portfolio should address the needs of every customer class, overcome barriers in each market segment, and include a comprehensive set of efficiency measures.

For example, different programs should be targeted to help residential and various non-residential customers and to take advantage of the opportunities that arise when constructing new buildings and retrofitting existing buildings. Programs should help overcome market barriers standing in the way of all efficiency measures, ranging from residential appliances, consumer electronics, or industrial motors and processes, to name a few. In addition, program portfolios should take a comprehensive approach to capture efficiency opportunities, including validating new efficiency opportunities from emerging technologies, providing technical support to upgrade building and appliance efficiency standards, providing education and workforce training, working with key partners including local governments, exploring pilot programs, and offering competitive solicitations for innovative technologies and programs.

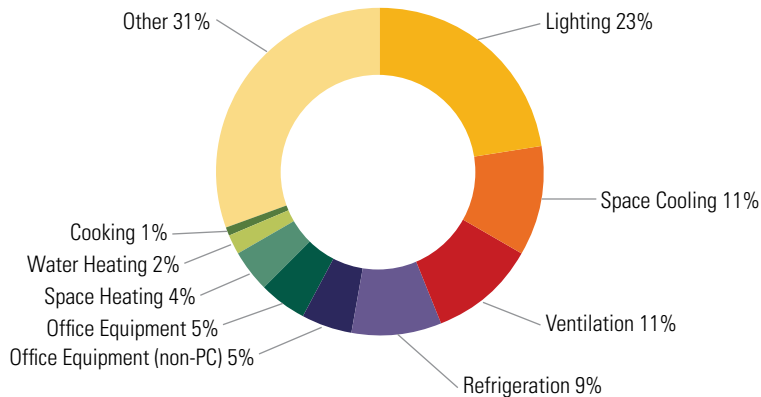
Specific programs should also be targeted to meet the needs of lower-income households, as energy efficiency is a powerful way to make energy bills more affordable for these families. Low-income efficiency programs provide large benefits by: (1) immediately lowering participating households' utility bills and improving the comfort of their homes and (2) reducing the amount other utility customers spend to fund bill payment assistance programs.

While the diverse program offerings to capture all cost-effective savings can appear daunting at first, there are numerous resources on best practices for efficiency programs and many expert consultants with decades of experience that regulators, boards, and efficiency portfolio administrators can look to for help starting or expanding their efficiency programs.³⁴

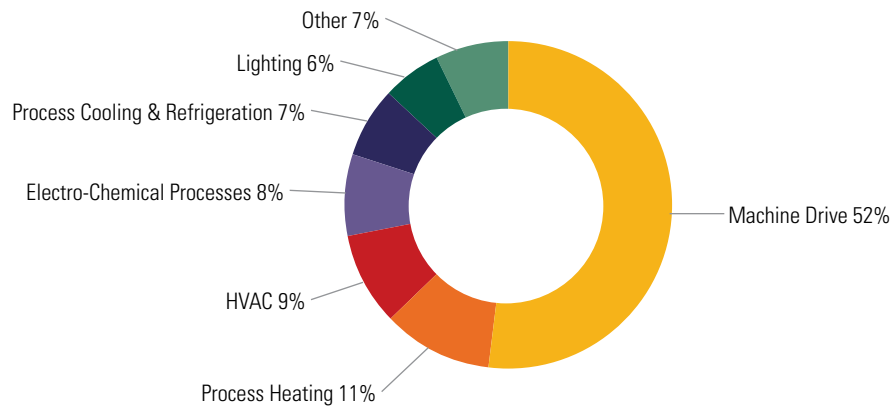
Residential Electricity Consumption, by End Use (2008)



Commercial Electricity Consumption, by End Use (2008)



Manufacturing Electricity Consumption, by End Use (2006)



Note: Percentages may add up to more than 100% due to rounding.
Source for all three graphics: U.S. Energy Information Administration³⁵

VI. CONCLUSION

Energy efficiency provides the opportunity to do more by using less. Efficiency is the smartest way to cut energy consumption, lower utility bills, create jobs, and jumpstart the transition to a clean energy economy. And efficiency is the most cost-effective way to improve air quality and curb global warming, with investments paying for themselves and yielding greater savings.

Exploring Further Resources for Boosting Energy Efficiency

The following are key resources to help legislators, regulators, and governing boards reform utilities' business models to unlock this enormous opportunity.

- *National Action Plan for Energy Efficiency*, July 2006, www.epa.gov/cleanenergy/documents/suca/napee_report.pdf.
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ENDNOTES

- ¹ McKinsey & Company, *Unlocking Energy Efficiency in the U.S. Economy*, July 2009, www.mckinsey.com/clientservice/electricpowernaturalgas/US_energy_efficiency/.
- ² See the discussion in Goldstein, D., *Invisible Energy: Strategies to Rescue the Economy and Save the Planet*. Point Richmond, California: Bay Tree Publishing, 2010, Chapter 3.
- ³ U.S. Environmental Protection Agency, ENERGY STAR, "Where Does My Money Go?" www.energystar.gov/index.cfm?c=products.pr_where_money, accessed April 2010.
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- ²⁷ Typically, more than three-fifths of the retail value of kilowatt-hours and one-fourth of the retail value of therms represent fixed costs.
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