



Discussion of Consumer Perspectives on Regulation of Energy Efficiency Investments

A RESOURCE OF THE NATIONAL ACTION PLAN FOR
ENERGY EFFICIENCY

SEPTEMBER 2009

The Leadership Group of the National Action Plan for Energy Efficiency is committed to taking action to increase investment in cost-effective energy efficiency. *Discussion of Consumer Perspectives on Regulation of Energy Efficiency Investments* was developed under the guidance of and with input from the Leadership Group. The document does not necessarily represent a consensus view and does not represent an endorsement by the organizations of Leadership Group members.

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If this document is referenced, it should be cited as:

National Action Plan for Energy Efficiency (2009). *Discussion of Consumer Perspectives on Regulation of Energy Efficiency Investments*. <www.epa.gov/eeactionplan>

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List of Abbreviations and Acronyms

ACEEE	American Council for an Energy-Efficient Economy
DOE	U.S. Department of Energy
EM&V	evaluation, measurement, and verification
EPA	U.S. Environmental Protection Agency
ESCO	energy service company
ISO-NE	ISO New England
kWh	kilowatt-hour
MW	megawatt
PUC	public utilities commission

Acknowledgements

This report, *Discussion of Consumer Perspectives on Regulation of Energy Efficiency Investments*, is a key product of the Year Four Work Plan for the National Action Plan for Energy Efficiency. This work plan was developed based on Action Plan Leadership Group discussions and feedback expressed during and in response to the January 2009 Leadership Group Meeting. A full list of Leadership Group members is provided in Appendix A and at www.epa.gov/eeactionplan.

With direction and comment by the Action Plan Leadership Group, the paper was developed by the Regulatory Assistance Project and Synapse Energy Economics. Alison Silverstein of Alison Silverstein Consulting also provided her expertise during review and editing. The paper benefitted from a variety of representatives of consumer interests that participated in discussions leading to the paper.

The U.S. Environmental Protection Agency (EPA) and the U.S. Department of Energy (DOE) facilitate the National Action Plan for Energy Efficiency. Key staff include Larry Mansueti (DOE Office of Electricity Delivery and Energy Reliability), Dan Beckley (DOE Office of Energy Efficiency and Renewable Energy), and Kathleen Hogan, Katrina Pielli, and Stacy Angel (EPA Climate Protection Partnerships Division).

Eastern Research Group, Inc., provided copyediting and production services.

1: Introduction

This report considers the perspective of consumers on policy and regulatory issues associated with administration of energy efficiency investments funded by ratepayers of electric and natural gas utilities. Although it may seem that energy end-use consumers are the obvious focus of regulatory energy efficiency efforts, individual consumers are rarely part of these discussions. In their place, associations or state consumer advocates represent diverse consumer perspectives in regulatory proceedings. Is there a risk that the consumer perspective is lost in an ongoing debate among insiders? What are the key points in the debate? And how can the debate be advanced so that consumers benefit from energy efficiency policies?

Utilities and their regulators are tasked and funded to manage these issues and implement statutes and programs. State consumer advocates are often seen as the defense against an insular regulatory process. However, staffing and funding of consumer advocate offices vary. Some state offices have sufficient staff and funds to fully evaluate proposals, engage parties, and present alternatives, while others do not. Consumer advocates are spread thin handling many activities. Energy efficiency program oversight tends to be detail-oriented and time-consuming. Significant changes in energy efficiency practices, underway in many states, can overwhelm consumer advocate staffs, especially those with thin consulting budgets and an inability to bill utilities for these transition costs. Innovations in energy efficiency oversight can appear never-ending and exhausting in the midst of other responsibilities.

Many other stakeholders are interested in energy efficiency issues. For most, only modest resources are available, yet their issues are just as numerous and complicated. How can these stakeholders participate effectively in decisions on issues that are most important to them, and how can the regulatory process reassure them that their interests are heard?

State legislatures are responsible for legislation that guides these activities and are directly accountable to consumers via the ballot box. When they are able to focus on energy efficiency, elected officials can appropriately set priorities and balance competing concerns. But the scope of the duties of state legislatures, even the relevant committees, is broad. In most states, state legislatures count on the administrative agency, the utility regulator, to keep order, make progress, and prevent (or correct) failures.

Thus, it is useful to examine the design, practice and regulation of energy efficiency to consider whether there are opportunities to better serve end-use customers on the way to achieving the goal of the National Action Plan on Energy Efficiency: all cost-effective energy efficiency by 2025 (National Action Plan for Energy Efficiency, 2008a). To accomplish this goal, this report:

- Clarifies terminology.
- Identifies and explains consumer perspectives associated with a range of strategies and institutional models for delivering energy efficiency.
- Identifies policy options that may address such concerns.

This report addresses the following questions as they relate to energy efficiency, many of which are also asked as they relate to other utility investment decisions:

-
- Why is energy efficiency important to utility consumers?
 - Who should pay and what are the best ways to collect these funds?
 - Which entities should deliver efficiency measures?
 - How should regulation be organized to ensure that energy efficiency investments are administered as effectively as possible?
 - What customer equity issues are involved and how can they be resolved?
 - What utility concerns are also in the public interest to address?
 - Should government take steps to encourage regulators, utilities, and consumers to be more supportive of energy efficiency than they might otherwise be?

As one might expect, the label “consumers”¹ covers many residential, business, and individual groups and interests. While these groups’ interests and goals may vary widely, all share common expectations: that regulation be competent and fair, that rates be just and reasonable, that utility service be safe and reliable, and that investments funded by consumers be prudent. By addressing the questions above from consumers’ perspectives, we can help ensure that energy efficiency decisions are informed by the knowledge that consumers are both the founders and beneficiaries of energy efficiency policy and design choices.

This is an important time to consider consumer concerns and communicate with customers about energy efficiency, as states are striving to acquire unprecedented levels of such cost-effective resources.² Further, recent studies show that consumers are increasingly interested in where their energy comes from and the environmental impact of their energy usage.

Notes

¹ “Consumer” and “customer” are used interchangeably in this report. The term “ratepayer” is used in a clearly regulatory context as a reminder that charges in rates will be paid by all users of utility service. Where appropriate, the report distinguishes among customer classes.

² For example, see the American Recovery and Reinvestment Act of 2009.

2: Barriers to Energy Efficiency

Energy efficiency is well-cited for its low cost compared with other energy system resources; lack of correlation to risks of fuel price rise and volatility, generation construction cost rise, and volatility; and ability to contribute to climate change mitigation, air quality, and renewable portfolio standard targets through reforms in the U.S. generation fleet (National Action Plan for Energy Efficiency, 2006; EPRI, 2009; Ehrhardt-Martinez and Laitner, 2008). This report does not review the benefits of energy efficiency investments, but addresses consumer issues with the regulation of energy efficiency investments.

A common and fundamental question in the discussion of energy efficiency programs is: “Don’t consumers already do what is energy-efficient for their homes or businesses?” Decades of experience now show that most customers do not deploy all cost-effective energy efficiency and that a large reservoir of potential savings remains (Golove and Eto, 1996; McKinsey & Company, 2009). Customer barriers to energy efficiency investment can include:

- **Lack of awareness.** For many good reasons (family, work, play, life pressures), people are not thinking about energy efficiency, about how their buildings work, and about the money they might save if they paid attention to energy consumption. Designers and builders may be unaware of a latent demand for energy efficiency performance. Stores and wholesalers may be unaware of an untapped interest in energy-efficient products.
- **Lack of information.** Those aware of energy efficiency and its potential may lack information: what to do next, what to look for at the store and how to compare products, whom to call for advice, where in their buildings to look for signs of cost-effective efficiency improvements, and what ancillary benefits to water consumption, productivity, etc., might be possible. Designers and builders may be unskilled at selling energy efficiency to clients, or perhaps they would like to sell energy-efficient products but these products are not available from their usual suppliers or are beyond their training to install properly.
- **Lack of responsibility** (often known as the split incentive or principal-agent barrier). Many who make decisions about designing, erecting, and operating a building are not responsible for making energy efficiency a priority. Designers and builders may be concerned about first cost, seeking to ensure a smooth sale. Building operators assume control after fundamental energy choices are made. Tenants may not be allowed to make energy efficiency improvements, or they may lack motivation because they do not pay a separate utility bill or they are not committed to the space for a long enough time. Employees may not take the initiative to make improvements within their control. Owners may see the space as a pure commodity in competition with other spaces; they may not see investments in energy efficiency as producing an advantage in the market, or they may not value ancillary comfort, productivity, and other benefits to tenants from energy efficiency-related improvements.
- **Lack of ready cash.** The first cost of energy efficiency investments is sometimes greater than less efficient substitutes. Customers may need financial incentives to make up some or all of this difference.

- **Lack of long-term cash flow.** Even if the incremental cost of the energy-efficient choice is covered, some customers operate in such a state of financial uncertainty or certain poverty that they need additional help to address the entire purchase cost. A piece of inefficient equipment might be patched to operate for many more years. A customer might need attractive financing on top of a rebate (or a larger rebate) to make the replacement choice.
- **Lack of personal value to the consumer.** Customers have choices about how to use their limited funds. If their best uses for capital are not energy efficiency investments or if market pressures (e.g., dollars per square foot) are intense and commodity-oriented, then cost-effective measures are left undone. Some customers have a threshold payback period of 2 years or less, yet many measures that would be cost-effective for the utility system would pay back over a longer period.¹ A customer may think all cost-effective measures are implemented, while the utility or ratepayers generally can think otherwise—they are measuring cost-effectiveness differently.
- **Lack of transparency and control about utility system costs.** For energy efficiency investments funded by utility consumers to be of direct value to the system, they must be cost-effective. There are different perspectives for measuring cost-effectiveness, which the Action Plan has thoroughly reviewed in a 2008 report (National Action Plan for Energy Efficiency, 2008a).² Similarly, individuals may evaluate cost-effectiveness differently. The customer may want a 2- or 3-year payback, but be unaware of and unconcerned with the costs of the utility's supply-side resource alternatives if energy efficiency investments are not made. Longer paybacks may be more appropriate if energy efficiency is considered a utility system resource; in this situation, the benefits of energy efficiency can be shared with the consumer.

Utility rate designs can also hamper customer energy efficiency decisions. While utility costs in the short and long run vary based on the time of day and year, flat rates are widespread and provide no information to customers on the system cost of consumption or the system value of efficiency. Effective rate designs can both reflect system value and provide customers with a tangible monetary benefit for conserving or engaging in energy efficiency.

Options for Addressing Customer Barriers to Energy Efficiency

Energy efficiency programs diminish or remove barriers to cost-effective energy efficiency, assisting customers with their decisions to make investments. Any barrier along the way to a decision might prevent a customer from adopting a cost-effective measure. There are many such barriers and many reasons why energy efficiency that might be valuable to the utility system and valuable to the customer might not be achieved. Regulation steps in to address these barriers.

There is significant experience in delivering well-designed energy efficiency programs to mitigate customer barriers to energy efficiency (National Action Plan for Energy Efficiency, 2006; York et al., 2008). These programs are helping customers save money and helping utilities avoid new investments in the energy system. Such well-designed programs have many elements and well-understood best practices (National Action Plan for Energy Efficiency, 2006, Chapter 6; Pacific Gas and Electric Company, n.d.). One important element that leads customers to participate and invest in more energy efficiency is getting their attention at the point when they are making a purchasing decision for equipment or buildings. These

opportunities impact energy consumption for years and represent a cost-effective strategy for saving energy.

A number of approaches are being employed to capture the benefits of energy efficiency programs. These approaches include:

- **Whole building programs.** One key program trend is to serve the whole building, as distinct from delivering a particular measure. There is value in maximizing the scope of measures per customer contact. This leads to an increasing emphasis on whole building programs, including coordination of programs from electric and gas utilities sharing customers and integrating end-uses served by unregulated fuels, such as propane.
- **Market transformation programs.** Another trend is market transformation programs, which encourage marketplace adoption of energy-saving technologies and services. Public information and marketing are key components of market transformation. The building industry and other stakeholders are important participants because they can ensure that energy efficiency products are supplied and stocked and can provide targeted training programs to retailers. Well-executed market transformation programs hasten the time when the energy-efficient choice is standard practice. ENERGY STAR® is an important tool in many market transformation programs.
- **Private sector partnerships.** Energy service companies (ESCOs) and retailers can sell energy efficiency services to customers and are effective when incorporated into energy efficiency delivery plans and programs. ESCOs can be allies in leveraging the effect of energy efficiency programs if programs are designed with standard offers that vendors can work into their own businesses.
- **Tax credits and financing.** States or the federal government may choose to use the tax code to promote certain kinds of energy-efficient products. Additionally, well-designed financing programs can maximize the use of funding from program participants, increasing the value of programs to utility consumers. Financing can be more successful if lessons from the last two decades are applied.

Energy efficiency programs provide consumers with other opportunities as well:

- Energy efficiency is an opportunity for consumers to control the amount of new energy supply that will be needed.
- In volatile economic times, energy efficiency gives all types of customers an important opportunity to manage and limit their energy costs.
- Many states have put policies in place to advance energy efficiency. Energy efficiency programs can influence millions of individual decisions on what to buy and how to change behavior. The impact of programs on decisions and behaviors can help meet these state policy goals.³

Consumer groups and consumers themselves can support a culture that promotes energy efficiency. Creating clear support for energy efficiency services means fewer missed opportunities to implement this cost-effective resource.

Notes

- ¹ This is sometimes expressed in terms of a discount rate. Discount rates are discussed further in the National Action Plan's *Understanding Cost-Effectiveness of Energy Efficiency Programs* (National Action Plan for Energy Efficiency, 2008b), pages 4-7 through 4-9.
- ² Appendix D of the Vision report (National Action Plan for Energy Efficiency, 2008a) includes information on how states use cost-effectiveness tests. Also see page 2-2 of the Vision report; some states allow for program costs to exceed benefits in limited instances where there is a compelling public interest, such as programs serving low income consumers.
- ³ In New England, the ISO, six New England states, and industry stakeholders have worked together to develop the Forward Capacity Market. Under this system, ISO New England can project the needs of the power sector 3 years in advance, and then hold an auction to purchase the resources—either demand- or supply-side resources—necessary to meet those needs. In the December 2008 auction, over 2,900 megawatts (MW) of demand-side resources “cleared.” This is 400 MW more than cleared in the first auction.

3: The Roots of Consumer Concerns

Some consumer concerns with the design, practice, and regulation of energy efficiency programs stem from long-standing perceptions of the energy regulatory system. Some of these processes and perspectives of key stakeholders are explored below, along with the key consumer issues.

Utility services touch nearly every citizen at home and at work. Consumers of these services want low utility rates, low bills, and other considerations. Yet the key issues affecting the quality of utility service, its price, and other important attributes remain mysterious for many customers.

While utility regulation is an open process and consumer interests are welcome, the price of admission is the ability to devote significant time and, sometimes, expert resources to effectively engage. This frequently leads to associations or state consumer advocates representing diverse consumer perspectives in regulatory proceedings. Further, consumer interests are sometimes grouped together for convenience, which is a practice that can blur important distinctions among different groups.

State consumer advocates across the country have a range of roles—some focus entirely on residential customer issues, while others look after the interests all customers. Some are fully independent, while others are attached to the public utilities commission (PUC), the attorney general, or the governor. They have staff and financial resources but are often stretched thin and must in some cases cope with funding and staffing limits that utilities do not face.

Other prominent stakeholders in regulatory matters tend to represent larger, generally industrial customers and low-income residential customers. These consumers tend to hold low rates in high regard for competitive or affordability reasons. Environmental groups tend to be focused more on environmental benefits from energy efficiency than costs. Other participants may include broad-based business groups like a chamber of commerce, individual customers (e.g., a large industrial customer or big-box retailer), and concerned citizens. In energy-efficiency-related cases, the state weatherization program representatives participate if the case involves funding or program coordination issues. For most of these groups, utility regulation is a sideline issue and one for which they would prefer to minimize time and expense.

The regulatory process is inherently adversarial. Utilities and advocates often come to a regulatory matter with differences in opinions and evidence supporting their distinct views. Regulation can also promote reasoned compromise and innovation. The reservoir of good will between the utility, consumer interests, and other stakeholders can be low if conflict becomes routine, but energy efficiency issues are more easily resolved in a collaborative climate. The question for consumers and other parties is whether they are inclined to establish and trust in alternative processes and behaviors to resolve energy efficiency issues in non-litigious ways. Some go further and ask about changes necessary to produce a more “service-oriented” utility, with energy efficiency among those services.

As with most utility issues, consumer advocates are driven by financial, equity, and environmental concerns related to energy efficiency. They want assurances that a large amount of money that would be spent on energy efficiency (hundreds of millions of dollars annually in larger states and growing):

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- Provides benefits to all customer classes.
 - Makes a difference.
 - Produces good (or better) results.
 - Is spent wisely.
 - Is spent fairly.
 - Is accounted for precisely.
 - Does not disrupt private sector markets.
 - Promotes better utility service.
 - Promotes broader public interests, such as support for lower income populations or key employers, if there is an explicit legal mandate to do so.
 - Allocates costs across customers in proportion to benefits received.
 - Is integrated into utility resource decisions.
 - Does not unduly benefit the utility.

Moving Forward

The impact of energy efficiency programs on the costs of energy, who pays for the energy efficiency programs, and who benefits are all important consumer issues to address as investment in energy efficiency increases. These issues are often described using the following key distinctions:

- **Rates vs. bills.** This refers to deciding whether to be most concerned about the effect of energy efficiency on charges consumers pay (rates) or on the utility's total cost of service (bills), factoring in the cost of programs and the reduced cost to the utility of supply-side resources and capital investments over time. The latter metric reflects the cost over the long term for utility service.
- **Participants vs. non-participants.** Direct benefits from programs accrue to program participants, while non-participants help pay for the programs but do not directly benefit. Non-participants must have confidence in the value of system benefits from energy efficiency to see value paying for energy efficiency programs. These system benefits are critical to ensuring that ratepayers in general are confident that they are receiving value from energy efficiency.

In the end, consumers may most appreciate government policy that supports investment in the most cost-effective utility resources, with coherent implementation plans that give clear signals to customers, utilities, and other stakeholders about how energy efficiency will be managed for the foreseeable future. Engaging in these processes can help stakeholders develop confidence that their objectives are being addressed, as can transparency in program planning and evaluation. In this way, expectations can be clear, business plans can be built, and regulators can develop experience in overseeing this work.

4: Program Selection, Design, Administration, and Delivery

Program selection, design, administration, and delivery define the business plans for selling energy efficiency to customers and encouraging customer investments. Customers have expressed a variety of views on the best ways to pursue low-cost energy savings, including the appropriate funding levels for energy efficiency programs and the types of programs that should be run. Below are some of these concerns accompanied by brief discussions.

- **The amount of consumer funding available for pursuit of energy efficiency programs should be limited to an affordable level.** The implication of this concern is that only the most cost-effective programs should be implemented, with possible modifications to address economic development, low-income, or inter-class equity issues.¹ It is important to discuss affordability in terms of affordability to whom and over what time frame. When energy efficiency is compared with utility supply-side alternatives that take at least as long to deliver their benefits and have significant associated risks, the meaning of affordability has a time dimension. This is discussed further in the next section.
- **Some research indicates that traditional energy efficiency programs (e.g., direct installation of measures, equipment rebates, point-of-sale promotions, energy audits and third-party service contracts, and trade ally programs) are more costly and less cost-effective than codes and standards, financing programs, and public education.** Successful program administrators are using all of these strategies and are supported by states that adopt and continually refine building energy codes and product standards. Building codes and appliance standards reach different types of customers from administered measures and programs, and they deal with different types of energy efficiency measures. Codes and standards identify a base level of efficiency, affect a small number of opportunities for energy efficiency, and do little to affect many of the opportunities in existing homes, buildings, and facilities. For example, building codes do not create a market for energy-efficient buildings that go beyond codes. Some programs addressing whole buildings are designed to achieve a 20 percent improvement in energy use within a building compared with the prevailing code. Cost-effective options that perform better than the standard are available for many buildings as well as products.

Energy efficiency financing programs are needed to overcome some of the financial and transactional barriers to customer energy efficiency investments. Successful financing mechanisms vary by type of customer, targeted investment, and local guidelines, and can include both loan and grant financing from public and private funding sources.² The key evaluation question for a financing program is not “What does it cost on its own?” but “Does it cost-effectively produce desired energy efficiency investments?”

The costs and benefits of customer and public education are hard to quantify, but it is commonly accepted that energy efficiency education is valuable and necessary. Public education is an important part of market transformation and can make codes, standards, and programs more effective. Programs that provide actions for consumers to take are important complements to address other barriers to energy efficiency. Nonetheless, the exact impacts of energy efficiency education programs can be difficult to measure.

- **Energy efficiency program delivery methods have evolved over the past decade to become more diverse, but the burden remains on the utilities.** Many legislatures and regulators place the burden of energy efficiency accomplishment on utilities, who in turn look for the most certain and stable methods to meet their energy efficiency requirements. As program delivery approaches evolve to improve energy efficiency savings while reducing costs, new approaches will be developed, including the following:
 - California programs include an allocation of the energy efficiency budget for communities that make program proposals to the utility administrators. These programs are intended to take advantage of specific circumstances in the community that local officials can use to enhance results (CPUC, 2008).
 - ESCOs and retailers can use standard offer rebate programs, for example, to add value for customers to services that they already provide—creating, in effect, a partnership with the program administrator.
 - Common utility-run programs offer consistent marketing messages and strategies to move markets. This suggests that a unified approach to program administration, including programs that support retailers and ESCOs, will lead to a customer experience that is more consistent and that can be better managed by regulators. Program administrators express concern that having multiple providers of programs and services in their territory can lead to conflict or confusion for customers and trade allies.
 - Innovation from other ESCOs and retailers can provide value to customers, create new technology and energy efficiency delivery approaches, and potentially provide greater overall savings.
- **Evaluation, measurement, and verification (EM&V) of energy efficiency programs has been inadequate or insufficiently independent, casting doubt on the benefits claimed and their cost efficiency.** A great deal of study has been applied to energy efficiency program EM&V at the state level. A 2007 Action Plan guide goes into great detail on this subject and the Action Plan's Vision for 2025 includes the establishment of robust, transparent EM&V procedures as part of its Goal Four (National Action Plan for Energy Efficiency, 2007b, 2008a).

The Action Plan Leadership Group is exploring new issues in EM&V that may arise as funding increases to meet aggressive energy savings goals and to reduce carbon emissions and as energy efficiency is applied to performance incentives. Recent efforts to value energy efficiency in wholesale electric capacity markets are adjusting EM&V approaches for inclusion in reliability efforts.

Reasonable, unbiased ways to calculate savings with confidence is an objective of regulators. There is speculation that advanced metering infrastructure and smart grid technologies can make a significant improvement in accuracy, enabling customer-specific baselines. Time will tell.

- **The utility system is not the best way to fund energy efficiency service.** Government can be helpful in promoting certain energy efficiency actions through the tax code. Sales tax exemptions and investment tax credits have been successful in promoting specific energy efficiency actions, though these tactics are enhanced when

there are programs to help consumers take full advantage and integrate them into an efficiency plan for the building or process. Ratepayer-funded programs factor in these incentives. The American Recovery and Reinvestment Act of 2009 will stimulate energy efficiency activity, but will not be the financial foundation for programs and services as this funding will expire after two years. Some federal proposals to reduce carbon emissions include funding for energy efficiency programs from carbon allowance sales or carbon tax revenues, which could provide longer-term funding.

Advocates of this view see energy efficiency as a public investment that should be funded by government and, ultimately, taxpayers. To date, state government has shown limited willingness to fund energy efficiency in this way. Only a few states supplement low-income weatherization with government revenue and even in those cases, it is typically not funded with general revenues. The value of energy efficiency as a system resource benefitting all utility ratepayers further justifies funding energy efficiency through utility rates.

- **The utility is not the right administrator or deliverer of energy efficiency programs.** Advocates of this view maintain that an independent third-party administrator, customers themselves, or ESCOs would more cost-efficiently administer, or at least deliver, energy efficiency programs. It is also held that removing program administration and delivery from utilities mitigates the throughput incentive, discussed later in this report. (The issue of utility administration is discussed in detail by Blumstein et al. [2003] and Harrington and Murray [2003].) In considering this issue, it is important to distinguish between administration and delivery.

Administration is about who is accountable to the regulators and utility consumers for use of ratepayer funds and for energy efficiency performance. Most states have determined that the utility should administer energy efficiency programs. Other states have divided the administrative responsibility between government and the utility—a duopoly.³ To date, states have not favored decentralized, competitive administration.

Delivery is about who actually implements programs and who actually touches customers and trade allies. Some administrators do much of the delivery with internal staff, while others use contractors. This choice is subject to oversight by the regulator, who can evaluate whether outsourcing choices make sense and whether contractors are selected fairly.

The choice of a utility as program administrator is generally made with limited information on alternatives, allowing utilities to assert their preference over who controls the programs. Many presume that the utility is the best administrator of energy efficiency programs, for reasons including the utility's familiarity with its customers, its ongoing need to maintain a good relationship with them, the potential to integrate energy efficiency savings into utility system planning, the utility's desire to control energy efficiency programs, and political support for utility administration. Others presume that structural barriers preclude the utility from being the best choice. Experience with utility administration, political calculation, and preferences of the decision-makers at critical times have all been key for states deciding on administration of energy efficiency programs.⁴

Some customers have relationships with ESCOs and want to maintain those relationships. States and program administrators can facilitate ESCO relationships using

“standard offers” for rebates and services to enhance ESCO offers and avoid interfering. While accommodating ESCOs is useful, they tend to serve a minority of customers, notably government and institutional customers with significant size and often a tolerance for longer payback periods. In addition, the performance contract model tends to focus on measures with large savings, leaving some promising measures aside.

Options for Addressing Concerns About Program Selection, Design, Administration, and Delivery

- States and regulators can address the above topics effectively by using a collaborative stakeholder process to evaluate and structure energy efficiency policies, program designs, approaches, and budgets.
- Periodic studies of energy efficiency potential, costs, and benefits are useful in a number of capacities:
 - To determine the expected savings that codes and standards can deliver to the utility system, identify opportunities for program administrators to participate in the building code process, illuminate how programs can best build on this foundation, and evaluate whether codes and standards are delivering verified savings.
 - To evaluate the use of market transformation programs to complement traditional savings programs. Best practices should be developed for assessing market transformation programs as resource options for meeting short- and long-term energy needs.
 - To help regulators and customers find a comfortable level of energy efficiency and energy efficiency funding based on their state circumstances, including the implications of a directive to acquire “all cost-effective” energy efficiency.
- In setting targets for administrators, perhaps connected to financial rewards, savings produced by ESCOs, retailers, and communities could be counted. In this system, the administrator would have an incentive to support the best ways to achieve savings, including supporting the activities of others in their territories if those activities are most effective. This option may prompt opposition from some who would want incentives to apply only to savings directly applicable to the programs of the administrator.
- Periodically, regulators can reconsider who should administer and deliver energy efficiency in a given utility territory or for the entire state. Doing so gives prospective third-party administrators and stakeholders the opportunity to provide evidence to regulators that a non-utility administrator would offer a better value to ratepayers, while the performance of the incumbent can be assessed. To maintain program stability, the reconsideration should not occur often (every 3 to 10 years).⁵ Consideration should not wait until the deadline, but should occur at least 3 years earlier to allow sufficient time for any transition. If there is a greater reliance on third parties (ESCos, communities, or retailers) to deliver energy efficiency, this proceeding is a good opportunity to consider whether to give the utility an incentive to better support third-party energy efficiency efforts.

Notes

- ¹ “Affordability” is a term used often in utility regulation, yet it is vague as an objective for utility service.
- ² There are many successful financing mechanisms (e.g., the Oregon State Energy Loan Program, described at <<http://www.oregon.gov/ENERGY/LOANS/sephm.shtml>>). Each mechanism has its own considerations. For example, on-bill utility financing can help a consumer manage the loan, but regulators must consider whether they will allow the consumer’s utility service to be disconnected for non-payment of the loan. This can be a powerful deterrent to the customer taking the loan.
- ³ For example, Illinois has assigned its energy office to administer a certain percentage of the energy efficiency portfolio, with the utilities responsible for the rest. New York has also divided administration between the New York State Energy, Research and Development Authority and the utilities, applying a more competitive approach to determining the split.
- ⁴ For a thoughtful assessment of utility administration experience leading to a choice to use a third party, see Vermont Public Service Board docket 5980 phase 1 Order of January 19, 1999, at 9-16. <<http://www.state.vt.us/psb/orders/1999/files/5980Phase1fnl.PDF>>.
- ⁵ Cable television franchises in many areas have a fixed duration of greater than 10 years, and the franchising authority can replace the franchisee.

5: Budget Levels and Cost Recovery Mechanisms for Ratepayer-Funded Energy Efficiency

Utility regulation operates to ensure that utility expenses paid by consumers are useful or necessary to meet service requirements and that these costs are just and reasonable. Regulation also resolves how to collect these costs in rates, allocate costs among distinct classes of customers, and address what happens if a utility executes its responsibilities imprudently. When a monopoly provides utility services and the customers are required to pay the costs, customers want regulation that is effective. The general responsibilities of regulators apply to energy efficiency services and costs just as they apply to other utility services funded by ratepayer dollars.

Below are common concerns raised by customers and consumer advocates about budgets and cost recovery mechanisms for energy efficiency, along with a brief discussion of each concern:

- **Total energy efficiency program budgets are set too high, causing unacceptable rate and bill impacts for non-participants. Also, system benefits of energy efficiency are overstated and unreliable because they are based on inherently unpredictable customers and imprecise measurements.**

Regulation balances competing interests and concerns. Experience indicates that states interested in energy efficiency attempt to strike an affordable balance point, giving due consideration to the cost of alternatives, as previously discussed.

Energy efficiency program designs and evaluation practices have been developed and proven over decades, and the benefits of energy efficiency are well-established. Recent analysis suggests that energy efficiency is more likely under-funded than over-funded (McKinsey & Company, 2009).

The benefits of energy efficiency for program participants are immediate. For non-participants, there are system benefits that accumulate over time. They come from reduced costs from avoided system investment costs in generation, transmission, and distribution assets, reduced energy market prices owing to lower demand levels,¹ and improved reliability owing to smaller growth-driven changes in the power system from year to year.² These benefits, which are reflected in the benefit/cost screening practices common to all energy efficiency programs, take time to accumulate and their rate of accumulation depends on the actual costs avoided by energy efficiency.

A related issue is whether approved energy efficiency program costs should be expensed or capitalized. This issue applies where utilities are administering programs, as states and third-party administrators tend to expense all costs. Deciding to expense or capitalize is important because cost recovery treatment is part of the incentive for utilities to support energy efficiency. To the accountant, energy efficiency costs appear to be expenses. There is no utility asset. The full cost hits customers right away while savings accrue over the lives of the measures. To the utility resource planner, however, energy efficiency is an investment alternative to more expensive capital investments. Over time, power generation, transmission, and distribution assets are avoided if a utility can count on energy efficiency. Energy efficiency costs can be treated like owned generation and wires and can be amortized and collected in closer synchronization with

savings, diminishing their near-term effect on rates (though costing a bit more in the long run). Despite this lower cost in the long run, consumer interests may prefer the expense approach because it costs less in the long run, or the latter because it more gently phases in the modest rate effects of energy efficiency and because it is more consistent with integrated resource planning practices. State commissions ultimately resolve this choice.

In response to concerns about possible overstatement of system benefits, it is true that an individual customer's savings could diverge significantly from expected average levels, although customized measures for industrial customers are more likely to perform as expected. Fortunately, in a population of customers installing similar measures, data are much better and performance is more reliable (National Action Plan for Energy Efficiency, 2007b; FERC, 2007).

- **EM&V is inconsistent.**

States have varying degrees of EM&V requirements and processes, without consistent definitions and methodologies for calculating energy savings. Regulators rely on sound program design EM&V. For both, there is a large body of experience in many states. Increased attention to energy efficiency as a utility system resource has led to new efforts to refine program designs to (1) better characterize when savings are likely to occur throughout the year compared with high cost periods and (2) refine EM&V to promote more consistency in wholesale market regions and to make it a reliable resource in system reliability studies.

- **Building energy codes and appliance and equipment standards should be the minimum standard for energy efficiency programs and measures. Ratepayer funds should only go to efficiency levels exceeding codes and standards.**

In many states, energy efficiency programs for new construction are designed to support performance that exceeds building energy codes and state appliance and equipment energy standards, and this practice can ensure that funds are contributing to energy efficiency that would not happen anyway.

For reasons such as absent code enforcement or inconsistent standards in adjacent states, there are instances where codes and standards do not represent standard practice.³ Program administrators and regulators should consider evidence of standard practices in the utility service area and state, and apply judgment to find the most effective way to factor codes and standards into programs. For example, energy efficiency programs can highlight a deficiency in standard building practices as compared with the prevailing building energy code and can eliminate that gap quickly. In cases where a state has an appliance standard and an adjacent state does not, it is important to factor into program design real customer choices—e.g., buying a less-efficient appliance in the neighboring state.

- **Consumers who know more about energy efficiency will do more, so we should emphasize market-transforming public education campaigns.**

Market transformation is necessary and critical, but consumer education alone cannot capture all available energy efficiency. Broad-based and targeted education, branding efficiency, supply chain transformation, and other measures are needed for effective

market transformation. Experience indicates, however, that they are not sufficient by themselves. While direct financial incentives to customers to induce an energy-efficient choice may seem unfair, incentive programs are designed to ensure that all customers get fair value in return in the form of avoided energy and capital costs from acquiring that energy efficiency resource. As markets transform, program managers should reduce and ultimately eliminate incentives; experience bears this out. Technology provides a continuing stream of new ways to save energy, so as markets for some measures transform, new and more efficient substitutes come along that are candidates for new market transformation efforts.

- **Electric rates should be reformed to deliver the conservation message to consumers. More should be charged during hours when production costs are high or during hours of peak demand.**

Some consumers argue that “efficient pricing” modifies demand and avoids the need for expensive generation, thus producing long-term consumer benefits. Such pricing reinforces the message that energy savings are always valuable, but are worth more at some times than at others. The use of dynamic rates is necessary but not sufficient to motivate energy-efficient behavior.

Modifying electric rates is challenging in many states. Customer expectations are substantial. While the energy services industry can develop products to help customers adjust to dynamic rates, many advocates resist them out of concern for bill impacts on customers unable to consume less during high-cost hours and urge that steps be taken to protect vulnerable customers. Some consumer groups welcome customer incentive payments for utility control of loads like water heating, but believe customer control of usage during high-cost hours is unrealistic without automated equipment—such as programmable communicating thermostats—and significant customer education.

Some suggest that dynamic rates or time-of-use rates should be mandatory, perhaps allowing customers to opt in or out. Most types of time-varying pricing require advanced metering and communications systems generally considered part of the smart grid. This equipment brings other potential value to the customer and the utility, including potentially supporting EM&V for energy efficiency programs with considerable cost. Deeper consideration of smart grid technologies is beyond the scope of this report.

Customer education will be essential to explain these changes and how customers can make good choices. Utilities, consumer advocates, and regulators should join forces to craft consistent messages that can educate customers about their options.

- **Adjusting utility rates for lost sales and allowing utility performance incentives for energy efficiency adds unnecessary and undue costs to utility bills.**

Utility incentive plans can be difficult to design; a poor incentive plan or a poor rate adjustment plan that further confuses utility business incentives and customers, and extracts money from customers for little or no value, is worse than nothing. Some consumers express doubt that any such plan can be successful and also express concern about adjusting rates outside the comprehensiveness of a rate case.

A cost should be factored into utility rates only if it delivers value to utility customers. Do utility incentives and rate adjustments meet that test? Sound regulation encourages

utility management to place energy efficiency high among its priorities. Fear of penalties is one approach regulation can take to motivate utilities. A different approach favored by some consumers is to promote engagement and innovation by management to find the best ways to manage and support the energy efficiency responsibility.

Adjusting utility rates for lost sales is one way to encourage energy efficiency. Utility fixed costs are reviewed in each rate case and rates are set to recover them. Any properly designed rate adjustment for lost sales should do no more than ensure that the utility recovers those fixed costs found to be just and reasonable in the rate case, and then only if the utility did not act imprudently. Incentives for performance should present a value proposition to customers—they will be better off with more energy efficiency savings due to the incentives. The next section of this report addresses incentives directly.

- **Even if regulators provide lost revenues and performance incentives, utilities will not fully embrace energy efficiency because of the reduced opportunity to build generation and transmission and earn returns on these investments. Further, regulators will be tempted to increase incentives in order to overcome this incentive to build.**

Does energy efficiency compete with utility capital expenses? Generation and transmission investments bring risks as well as prospective returns. While utilities may be suspected of making it a priority to build their asset base in order to increase earnings to shareholders, it can be slow, financially challenging, and risky to build new transmission and generation. To the extent that they compete, energy efficiency investments should compete based on a complete assessment of risk-adjusted costs and benefits. Further, regulators can adopt policies (typically incentives or penalties) that guide utility behavior and priorities.

A state may choose to address this issue instead by assigning administrative responsibility for energy efficiency to a non-utility party. Competitive selection of a third-party administrator can bring experience and expertise while minimizing the financial incentives needed to encourage effective or even exemplary energy efficiency services.⁴

- **Decoupling, one approach to addressing lost revenue, significantly reduces regulators' power and discretion in rate setting and consumers' opportunities to participate in oversight, as well as their ability to influence the establishment of rates.**

Some consumers view decoupling as a material and permanent loss to consumers primarily due to the assurance to utilities of revenue recovery and due to the lack of comprehensive review of costs and revenues in advance of a rate change.

Experience indicates that decoupling can be accomplished well or poorly. Decoupling design can and should factor in the public interest in its terms and conditions. It should be accompanied by an effort to inform customers and others about the nature of rate changes and how reducing utilities' motivation to sell more product (energy) is consistent with supporting energy efficiency and other public interests. In states with purchased power and fuel adjustment clauses, which adjust rates regularly by significant amounts, consumers are already used to much more significant rate changes than decoupling is likely to produce. The key point of decoupling, as illustrated by fuel adjustment clauses,

is that reducing utilities' motivation to sell more therms and kilowatt-hours supports energy efficiency and other public interests.

- **Customer groups have diverse opinions on the best ways to recover costs for energy efficiency programs.**

Some want to see the costs embedded in rates because they view energy efficiency as a cost of utility service and believe a stand-alone charge on the bill will not incent customers to make their own investments in efficiency. Others want to see energy efficiency as a separate charge on the bill, either to highlight its importance or to accent its status as an add-on to traditional utility service. This choice is typically not made in isolation, but rather in the broader context of utility bill clarity and transparency.

- **Customer groups have diverse opinions on whether energy efficiency costs in rates should be adjustable outside a rate case.**

Some oppose this concept because regulation generally frowns on "single issue ratemaking," the practice of adjusting rates because a single cost item changes. They point out that a utility files a rate case periodically because nearly everything in its cost structure changes, so it would be misleading and potentially unfair to customers to adjust rates to account for just one element of utility costs when costs in another area may have changed as well.

Energy efficiency programs and needs often change faster than most utility tasks. Other customers favor adjusting the amount of energy efficiency costs in rates using a regulatory device called a rider. An energy efficiency rate rider is an additional charge above the approved base rates for utility service. It can be changed with fewer administrative requirements and less time than base rates, accommodating the changing nature of energy efficiency.

Options for Addressing Concerns About Budgets and Cost Recovery for Energy Efficiency

- While several states allow energy efficiency budgets to pay for all cost-effective energy efficiency (as defined in that state), most states balance an interest in acquiring all cost-effective energy efficiency with a concern for rate affordability. Aggressive new energy efficiency resource standards in some states will push energy efficiency programs and rates higher, but compared with new supply-side investments, they will likely be lower than may have otherwise been the case. If they have authority to do so, regulators can reconsider from time to time whether it is appropriate to expense energy efficiency costs or capitalize them to reduce short-term rate impacts.
- To ensure that the system is transparent and fair, regulators can develop a routine for recovery of energy efficiency costs that consumers can learn and count on. This routine would also provide stable funding for the program administrator. The process should ensure that actual program costs recovered in rates are just and reasonable. Iowa has operated in this manner for many years; the state's approach includes a rider that allows for modest changes, up and down, in overall funding from year to year.

-
- Deferred costs can increase rates significantly if they have accumulated for too long. Regulation can prevent the buildup of deferred costs if decoupling and a tariff rider for energy efficiency are implemented effectively. An alternative approach is frequent rate cases. However, rate cases typically are lengthy, costly, and administratively burdensome, so most parties want to avoid the prospect of more frequent rate litigation.
 - Energy efficiency plans can be implemented for multiple years (3 to 5) so that the rate effects of energy efficiency can be forecasted effectively. This allows regulators and program administrators to ensure better program continuity and consistency, which helps customers.
 - In states with multiple utilities, careful, coordinated scheduling of utility filings can ensure an adequate review of the reasonableness of actual program costs, allow adequate time for ex post regulatory oversight and confirmation by EM&V, and minimize regulatory burdens.
 - Not all energy efficiency should be delivered under ratepayer-funded programs. Policy-makers should look at how and when to use building energy codes, appliance equipment standards, and similar measures to complement and enhance regulated energy efficiency programs.

Notes

¹ For discussion on energy efficiency and market clearing prices, see two reports by the American Council for an Energy-Efficient Economy (ACEEE) (Elliott et al., 2003a and 2003b).

² For example, ISO-NE promotes energy efficiency as a reliability resource in its Take Charge New England campaign; see <http://iso-ne.com/nwsiss/take_charge/news_events/2007/index.html>.

³ For example, Kansas has adopted a commercial building code based on a 2006 International Energy Conservation Code standard, but the adopting statute does not require an enforcement mechanism, according to the Building Codes Assistance Project.

⁴ Vermont, Oregon, and Hawaii have chosen to use third-party administrators. Vermont and Hawaii have used competitive solicitations to choose the third-party administrator.

6: Mechanisms to Reduce the Throughput Incentive

The mechanisms by which utilities recover costs and earn returns can have a strong effect on investor-owned utilities' willingness to invest in energy efficiency. The predominant approach to rate design in most U.S. states is to recover fixed and variable costs and allowed margins on a volumetric basis, based on estimates of kilowatt-hour (kWh) sales. If kWh sales fall short of estimates, utilities' fixed cost recovery and shareholder returns can be reduced substantially. This limits many companies' willingness to invest substantial amounts in energy efficiency (see National Action Plan for Energy Efficiency, 2007a, for more information). As discussed previously in this report, creating a third-party or non-utility administrator is one way to address this issue, as is filing more frequent rate cases to make adjustments to rates if sales dip below expectations. But the most broadly explored mechanisms to address the utility throughput incentive are alternative rate designs and/or decoupling. The following are additional concerns and suggestions from consumer interests in response to the presence of the utility throughput incentive:

- **Increase the monthly fixed customer charge.** In addition to dynamic rates, increasing the monthly fixed customer charge will recover more of the utilities' fixed costs and make the utility less dependent on increased sales. In most cases, this per-customer charge does not recover all of the utility's fixed costs. Some customers suggest raising this charge to recover all of the utility's fixed costs, asserting that this will make the utility indifferent to sales. This form of rate design is known as a straight fixed variable rate (also discussed in National Action Plan for Energy Efficiency, 2006, 2007a). The limitation to straight fixed variable rate design is that it dampens the impact of increased consumption on the customer's energy bill, thereby reducing the incentive to consume less energy.
- **Implement decoupling.** Decoupling has proponents and detractors. Proponents see decoupling changing the way the utility makes money and cutting ties between profits and sales. Decoupling can be paired with performance standards that include rewards for superior performance in areas of value to consumers, such as customer service and distribution system reliability in terms of number and duration of service interruptions. Decoupling generally reduces risk to the utility by increasing the likelihood that costs previously found to be just and reasonable in a rate case are actually recovered, benefitting both the utility and consumers if done properly (Braithwait and Hansen, 2005).¹ Consumers may accept reasonable and explainable ups and downs in rates in exchange for a utility motivated to support energy efficiency and other sensible reductions in sales, and most are conditioned to at least annual rate changes between rate cases due to purchased power and fuel adjustment clauses. Experience with decoupling in the United States is growing, and safeguards against rate volatility due to abnormal economic or weather events can be put in place. Moreover, with more certainty regarding revenues, the benefit to consumers can be a lower rate of return. Further, decoupling can also remove the barriers or impediments to distributed generation.

Opponents may object to decoupling as single-issue ratemaking, an exception to traditional ratemaking that they cannot justify, especially as it does not provide an incentive for energy efficiency. They are concerned that decoupling is complex, or at least so different from traditional ratemaking that there are too many opportunities for the

utilities to build in unfair advantages or to insulate themselves from the consequences of poor management. They are concerned that overall risk will be not reduced, but rather shifted away from the utility, which will more likely recover its costs, to the customer, who will endure more rate volatility and potentially unexplained rate changes. Opponents are concerned that each rate change will require a burdensome regulatory process. Further, if decoupling is allowed, some consumers believe that sales adjustments attributable only to energy efficiency programs should prompt a rate adjustment. Ultimately, they would prefer to retain traditional regulation.

Options for Addressing Concerns About the Throughput Incentive

- States can evaluate proposed solutions to the throughput incentive relative to traditional ratemaking under a range of scenarios by simulating the rate and bill impacts of each approach.
- If decoupling is used, there are several ways this mechanism can be implemented to protect consumer interests:
 - The mechanism can be applied only to the portion of rates designed to recover the energy delivery revenue requirement.
 - Rate adjustments, which can be down as well as up, can be capped to reduce rate volatility.
 - The rate adjustment process can be simplified to avoid the need for a proceeding, while the basis of the adjustment can be subject to ex post analysis and correction if necessary.
 - The decoupling plan can be considered in conjunction with a rate case.
 - The decoupling plan can be evaluated for its effect on utility risk, and this effect can be factored into rates.
 - The decoupling plan can include opportunities for consumers to share the benefits if utility profits exceed the expected return on equity, and the absolute return on equity can be capped with shared or excess profits returned to consumers in a subsequent rate adjustment.
 - The decoupling plan can include explicit performance indicators of importance to consumers, and the plan can provide financial rewards to the utility only for superior or exemplary performance while also providing penalties for poor performance.
 - The decoupling plan can include a requirement that energy efficiency programs are increased in savings, spending, and scope over time.
 - The decoupling plan can be developed with input from or collaboration with consumers, potentially allowing consumer concerns to be better represented under decoupling than they would otherwise be in traditional regulation.

Notes

- ¹ This topic is also discussed in some regulatory orders addressing decoupling.

7: Utility Shareholder Incentives and Other Business Issues

Which is better for consumers: a utility sector that relies on the power of regulation to get public interest results, or a utility sector that is designed with incentives that will tend to produce public interest results, including more cost-effective energy efficiency? This choice is playing out in discussions about performance incentives for energy.

Some consumers object to utilities earning a shareholder incentive for energy efficiency program performance because they see delivering all cost-effective energy efficiency as part of the utility's obligation to serve, and specifically part of providing least cost utility service. Under this assumption, shareholder incentives for energy efficiency appear to be over-payment to the utility. Lacking convincing evidence that incentives unlock more energy efficiency, some consumers believe strong regulation or strong state statutes (or a third-party administrator) can bring about a higher level of energy efficiency programs from utilities than mere incentives.

Others want to be sure incentives are only available for exemplary performance, and not as a de facto substitute for earnings from avoided power generation or transmission or added compensation for routine accomplishment. Some consumers in states with energy efficiency resource standards will only consider performance incentives for savings that exceed the standards. Performance indicators can be used to promote specific objectives (for example, ENERGY STAR appliance penetration and low-income program participation) and to ensure results in important or potentially overlooked categories. In states that choose to treat energy efficiency as a high-priority or preferred resource relative to others, enhanced incentives may be needed to focus utilities away from traditional supply-side resources. Some argue that if energy efficiency is so compelling, utilities should be delivering it as part of their mission. However, experience has shown that high levels of energy efficiency investment do not occur without effective incentives.

Some consumer interests challenge whether there is a reasonable and objective way to set shareholder incentives that are sufficient for their purpose but not excessive. They also worry that regulators will be more generous than they need to be to change utility behavior. A corollary to this concern is that an upper limit on shareholder incentives should be set at the amount a third-party program administrator would require to achieve the same level of performance.¹

Some consumers are worried that the system of shareholder incentives is based on a system of EM&V that is insufficient for this purpose. This concern addresses data quality issues, the quality of EM&V best-practices, and whether the evaluator is independent and objective.²

Options for Addressing Concerns About Performance Incentives for Energy Efficiency

- Regular attention to the EM&V process and assurance that EM&V results are credible and not unduly influenced by the program administrator will maximize confidence that incentives are based on real savings. Independent EM&V administration is a clear way to accomplish this outcome.

-
- Incentives can be contingent on periodic rate cases to ensure that the effects of the incentives on the company are as expected and that there are no unexpected downsides throughout the enterprise.
 - Incentives can focus on overall energy and capacity savings, or they can also be earned for success in specific program areas. In 2003, Rhode Island reformed its energy efficiency incentive structure to reward superior program performance for specific programs in each customer class in order to ensure attention to the full array of programs and customers (RIPUC, 2003).
 - The incentive system can include a penalty structure for underperformance relative to targets.

Notes

- ¹ Efficiency Vermont, the third-party administrator for energy efficiency in Vermont, is eligible for a performance incentive of roughly 3 percent of total program costs conditioned on achieving an array of performance indicators. These are negotiated into its contract with the state regulator. Efficiency Vermont uses these funds for employee bonuses and for pro bono work on energy efficiency (personal communication with Blair Hamilton). Energy Trust of Oregon, the third-party administrator for energy efficiency in Oregon, does not receive performance incentives. Note that these two examples happen to be nonprofit organizations; it is unclear what a for-profit entity in these roles would require.
- ² See additional discussion on customer perspectives on EM&V in Chapter 5.

8: Which Customers Pay What Amounts for Energy Efficiency?

As discussed earlier, consumers have important common interests, but they are not homogeneous in their views. There are often equity concerns among customer classes when discussing energy efficiency.

The electric and gas utility networks are more valuable to all because everyone is connected. Because so many customers on the network have differing cost and use profiles, regulators must allocate the utility's costs across these customers in ways that make sense and are not unjustly discriminatory.¹ Regulation represents layers of decisions to treat disparate customers the same in most situations, while also applying cost causation principles to distinguish prices charged to some customers where appropriate. Because energy efficiency services are more disparately distributed among utility customers than regular gas or electric service, cost allocation for energy efficiency programs raises issues and opinions:

- **Program costs should be allocated to the classes of customers receiving program services.** Under this regime, residential customers would pay for residential programs and so on for the other customer classes. This has been implemented in many states.²
- **Energy efficiency programs redistribute wealth among ratepayers.** All ratepayers pay for programs and the program administrator gives the funds only to ratepayers who participate in programs. Consumers who look at traditional funding this way would prefer a system in which participants pay for all energy efficiency services they receive and programs are limited to information and perhaps technical support. This perspective is sometimes summarized as a “no losers test” for program administration. It tends to overlook or dismiss the system benefits from energy efficiency that support all consumers.

Other consumers observe that customer barriers to energy efficiency would not be addressed effectively with this funding structure and thus the resulting limited energy efficiency programs would deliver few system benefits.

- **Energy efficiency programs are less available to members of a particular customer class.** This may be because programs for the class are less cost-effective than programs for other customer classes. Or it may be because some customer classes are not as well-represented as other groups in the regulatory arena and cannot sufficiently advocate for their specific energy efficiency interests. Customers raising this concern maintain that if they are paying for programs, they should at least have a reasonable opportunity to benefit. They might also be concerned that if programs targeted to their class are not working as well as others, their programs might be terminated with resources redeployed to support more successful programs serving other classes, rather than trying to fix the problem programs.
- **Consumers with their own energy efficiency investment plans should not also have to contribute for system-wide energy efficiency.** Some in this group are interested in taking the money they would have paid in rates to support system-wide energy efficiency and commit to making a plan to “self-direct” those funds for their own energy efficiency projects. This could be done on an individual basis or a customer class

basis. Regulators could decide if participating customers would still have to provide a portion of their share for system efficiency or if all is dedicated for the individual customer's use. This method would require decisions on qualification criteria and requirements for application, program evaluation, and reporting. Regulators could also decide how to deal with lost net utility revenues from reduced sales resulting from self-directed programs as compared with reduced sales from utility-administered programs. Self-directed energy efficiency programs are allowed in several states.

Other consumers assert that energy efficiency is a utility service and, as with other utility services, all should pay their share for system-wide programs. On a different point, others suggest it is likely that most customers, even those in highly competitive businesses, will accomplish more energy efficiency by participating in programs than by self-directing for two reasons. First, the payback criterion for the customer likely will be higher (demanding a quicker payback) than that used to screen utility programs, limiting the actions the customer will undertake on their own. Second, cross-cutting innovation and new perspectives from an outside program administrator can increase potential savings.

- **Program costs spent today will produce benefits years into the future, creating an inter-temporal cost allocation problem.** Others observe that this is really a transitional problem, and that when program budgets reach a roughly steady-state level and after initial measure lives are reaching their ends, benefits and costs will match up over time. However, this cross-temporal cost and benefit mismatch also occurs for transmission and generation, where investments today bring benefits for decades. It is a common regulatory challenge.
- **Decoupling applied to industrial customers' rates can produce more volatile rate changes due to the ups and downs of their businesses.** Industrial customers therefore suggest they be excluded from a decoupling mechanism.

Options for Addressing Equity Concerns

Traditional regulation provides many of the protections needed to ensure inter-class equity, including cost allocation methods. Other protections include the following:

- Regulators and stakeholders can consider if it is important to flow system benefits from energy efficiency back to customers in a way that matches the program savings from each class. An important consideration is whether such additional precision is worth the effort, particularly because there is no effort to allocate system benefits from other supply-side resources, such as new generation.
- Regulators and program administrators can ensure that each customer class is offered an appropriate, effective set of energy efficiency programs and/or services.
- Periodic rate design investigations can incorporate questions about cost and benefit allocation for energy efficiency and make changes as necessary.
- Regulators can allow customers meeting certain criteria to avoid paying for energy efficiency in their utility rates. Regulators would have to decide whether to require significant self-directed performance by qualifying customers, or to allow a broad

category of customers out of the system. Typically, customers not contributing to the energy efficiency system would not be eligible for services.

- Decoupling plans and associated periodic rate adjustments can apply only to residential and small commercial classes, while allowing industrial customers to be regulated in the traditional way, as is done in Idaho, for example.

Notes

- ¹ “Higher cost” customers in rural locations or dense urban areas are not usually charged higher monthly rates for utility service, because utilities group customers into classes and charge average rates to all customers in the class to recover just and reasonable costs incurred to serve those customers. In some circumstances, such as line extensions and economic development rates, state regulators make decisions on the extent to which some contribution from general ratepayers is in the public interest to add or keep a customer on the system.
- ² Some consumers also want to be sure that benefits from energy efficiency are allocated to the customer classes that produced the savings. This objective is accomplished to some extent already by a traditional rate design cost allocation process. Saved energy and capacity for the class would reduce costs assigned to the class. The effects are delaying because these processes do not happen often. This process does not capture any effect of reducing the cost of resources that the utility does have to buy—a reduced market clearing price for energy, or avoided expensive capacity. Unusual methods would be required to allocate these benefits in any way but across the board.

9: Conclusions: Harmonizing Regulation of Energy Efficiency

With increasing evidence that energy efficiency is a valuable and strategic resource, many states are creating comprehensive energy efficiency efforts, or are expanding already significant efforts. With this increased investment, consumer engagement is critical to the success of these programs.

There are several indicators of success:

- Ensuring that customers are treated fairly in terms of how they fund and benefit from programs.
- Providing customers with multiple opportunities to accomplish energy efficiency.
- Implementing energy efficiency programs that realize cost-effective, significant energy savings to customers and the system.

Below are several concluding thoughts on how to harmonize regulation of energy efficiency.

- **Information and processes should promote transparency.** All stakeholders in the regulatory process require access to information to understand and evaluate energy efficiency investments. States can improve the prospects for successful implementation of energy efficiency through processes that clarify benefits and costs of energy efficiency. Because stakeholder collaborative processes typically require intensive time and effort, parties rely on testimony, discovery, and cross-examination to reveal the relevant information before the collaboration begins.

Another opportunity to promote transparency and build trust among stakeholders, including consumer interests, utilities, state policy-makers, and others, is to establish a collaborative process. State collaboratives review available energy efficiency options, can reach agreement among stakeholders on feasible energy savings goals and appropriate funding, and resolve important program and administrative issues (National Action Plan for Energy Efficiency, 2008a). This concept is prominently featured in the Action Plan Vision for 2025 as a key policy step to Goal One, establishing cost-effective energy efficiency as a high-priority resource.

- **The utility business model should be an affirmative choice.** Referring to energy efficiency, the question “What’s in it for the utility?” has been part of the debate for as long as there have been utility energy efficiency programs. Although energy efficiency is a least cost resource, it has not been deployed to the extent that is cost-effective. Regulation, politics, and alternative administration are important considerations in how these matters are resolved in a given state. Thus, regulators must address the utility’s underlying business model and its energy efficiency options directly in designing its energy efficiency policies and programs.
- **Fairness is not equity.** The issue of customers who do not participate in energy efficiency programs has been a challenge for regulators. States have found ways in benefit/cost screening to justify programs with net system benefits that will benefit all in

the long run, but which may only represent a cost to some customers right away. Strategic uses of energy efficiency, such as in concentrated transmission-congested areas, may appear to favor some customers over others. This tension highlights the transition of energy efficiency from primarily a social program to a utility resource, as functional as a capacitor bank or a transformer. Integrating energy efficiency fully into utility investment planning will enable consumer interests to confirm that energy efficiency deployment is driven by function.

- **Performance should lead to good will.** Regulators and all parties should endeavor to use program performance as a way to make and keep commitments on energy efficiency goals, and they should endeavor to learn and improve after mistakes, miscalculations, or the emergence of new information. Energy efficiency is inherently inexact. Current EM&V is reliable and improving. Good will flows from confidence that there is no bias among customers, program administrators, or other stakeholders concerning the inevitable margin of error in the enterprise. Good will is also valuable in supporting the innovation needed to sustain successful high-quality energy efficiency programs.

Appendix A: National Action Plan for Energy Efficiency Leadership Group

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Appendix B: References

Blumstein, C., C. Goldman, and G. Barbose (2003). *Who Should Administer Energy-Efficiency Programs?* Center for the Study of Energy Markets.

Braithwait, S.D., and D.G. Hansen (2005). *A Review of Distribution Margin Normalization as Approved by the Oregon Public Utility Commission for Northwest Natural.*

California Public Utilities Commission [CPUC] (2008). Section VI: Competitive Bidding and Partnership Programs. In *Energy Efficiency Policy Manual 4.0.*

Ehrhardt-Martinez, K., and J. Laitner (2008). *The Size of the U.S. Energy Efficiency Market: Generating a More Complete Picture.* American Council for an Energy-Efficient Economy.

Electric Power Research Institute [EPRI] (2009). *Assessment of Achievable Potential for Energy Efficiency and Demand Response in the U.S.: 2010–2030.*

Elliott, R.N., A.M. Shipley, S. Nadel, E. Brown, K.R. Petak, and J. Bluestein (2003a). *Impacts of Energy Efficiency and Renewable Energy on Natural Gas Markets.* American Council for an Energy-Efficient Economy and Energy and Environmental Analysis, Inc.

<<http://www.aceee.org/energy/natgassummaryreport.pdf>>

Elliott, R.N., A.M. Shipley, S. Nadel, and E. Brown (2003b). *Natural Gas Price Effects of Energy Efficiency and Renewable Energy Practices and Policies.* American Council for an Energy-Efficient Economy. <<http://www.aceee.org/pubs/e032full.pdf>>

Federal Energy Regulatory Commission [FERC] (2007). *FERC Order Accepting Market Rules.* Docket No. ER07-547-000. Issued June 5, 2007.

<<http://www.ferc.gov/eventcalendar/Files/20070605195751-ER07-547-000.pdf>>

Golove, W., and J. Eto (1996). *Market Barriers to Energy Efficiency.* Lawrence Berkeley National Laboratory.

Harrington, C., and C. Murray (2003). *Who Should Deliver Ratepayer Funded Energy Efficiency? A Survey and Discussion Paper.*

McKinsey & Company (2009). *Unlocking Energy Efficiency in the US Economy.* <http://www.mckinsey.com/clientservice/electricpowernaturalgas/downloads/US_energy_efficiency_full_report.pdf>

National Action Plan for Energy Efficiency (2006). *National Action Plan for Energy Efficiency.* <<http://www.epa.gov/eeactionplan>>

National Action Plan for Energy Efficiency (2007a). *Aligning Utility Incentives With Investment in Energy Efficiency*. Prepared by Val R. Jensen, ICF International.
[<http://www.epa.gov/eeactionplan>](http://www.epa.gov/eeactionplan)

National Action Plan for Energy Efficiency (2007b). *Model Energy Efficiency Program Impact Evaluation Guide*. Prepared by Steven R. Schiller, Schiller Consulting, Inc.
[<http://www.epa.gov/eeactionplan>](http://www.epa.gov/eeactionplan)

National Action Plan for Energy Efficiency (2008a). *National Action Plan for Energy Efficiency Vision for 2025: A Framework for Change*. [<http://www.epa.gov/eeactionplan>](http://www.epa.gov/eeactionplan)

National Action Plan for Energy Efficiency (2008b). *Understanding Cost-Effectiveness of Energy Efficiency Programs: Best Practices, Technical Methods, and Emerging Issues for Policy-Makers*. Prepared by Energy and Environmental Economics, Inc., and Regulatory Assistance Project. [<http://www.epa.gov/eeactionplan>](http://www.epa.gov/eeactionplan)

Pacific Gas and Electric Company (n.d.). *Best Practices Benchmarking for Energy Efficiency Programs*. [<http://www.eebestpractices.com>](http://www.eebestpractices.com)

Rhode Island Public Utilities Commission [RIPUC] 2003. *Docket 3463: Report and Order*. Issued July 21, 2003.

York, D., M. Kushler, and P. Witte (2008). *Compendium of Champions: Chronicling Exemplary Energy Efficiency Programs From Across the U.S.* American Council for an Energy-Efficient Economy.

Funding and printing for this report was provided by the U.S. Department of Energy and U.S. Environmental Protection Agency in their capacity as co-sponsors for the National Action Plan for Energy Efficiency.