Ratepayer-Funded Energy-Efficiency Programs in a Restructured Electricity Industry: Issues, Options, and Unanswered Questions

J. Eto, C. Goldman, and M. S. Kito, E. O. Lawrence Berkeley National Laboratory

Regulated utilities have, in the past, been responsible for ''public purpose'' programs for the general social good, such as energy-efficiency programs. In several states, continuation of these programs has become critical to forging the consensus required to proceed with restructuring. Focusing on the future of energy-efficiency programs, we pose a series of questions to guide the decisions that states will make in implementing these programs: Should there be public policies to promote energy efficiency at all? Should ratepayer funds be used to support energy efficiency? Which public-policy objectives should guide the design of ratepayer-funded energy-efficiency programs? What should be the relationship between ratepayer-funded energy-efficiency programs and other private-sector activities? What role, if any, should utilities play in the administration of ratepayer-funded energy-efficiency programs? Who's in charge?

INTRODUCTION

Electricity industry restructuring requires state legislatures and regulators to re-examine ''public purpose'' programs such as energy-efficiency programs, for which regulated utilities have been responsible in the past. Public purpose programs, which have historically been funded by ratepayers, include research and development, programs targeted at low-income customers, energy-efficiency programs, and economic development activities. Several states have also required or encouraged utilities to support broader environmental goals by promoting renewables or electric vehicles. In this paper, we focus only on the future of ratepayer-funded energy-efficiency activities. Based on our review of those states that have issued policy guidelines or initial restructuring decisions, we believe that these activities pose unique public-policy issues, which must be accommodated as part of restructuring. Years of ratepayer-funded support for utility demand-side management (DSM) programs have stimulated an emergent private energy-efficiency services industry. In addition, many utilities plan to offer shareholder-funded energy-efficiency services as part of their future retail business strategies, which may compete with these firms. As a result, utility management may face increased conflicts of interest in its ability to deliver ratepayer-funded programs. Thus, determining the need for and design of future ratepayer-funded energy-efficiency programs requires close attention to the balance between private and public interests.

Looking to the future, we assume that a new funding mechanism, such as a non-bypassable surcharge on energy users, will be required to fund some of the energy-efficiency programs and activities historically provided by utilities (Baxter 1996). However, we do not address important issues associated with the appropriate level of funding or rate design for the surcharge. Instead, we concentrate only on program design (e.g., what should be funded) and on contentious institutional issues (e.g., who should make these decisions).

Our starting premise is that choosing among the many options will require trade-offs between competing and sometimes conflicting goals. Therefore, we do not believe a single, generic balance can or should be defined. Instead, we expect a variety of solutions based on considerations unique to individual states or regions. To help structure these discussions, we pose a series of questions and describe a range of possible answers, focusing underlying assumptions.

SHOULD THERE BE PUBLIC POLICIES TO PROMOTE ENERGY EFFICIENCY AT ALL?

Proponents of public policies to promote energy efficiency start with the presumption that private investment alone will not produce socially desirable levels of investment in energy efficiency. Two distinct lines of reasoning have traditionally been offered in support of this premise: (1) private-sector activities are based on prices that do not reflect their full societal cost, with environmental damage being the most notable missing element. They also note that prices are distorted by the effects of regulation. (2) other, non-price related market failures, such as imperfect information, prevent markets from operating effectively (Golove & Eto 1996).

Some oppose public policies that promote energy efficiency solely as a matter of political philosophy; arguing that markets by definition reveal the socially desirable level of investment in energy efficiency, and that therefore intervention necessarily will make things worse (Taylor 1993). Others oppose energy-efficiency policies based on an assessment that markets, in fact, provide a closer approximation to socially desirable outcomes than non-market approaches with their inherent and unavoidable inefficiencies and ineq-

uities. Still other opponents to energy-efficiency policies maintain that there are better ways to address the underlying ''problems'' that programs promoting energy efficiency are intended to address (e.g., through tax policy or building standards and codes).

All but the first group of opponents listed above agree that market failures exist and lead to under-investment in energy efficiency. Opposition opinions differ only regarding what (if anything) can or should be done about market failures, which supports our belief that these matters cannot be settled in the abstract. We conclude that future public policies to promote energy efficiency must respond continuously to the following challenge: energy-efficiency policies only remain justified to the extent that they can demonstrate net improvements compared both to the status quo and to alternative approaches.

SHOULD RATEPAYER FUNDS BE USED TO SUPPORT ENERGY EFFICIENCY?

Agreeing that public policies are needed to promote energy efficiency is separate from agreeing to use ratepayer funds to support them. Traditional rationales for continued ratepayer funding have included: (1) it is simply a matter of law; state statutes and regulatory precedents assign PUCs and utilities with specific obligations for energy-efficiency public policies; (2) ratepayer funding is fair because the ''problems'' addressed by the programs are unique to electricity use and hence responsibility for solutions should be borne by users; (3) it is more practical than the alternatives; and finally (4) it is more consistent with other social objectives. We offer the following summaries in order to identify more clearly the distinctions between them (Hirst and Eto 1995).

It's the law. The origins of least-cost planning lie with state-sanctioned regulatory compacts that guarantee franchise monopolies a reasonable opportunity to earn a fair profit in return for serving all takers in a non-discriminatory fashion and at the lowest possible cost. The continuing need or relevance of this obligation to serve is precisely what is being called into question by the desire to increase customer choice through competition in the electricity industry. Although the obligation to serve may soon be rendered moot (at least for some customer classes), broad public support remains for the continuing importance of resource portfolio management and oversight traditionally associated with the obligation to serve. Recognition of this continuing need underlies current proposals to maintain ratepayer funding for energy-efficiency programs.

It's fair. Another justification for giving utilities responsibility to promote energy-efficiency programs has been the historic mispricing of electricity caused by cost-of-service ratemaking practices. When this issue was first raised, rates were lower than the marginal cost of production, which may have encouraged customers to over-consume. Because mispricing was unique to utility ratemaking, utility DSM programs were proposed as one way to correct the unintended consequences of mispricing. Today, the situation is generally reversed in the U.S. with current rates higher than marginal cost (if we ignore externalities for the moment), so mispricing may be of less concern from the viewpoint of energy-efficiency proponents. Moreover, if restructuring results in increased price transparency, revealing the true cost of electricity production (ideally including the social costs of externalities), this rationale may become moot.

The environmental consequences of electric generation are significant, and electricity consumers have a unique responsibility for the uninternalized consequences of their purchase decisions. Ratepayer funding of energy-efficiency programs, which are a solution to these environmental problems, is consistent with this responsibility. Whether such programs or ratepayer funding of them are the most appropriate ways to fulfill this responsibility is separate from accepting the basic principle that the polluter should pay.

It's practical. Although the existence of environmental externalities is for the most part accepted, there is substantial debate about the extent to which policies that specifically target the utility sector are appropriate. For example, it has been argued based on economic theory, that a tax levied uniformly on all forms of greenhouse gas emissions according to their relative contributions offers a more efficient approach to address one significant environmental consequence of electricity production (Joskow 1992). However, such a tax or even agreement that this type of approach is appropriate, is impractical in the short term. Therefore, ''second-best'' solutions should not be ignored.

It's consistent with other social objectives. A final justification for ratepayer-funded energy-efficiency programs is also based on pragmatism: the ability to gain greater public support and acceptance for policies that rely on voluntary participation by customers and competitive selection processes. These are not intrinsic features of ratepayer-funded energy-efficiency programs, however, specific program design and implementation strategies vary.

WHICH PUBLIC POLICY OBJECTIVES SHOULD GUIDE THE DESIGN OF RATEPAYER-FUNDED ENERGY-EFFICIENCY PROGRAMS?

We believe it is critically important to be clear about the objectives for ratepayer-funded energy-efficiency programs.

In the past, these objectives have been articulated by utilities and regulators in the context of integrated resource planning (IRP) or DSM planning processes. Typically, the mix of new resources and DSM expenditure levels represented a balancing of more than one objective (e.g., least-cost resource plans, environmental goals, rate impacts, and customer service). Often the relative weights placed on individual objectives were not explicit. We believe more explicitness will be required in the future because some objectives will be better addressed by some program designs rather than by others.

Table 1 lists four potential objectives for ratepayer-funded energy-efficiency programs: (1) maximize net resource value, (2) mitigate the environmental consequences of generation, (3) overcome non-price market failures, and (4) support the expansion of the private energy-efficiency services industry. Each objective represents a particular strategy for increasing net social welfare and thus suggests a unique metric for use in evaluating and prioritizing proposed programs. For example, the Total Resource Cost test has traditionally been used to assess the ''resource value'' of programs. Similarly, the magnitude of energy savings and corresponding emission reductions are primary measures of ''avoided'' environmental damages.

Quantitative measures for the success in addressing objectives 3 and 4 are difficult. Efforts to measure DSM program spillover remain controversial (Violette and Rosenberg 1995). And, while the ''Value Test'' proposed by Herman offers a framework for incorporating reductions in market barrier costs into the standard TRC test, little information and almost no theory are available to help estimate these reductions (Herman 1994). In addition, market assessments of the health of the energy-efficiency services industry are virtually non-existent (Cudahy and Dreessen 1996). Future pursuit of these objectives listed will, therefore, require development of new measures of success if resources are to be allocated efficiently among programs.

We recognize that the four objectives are not mutually exclusive and that energy-efficiency programs can and have been designed to address more than one. However, some objectives will be better met by some programs rather than others. In Table 1 and the following discussion, we review the major

Table 1. *Priorities for Ratepayer-Funded Energy Efficiency Programs*

	Objectives of Ratepayer-funded Energy Efficiency			
Type of Activity or Program	Net Resource Value	Environmental Protection	Overcome Market Failures	Preserve and Enhance Energy Efficiency Services Industry
Information/Education/ Audits	Low	Low	Medium	Low
Financial Incentives/ Rebates to Customers	High	High	Low	Medium
''Lost Opportunities'' (New Construction)	Low (Resid.) High (Comm'l.)	Medium	High	Low
DSM Bidding/Standard Offer	Medium	Medium	Medium	High
''Market Pull'' Activities Targeted at ''Upstream'' Entities (Mfg.)	?(measurement problems)		Medium	Medium
Primary Evaluation Metric(s	TRC Test	Energy Savings Emission Reductions	Assess Reduction in Market Failures	Assess Competitiveness of Market

energy-efficiency program types that have been historically offered by utilities to illustrate this point.

Information, education, and technical assistance have been an integral part of utility DSM programs. The difficulties of precisely attributing savings to these activities has meant that their merits cannot be assessed with the same degree of rigor as other program types (such as those emphasizing resource value). For example, providing customers with general information on energy efficiency or conducting education programs in the community are typical customer service activities. Programs that provide energy audits to customers have been offered both as a customer service, and as a marketing entre for the utility's other energy-efficiency programs (e.g., rebates). If the primary public-policy objective is resource value or environmental protection, then these two program types (as historically designed and operated) would not be given high priorities for funding. However, if the primary public-policy objective is to provide accurate and reliable information in order to overcome the market failures associated with imperfect information, then these programs would be given higher priority. Finally, to a limited extent, technical assistance has clearly contributed to the development of an energy audit industry. To what extent continued funding for these activities in the future would conflict with the continued development of private-sector audit services is not known.

Energy-efficiency programs that offer financial incentives to customers (e.g., rebates) have accounted for a significant fraction of load reductions from utility DSM during the past decade. Financial incentive programs have contributed to all four objectives in significant but varying degrees. When well-designed and implemented, these programs have had high net resource value (i.e., high TRC test ratios) and large aggregate load impacts, particularly those that target commercial/industrial customers (Eto et al. 1995). Substantial resources have been devoted to these programs for precisely these reasons. However, evaluation is limited regarding the effectiveness of these programs in ameliorating rather than merely circumventing the market failures that affect consumers (Herman & Hicks 1994; Levine & Sonnenblick 1994). Rebate programs have also provided a powerful short-term stimulus to vendors of certain energy-efficiency products and contractors. Only limited evidence is available on the long-term ability of rebate programs to enhance the energy-efficiency services industry, particularly if rebates are removed. Finally, rebate programs significantly impact and have the potential to limit market opportunities for other energy-efficiency service providers (e.g., energy service companies) who target similar customers or end uses (Edgar et al. 1995).

Programs that target ''lost opportunities'' attempt to influence new construction, renovation, remodeling, or equipment replacement decisions of developers and building owners. New construction programs are very effective complements to building codes and appliance efficiency standards (Nadel 1992). In terms of resource value, utilities have found that these programs have often been marginally cost-effective in new residential construction but highly cost-effective in new commercial construction (Vine 1995). The aggregate energy savings potential of these programs is typically not huge, mainly because new construction represents a small fraction of the building stock. These programs would likely be a high priority to fulfill the objective of overcoming market failures because they address the ''split incentives'' problem. The impact of new construction programs on the energy-efficiency services industry is more subtle. In new construction, utility DSM programs do not primarily create new market entrants; instead, they have tended to enhance the product offerings of existing builders (although they have also led to new design and commissioning services). The lasting effect of these programs on a builder's practices has not been the subject of much formal evaluation.

A number of utilities have participated in consortia that attempt to influence energy-efficiency product markets upstream of the ultimate consumer. The most publicized example is the commercialization incentive offered to refrigerator manufacturers in the Consortium for Energy Efficiency's Super-Efficient Refrigerator Program (Feist et al. 1994). Among the rationales offered for this approach is that incentives to individual customers can be avoided if the entire market for particular products is transformed so that energy-efficient products are the norm.[1] These examples of market transformation activities are promoted based on the belief that they offer potentially greater savings at lower cost. However, the methodological problems with measuring these savings and therefore verifying these claims are significant, which makes it clear that the measurement standards applied to traditional resource value programs must be relaxed (Prahl and Schlegel 1994). Reliance on these ''upstream'' programs for large savings or high net resource value must be accompanied by tolerance for increased uncertainty surrounding these benefits. Despite the measurement problems, many argue that ''upstream'' programs more properly address market failures than do financial incentives to consumers.

DSM bidding and Standard Offer programs have proven to be an important stimulus to energy-efficiency services companies, particularly ESCOs.[2] Competitive acquisition programs have delivered large savings. Compared to rebate programs, these programs tend to have higher marketing and transaction costs although many performance risks have been effectively transferred from ratepayers to ESCOs and their customers. Some programs have been only marginally cost-effective because, by design, much of the net resource value is paid by the utility to the ESCO or customer. The

ability of these programs to reduce market failures depends on the continued viability of the industry whose primary business is the reduction of transaction costs faced by customers. There is no doubt, however, that competitive acquisition programs that seek to utilize ESCOs and other types of firms (e.g., lighting/HVAC contractors) can contribute to the development of the private energy-efficiency services industry.

In summary, we believe increased attention to the public-policy objectives for future ratepayer-funded energy-efficiency programs is warranted because our understanding of the strengths and limitations of different program approaches in meeting various objectives has improved dramatically over the past two decades. Careful prioritization of objectives in the future will be essential for making informed trade-offs between programs. Recognition of the need for and development of new metrics that assess the performance of programs in overcoming market failures and the maturity of the energy-efficiency services industry will facilitate this process.

WHAT SHOULD BE THE RELATIONSHIP BETWEEN RATEPAYER-FUNDED ENERGY-EFFICIENCY PROGRAMS AND OTHER PRIVATE-SECTOR ENERGY-EFFICIENCY ACTIVITIES?

We have thus far deliberately treated the interface between ratepayer-funded and private-sector energy-efficiency activities gingerly. However, addressing this interface is critical for the design of future ratepayer-funded programs.

There are only two basic choices: (1) Subsidiary status—ratepayer-funded programs should only supplement what private energy-efficiency service providers omit or are incapable of pursuing unassisted, including facilitating the transition to eventual private-sector provision, or (2) Head-to-head or ''yardstick'' competition—ratepayer-funded programs should overlap with private-sector activities on the presumption that they can be delivered at lower total cost. The first approach requires an assessment of the market performance of the private sector; the second approach requires an assessment of public- or quasi-public-sector performance (e.g., traditional utility DSM programs). We focus on the first option in this section and discuss the second approach in the following section.

Many current proposals for the future of ratepayer-funded energy-efficiency programs implicitly or explicitly adopt the subsidiary status approach. These proposals define the scope of ratepayer-funded activities either on the basis of functional activity or market sector. In its recent decision on electricity restructuring, the California Public Utilities Commission (CPUC) concludes that ratepayer funds should be used to support certain elements of the adoption process for energy-efficient goods and services, specifically provision of general or customer-specific information (CPUC 1995). The CPUC decision can be seen as a conclusion that certain activities will not be supported by the private sector while others will. The CPUC also concludes that ratepayer funds should be used to support so-called market transformation activities. This conclusion reflects a judgment that these activities also cannot be supported by private-sector initiative and, are, therefore, legitimate recipients of ratepayer funding.

In Wisconsin, several investor-owned utilities have proposed to limit ratepayer funding to certain market sectors (Baxter 1996). These utilities claim that the market for energy-efficiency services in the industrial and large commercial sector is already sufficiently mature and, therefore, that public funding is not warranted. They argue that public funding should be limited to small commercial and residential sector programs where the current market is deemed less capable of standing on its own.

It is important to recognize the subtle but critical underlying shift in public-policy priority called for by the subsidiary approach. The subsidiary approach limits publicly funded DSM to those activities for which a sufficiently vibrant private sector does not yet (or cannot) exist. One characteristic of vibrant market activities or sectors is that they are profitable enough to sustain healthy competition among various providers (i.e. they are cost effective both to participants and providers). Thus, if ratepayer funding is targeted only at market sectors or activities where the private sector is not flourishing, then ratepayer-funded programs may by definition be less cost effective than private sector activities. For example, highly cost-effective programs targeted to large commercial sector customers may have to be withdrawn in favor of less cost-effective programs targeted to residential customers. Thus, in designing these programs we may have to temper a former guiding principle of DSM program design, which was to maximize cost effectiveness.[3]

Reducing the relative importance of cost effectiveness in designing ratepayer-funded energy-efficiency programs has far-reaching implications. It suggests that the dominant focus on the resource value of programs under the traditional integrated resource planning regime must now be modified (but not replaced) by what is essentially an equity consideration. As a result, shared-savings incentive mechanisms may no longer be a particularly effective way to reward program providers for the superior delivery of energy-efficiency programs; alternative incentive schemes, such as fee-for-service, deserve increased consideration in the future.

WHAT ROLE, IF ANY, SHOULD UTILITIES PLAY IN THE ADMINISTRATION OF RATEPAYER-FUNDED ENERGY-EFFICIENCY PROGRAMS?

During the past decade, many state PUCs developed policies that gave utilities a central role in pursuing energy-efficiency objectives. In running DSM programs, utilities have assumed responsibility for a variety of activities, including program design, general administration, program implementation (parts of which were often contracted out, such as audit services), program evaluation, and cost recovery. In discussing the future role of utilities, we must consider these activities separately. In this section, we discuss issues associated with utility delivery, as opposed to overall program administration, which we address in the next section.

Our analysis of utility experience suggests that a number of utilities have been quite successful in designing and implementing cost-effective and innovative energy-efficiency programs, particularly since the advent of DSM shareholder incentives (Eto et al. 1995). During the past decade, ''leading edge'' utilities have developed significant expertise and knowledge in administering energy-efficiency programs. The track record of these utilities in delivering energy efficiency has highlighted a number of their potential competitive advantages, which we list in Table 2. Some of these advantages result from the regulated monopoly status of the utility and thus are properly thought of as ratepayer assets.

Table 2. *Potential Competitive Advantages of Electric Utilities*

Access to Capital
Access to Customer Billing Records
Access to Billing Systems for Collection
Market Research
Brand Name
Lack of Direct Financial Interest in Particular Products or Services
Institutional Stability
Ability to Tie Energy Efficiency to Upstream Electricity Commodities or Products

Examples include the utility's access to customer billing system, access to customer billing records (useful for credit analysis), access and ability to offer capital at potentially attractive rates for certain customers, market intelligence that derives from ratepayer-funded market research, and a trained DSM staff. Other advantages are less tangibly ratepayer assets, such as brand name recognition, institutional stability, and (up to now) lack of direct financial interest in particular products or services.

Questions for the future are: will utilities retain these advantages in a restructured industry?; if they do, should they be relied on to deliver ratepayer-funded energy-efficiency programs? What compensation, if any, is appropriate for use of historic ratepayer-funded assets for future shareholder-funded activities?

For the remaining, regulated side of the industry, much will depend on the form of regulation adopted. For example, interest is growing in the use of performance-based ratemaking approaches to introduce competitive incentives in what were formerly cost-of-service regulated business activities. However, some forms of incentive regulation, notably price-caps, may be antithetical to delivery of energy efficiency (Comnes et al. 1995).

As competition increases, it will be relatively easy for utilities to package energy efficiency with other services, tying it to upstream electricity commodities or products (Newcomb 1994). A number of utilities have begun to use this approach on the regulated side of their businesses, while others have established or purchased energy service companies (ESCOs) or retail energy service companies (RESCOs).[4] Customer and load retention is a key motivation for utilities. Thus, there are clear grounds for the concern that, as part of this strategy, utilities will attempt unfairly to use competitive advantages that derive from the regulated monopoly to enhance their position on the unregulated side of their businesses.

On this final issue, two distinct conflicts have been identified. In a world with retail competition where a distribution company (DISCO) owns generation assets or is affiliated with a generation company (GENCO), some are concerned that DISCOs would be interested primarily in using these funds to benefit related business operations (e.g., kWh commodity sales) or would have a financial interest in sales promotion to minimize stranded assets. At the same time, some are also concerned that, even if structurally separated from a GENCO, a DISCO with an unregulated retail services affiliate may have strong incentives to stifle competition with independent retail energy-efficiency service providers in order to consolidate or increase its horizontal market power in retail energy service markets.

As a result, some have proposed that the utility should be used only as a vehicle to raise revenues for funding energy-efficiency activities via collection of a ''system benefits'' surcharge (CPUC 1995). Proponents of this approach argue that incumbent utilities should not be vested with the authority to administer or design energy-efficiency programs because they have done a poor job historically, are no longer interested in these activities, or have interests that are incompatible with energy-efficiency policy objectives in a restructured industry. There is little doubt that the utility's conflicts of interest are likely to increase. The key question is: can a utility's inherent competitive advantages be offset by regulations that will mitigate the utility's real or perceived conflicts of interest?

WHO'S IN CHARGE?

Those who advocate limiting utilities to the role of revenue-collection for energy-efficiency programs also propose alternatives to utility administration of energy-efficiency activities (Schultz 1996). The two main alternatives involve vesting authority in existing or newly-created governmental agencies, or creating non-profit corporations or authorities with Boards of Directors.

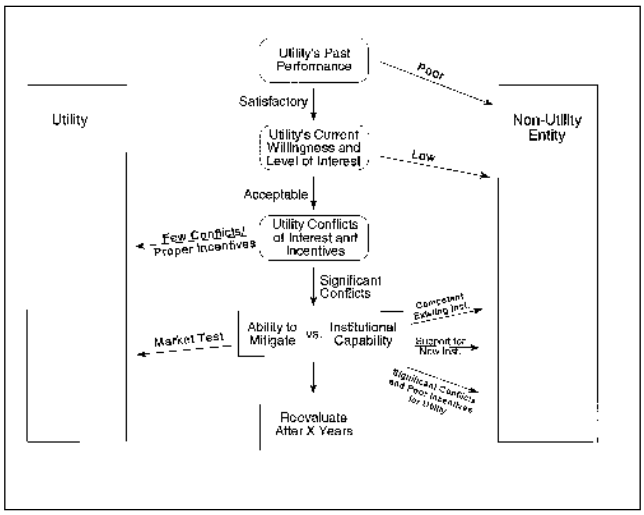
These proposals are not without precedents although few, if any, agencies have had experience administering the *scope* of activities currently undertaken in today's utility energy-efficiency programs. During the past 20 years, various state agencies (e.g., State Energy Offices, Housing Departments) have been responsible for aspects of energy-efficiency program delivery, such as administration of federally-funded programs (e.g., residential conservation services, low-income weatherization, State Energy Conservation Program, and the Institutional Conservation Program). A number of non-governmental institutions, many non-profit, have had experience with energy-efficiency programs. For example, Rhode Islanders Save Energy (RISE), a non-profit agency created by the state's utilities, successfully delivered energy audits to residential customers during the 1970s and 1980s. The North Carolina Alternative Energy Corporation is a non-profit organization that receives funding from the state's electric utilities, who also sit on its Board of Directors, to promote and demonstrate high-efficiency technology and programs. There are also several examples of non-profit or governmental agencies that are responsible for research, development, and demonstration (e.g., New York State Energy Research and Development Authority, California Institute for Energy Efficiency,) and demonstration/implementation activities (e.g., Energy Center of Wisconsin).

Reliance on non-utility entities for energy-efficiency activities raises a host of management, administration, and governance questions. One of the attractive features of relying on utilities for these activities is that accountability and governance policies and structure are fairly well-established: the utility proposes overall program budgets; budgets and use of ratepayer funds are approved and reviewed by state PUCs; and utility management is responsible for design of individual programs, and overall program management and administration, typically incorporating input from customer groups. In part because of regulatory requirements, utilities have been compelled to document a standard of performance in their energy-efficiency programs that typically does not exist for comparable programs administered by governmental or non-profit agencies.

States must decide whether to continue a central role for utilities in managing ratepayer-funded energy efficiency subject to regulatory oversight vs. vesting administrative responsibilities in an existing or newly created non-utility entity (e.g., a governmental agency or non-profit institution). In Figure 1, we provide a simplified decision tree that represents steps we believe states should consider in assessing alternatives.

We begin by assuming that a utility currently administers PUC-approved energy-efficiency programs. If a state concludes that the utility's past performance in energy-efficiency program administration and delivery has been poor and/or unacceptable, then there is little reason to believe that the utility's future performance in achieving ratepayer-funded energy-efficiency objectives will improve in a more competitive electricity industry. Similarly, if the utility's management clearly indicates that it has little interest in continuing to be responsible for ratepayer-funded energy-efficiency activities, then it is sensible to consider institutional alternatives. In these two situations, the decision to

Figure 1. *Who Should Administer Ratepayer-Funded Energy-Efficiency Programs?*



pursue these alternatives is relatively easy because the utility has effectively removed itself from consideration.

We believe it makes sense to retain central management roles for utilities only under the following conditions: (1) there is general satisfaction with the utility's past performance in delivering energy efficiency, (2) senior utility management indicates interest in continuing to manage these activities, and (3) continued utility administration of energy-efficiency funds will not create a significant conflict of interest. On the last issue, states will have to judge whether societal objectives for promoting energy efficiency are aligned with a utility's strategic incentives and whether utility administration poses significant threats to a workably competitive and robust energy services industry.

Subjective judgments on these matters are unavoidable, but certain conditions can reduce anxiety. For example, if a utility has divested its generation asset (i.e., is a pure DISCO), operates under a performance-based regulation scheme that decouples earnings from sales, and is not affiliated with an unregulated ESCO or RESCO operating in its service territory, one might reasonably conclude that the potential for conflicts of interest have been minimized. Similarly, if the DISCO is affiliated with an unregulated ESCO or RESCO operating in its service territory, a state could limit or constrain the activities of the ESCO or RESCO within the service territory (e.g., through market segmentation) or decide to monitor closely and enforce ''arm's length'' relationships. In this case, a state would have to evaluate the extent to which ongoing monitoring is compatible with future regulatory direction.

States will face difficult choices when they conclude that continued utility administration of energy-efficiency funds creates significant and unavoidable conflicts of interest in a restructured electricity industry, or that the utility's strategic and financial interests fundamentally conflict with societal objectives for energy efficiency (as articulated by the state PUC or legislature). In deciding whether to have non-utility entities manage energy-efficiency activities, states will need to assess the capabilities of these existing institutions. More importantly, reliance on non-utility entities to manage and administer energy-efficiency programs will require legislative action to expand the mission of existing government agencies or to create a new governmental agency or non-profit institution. Consistent standards for governance and accountability must be addressed as part of these discussions.

THE FUTURE FOR RATEPAYER-FUNDED ENERGY-EFFICIENCY PROGRAMS

We encourage state PUCs and legislatures to provide clear guidance on goals: how appropriate are continued public policies to support energy efficiency in the state? What are the energy-efficiency goals to be supported by ratepayer funds? We expect many states will ultimately opt for some type of surcharge to support energy efficiency in a restructured electricity industry. Close attention to the primary objectives for energy efficiency is important because the objectives influence the choices of programs and activities to be supported. We advocate that states adopt a pragmatic approach to resolving the potentially contentious issue of determining whether or not utilities should continue to have primary responsibility for program administration, management, and design. The approach we propose involves assessing a utility's past performance, its current commitment to energy-efficiency activities, and the potential conflicts of interest presented if the utility retains a central role in administering energy-efficiency programs after restructuring. A state should first assess policy options to mitigate adverse incentives and conflicts of interest in the utility before examining the possibility of having a non-utility entity assume responsibility for designing and managing energy-efficiency activities. If a state does pursue non-utility administration for ratepayer-funded energy-efficiency programs, explicit attention must be paid to governance and accountability issues.

ACKNOWLEDGMENTS

The work described in this paper was funded by the Assistant Secretary for Energy Efficiency and Renewable Energy, Office of Utility Technologies of the U.S. Department of Energy under Contract No. DE-AC03-76SF00098.

ENDNOTES

1. We note that the upstream activities we are aware of have all been aimed only at creating or modifying the product, rather than the services, side of the energy-efficiency services industry.

2. In a DSM bidding program, a utility issues a Request for Proposals offering to sign a long-term contract with an ESCO or possibly with large customers for verified demand and/or energy reductions at the bidders' specified price. In the Standard Offer, the utility establishes standard terms and conditions (including price) that are available to eligible bidders until the resource block is filled (Goldman & Kito 1994; Goldman, Kito, & Moezzi 1995).

3. An exception might be the market transformation activities described previously. It is doubtful whether private sector actors could ever capture the significant, albeit less precisely measurable, societal benefits that are expected from these activities.

4. ESCOs offer a comprehensive set of energy-efficiency services (e.g., audits, project engineering/design, project management, financing, and savings verification and monitoring) and their compensation is in some way tied to project performance. A RESCO may offer commodity management (dispatch services, risk management, on-site generation equipment, other retail services (facilities management, power quality & reliability services) in addition to energy-efficiency services.

REFERENCES

Baxter L. 1996. ''Proposals for the Future of Energy Efficiency.'' (to appear) *In Proceedings of the ACEEE 1996 Summer Study on Energy Efficiency in Buildings*. Washington, DC: American Council for an Energy Efficient Economy.

California Public Utilities Commission (CPUC). 1995. *Decision 95-12-063.*

California Public Utilities Commission (CPUC), Division of Ratepayer Advocates. 1995. *Comments in OIR.94-04-31 and OII.94-04-032.*

Comnes, G., S. Stoft, N. Greene, and L. Hill. 1995. *Performance-Based Ratemaking for Electric Utilities: Review of Plans and Analysis of Economic and Resource-Planning Issues*. LBL-37577. Berkeley, CA: Lawrence Berkeley National Laboratory.

Cudahy, R. and T. Dreessen. 1996. *A Review of the ESCO Industry in the United States.* World Bank.

Edgar, G., C. Goldman, B. McKellar, E. Carroll, C. Cooper, M. Kushler, and W. DeForest. 1995. *Evaluation of Envest and TEEM Pilot Projects, Interim Report*. California Public Utilities Commission.

Eto, J., S. Kito, L. Shown, and R. Sonnenblick. 1995. *Where Did the Money Go? The Cost and Performance of the Largest Commercial Sector DSM Programs*. LBL-38021. Berkeley, CA: Lawrence Berkeley National Laboratory.

Feist, J., R. Farhang, J. Erickson, E. Stergakos, P. Brodie, and P. Liepe. 1994. ''Super-Efficient Refrigerators: The Golden Carrot from Concept to Reality.'' *In Proceedings of the ACEEE 1994 Summer Study on Energy Efficiency in Buildings*. 3.67–3.76. Washington, DC: American Council for an Energy Efficient Economy.

Goldman, C., M. Kito, and M. Moezzi. 1995. *Evaluation of Public Service Electric & Gas Company's Standard Offer Program*. LBL-37157. Berkeley, CA: Lawrence Berkeley National Laboratory.

Goldman, C. and M. Kito. 1994. *Review of Demand-Side Bidding Programs: Impacts, Costs, and Cost-Effectiveness*. LBL-35021. Berkeley, CA: Lawrence Berkeley National Laboratory.

Golove, W. and J. Eto. 1996. *Market Barriers to Energy Efficiency: A Critical Reappraisal of the Rationale for Public Policies to Promote Energy Efficiency*. LBL-38059. Berkeley, CA: Lawrence Berkeley National Laboratory.

Herman, P. 1994. *The Value Test: Its Context, Description, Calculation, and Implications*. California Energy Commission.

Herman, P. and E. Hicks. 1994. ''From Theory to Practice: One Utility's Experience with Applying the Value Test.'' *In Proceedings of the ACEEE 1994 Summer Study on Energy Efficiency in Buildings.*

Hirst, E., and J. Eto. 1995. *The Justification for Electric Utility Energy-Efficiency Programs*. ORNL/CON-419. Oak Ridge, TN: Oak Ridge National Laboratory and LBL-37593. Berkeley, CA: Lawrence Berkeley National Laboratory.

Joskow, P. 1992. ''Weighing Environmental Externalities: Let's Do it Right!'' *The Electricity Journal*. 5(4)53–67.

Levine, M. and R. Sonnenblick. 1994. ''On the Assessment of Utility Demand-Side Management Programs.'' *Energy Policy* 22(10)848–856.

Nadel, S. 1992. ''Improving Coordination Between State Energy Codes and Utility New Construction Programs.'' *In Proceedings of the Building for the Future, New Construction Programs for Demand-Side Management Conference.*

Newcomb, J. 1994. ''Energy-Efficiency Services: What Role in a Competitive Environment?'' *The Electricity Journal*. 7(9)34–45.

Prahl, R. and J. Schlegel. 1994. ''DSM Resource Acquisition and Market Transformation: Two Inconsistent Policy Objectives.'' *Proceedings ACEEE 1994 Summer Study on Energy Efficiency in Buildings*. 6.157–6.166. Washington, DC: American Council for an Energy Efficient Economy.

Schultz, D. 1996. ''The Case for a Highly Limited Role for Utilities in the Pursuit of Energy-Efficiency Objectives in a Competitive Energy Industry Future.'' (to appear). *In Proceedings of the ACEEE 1996 Summer Study on Energy Efficiency in Buildings*. Washington, DC: American Council for an Energy Efficient Economy.

Taylor, J. 1993. *Energy Conservation and Efficiency: The Case Against Coercion*. Cato Institute.

Vine, E. 1995. *Utility Residential New Construction Programs: Going Beyond the Code*. LBL-36603. Berkeley, CA: Lawrence Berkeley National Laboratory.

Violette, D. and M. Rosenberg. 1995. ‘‘Setting a Research Agenda for Assessing Market Transformation and Spillover.’’ *In Proceedings of the Energy Program Evaluation: Uses, Methods, and Results, 1995 International Energy Program Evaluation Conference*.