

# Using Performance Incentives to Encourage Distribution Utility Support of Market Transformation Initiatives

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Market transformation initiatives are seen by many policy advocates as effective ways to achieve greater levels of energy efficiency in society. Recent discussions and regulatory decisions in several states have identified the distribution utility of the future as either *the* entity or *one potential* entity (among others) responsible for implementing initiatives designed to transform markets. In this paper we discuss the role of performance incentives in encouraging distribution utilities to meet this challenge.

First, we argue that investor-owned distribution utilities will support market transformation initiatives in an enthusiastic or substantial manner only if it is in their self-interest, or if they have the opportunity to acquire meaningful earnings from straightforward, timely performance incentives. Second, we summarize why existing incentive/evaluation frameworks are inadequate for supporting market transformation initiatives. Third, we examine performance incentives in the evolving regulatory framework, explore aligning performance incentives with new public policy objectives, and discuss several important structural aspects of incentive mechanisms, including the incentive basis. Finally, we propose approaches for linking performance incentives to evaluations of market transformation initiatives.

We conclude that a viable and effective approach for encouraging distribution utility support of many market transformation initiatives is to use simple, timely, meaningful performance incentives that are based on either evaluations of market effects, or assessments of good-faith execution of a consensus-based implementation plan.

While we focus mainly on distribution utilities in the future restructured environment, the incentive mechanisms and performance evaluation approaches discussed may be useful for supporting market transformation initiatives now.

## INTRODUCTION

Market transformation initiatives are strategic efforts to induce lasting structural or behavioral changes in the market that result in increases in the adoption of energy efficient technologies, services, and/or practices. Often these initiatives are intended to reduce or eliminate market barriers<sup>1</sup> to energy efficiency in a lasting manner, to the point where intervention in the market is no longer justified, or the nature or level of intervention can be changed. Most market transformation initiatives are collaborative efforts that require the cooperation of several organizations, only one of which might be a utility. Some examples of market transformation initiatives include residential new construction initiatives in the Northwest, motors programs in British Columbia and elsewhere, several technology commercialization initiatives sponsored by the Consortium for Energy Efficiency and other consortia, ventures being planned and implemented by the Bonneville Power Administration, and a commercial lighting remodeling initiative proposed for the New England region (Geller and Nadel 1994, Gordon and Tumidaj 1995, Keating 1996).

Market transformation initiatives can be effective and cost-efficient ways to increase energy efficiency. Past utility programs appear to have been very instrumental in transforming some markets, resulting in substantial benefits (Geller and Nadel 1994, Kushler et al 1996, McMenamin et al 1994). Because market transformation initiatives can result in large benefits and net benefits for society, many advocates argue for their societal support.

Regulators, existing utilities, and interested parties in most states have been debating and questioning public policy regarding energy efficiency, market transformation, and the associated roles of future utilities and other organizations given ongoing changes in the industry. The uncertainty that came with the initial discussions of electric utility industry restructuring has made it difficult to launch new utility-supported market transformation initiatives.

Recent regulatory decisions in several states have cleared up some of this uncertainty, as well as part of the associated paralysis. For example, decisions in California and Massa-

chusetts reaffirmed the strong commitment to energy efficiency in these two states, with increased emphasis on market transformation (CPUC 1995, MDPU 1996). The regulators noted that market barriers to energy efficiency will remain after restructuring, and that new barriers may be created. They found that planned, strategic intervention will be needed to transform some markets and to reduce some market barriers. In addition, regulators in these and other states (ACC 1996) have directed existing utilities to focus their current programs on market transformation. Regulators have embraced market transformation as a public policy objective in other forums as well (Hastie et al. 1996).

The California and Massachusetts decisions also began to address the future role of the distribution utility in market transformation, with Massachusetts regulators deciding to rely on the distribution utility as one of the primary agents for achieving market transformation (MDPU 1996), and with California regulators recognizing that distribution utilities could be at least one viable implementation agent (CPUC 1995).

In this paper we do not discuss *whether* distribution utilities should be used as agents to address public policy objectives regarding market transformation. Other papers address this topic (for example, see Eto and Goldman 1996, and Schultz 1996). Instead, we assume, based on the recent discussions and decisions in several states (CPUC 1995, MDPU 1996), that distribution utilities will either be a primary agent, or one of a number of agents responsible for implementing public policy relating to market transformation. In the remainder of the paper we discuss how to encourage distribution utilities to meet this challenge.

We recognize up-front that funds used to provide performance incentives to distribution utilities in a wires charge framework would have to come directly from the wires charge itself, thereby reducing the funds available for market transformation initiatives. We do not believe that this fact is inherently negative or positive. Rather, we recommend that regulators and policy makers consider both the benefits and costs of such an approach to achieving market transformation objectives.

Throughout the paper we use the commercial lighting remodeling market transformation initiative developed for the Boston Edison DSM Settlement Board (Gordon & Tumidaj 1995) as a practical example. This proposed initiative seeks to create demand for high-productivity energy-efficient lighting which will then “pull” efficient lighting design, technology, installation, and management through the market. The strategy focuses on influencing parties with operating and financial control of large amounts of space in multiple buildings. Distribution utilities would be only one type of organization supporting such an initiative.

## ASSESSING THE NEED FOR PERFORMANCE INCENTIVES

One threshold question is whether performance incentives for distribution utilities are needed at all. Our premise is that investor-owned distribution utilities, as profit-seeking organizations, are more likely to support market transformation initiatives, and support them more enthusiastically, if the initiatives are in their self-interest, or if they have the opportunity to acquire meaningful earnings.

Market transformation is not necessarily in the best interest of investor-owned distribution utilities as profit-seeking entities. There are some positive motivations for supporting market transformation, including the opportunity to increase or maintain customer satisfaction and loyalty with quality service, the opportunity for earnings from providing products or services directly to customers, and the possibility that market transformation investments could reduce or defer distribution system investments (though market transformation savings are likely to be too diffuse in terms of geography and time for them to be of much value for targeted distribution system savings). However, supporting market transformation initiatives will often conflict with other key objectives of the distribution utility, such as keeping costs low under performance-based ratemaking, recovering costs and making profits on all investments, focusing on short-term profits, avoiding or reducing risks, securing reliable information about changes in loads, controlling key customer and market information in a competitive environment, maintaining market share of existing energy efficiency markets, and increasing energy sales (if functional separation or divestiture are incomplete or ineffective).

It is too soon to tell exactly what the motivations and disincentives associated with market transformation will be for distribution companies. This will become much clearer as restructuring is implemented and distribution utility rate designs are developed. However, given the above list, and absent regulatory action, it is likely that the disincentives will be larger and have more impact than the positive motivations. Therefore, regulatory intervention will be needed if distribution utilities are to be significant agents for achieving market transformation objectives.

Historically, four main strategies have been used by regulators to encourage utilities to support energy efficiency programs: mandate action, provide cost recovery, overcome disincentives, and provide incentives. All four of these strategies increase the degree to which the programs are in the utilities’ self-interest.

We consider cost recovery to be essential in all cases, regardless of the specific industry structure. If utilities do not have

the opportunity to recover their costs, they are very unlikely to support the initiatives. In many restructuring proposals and decisions to date, costs for market transformation initiatives would be collected using non-bypassable wires charges and passed through the distribution company without affecting its costs or profits.

We believe that some disincentives, including many of the ones listed above, can be overcome with moderate performance incentives. However, certain disincentives (such as profits based on energy sales) that could be present in the industry structure, regulatory system, and/or rate design can be very large (Hirst and Blank 1993) in comparison to the moderate size of the performance incentives we propose below. It is unrealistic to expect moderate performance incentives to overcome strong financial disincentives, such as lost revenues, without fundamental changes in the regulatory system. However, lost revenues should not be an issue for distribution utilities in the future if generation assets are divested (or at least functionally separated with strong enforcement), and if distribution utility earnings are not based on energy or demand throughput.

Regulatory mandates may also be an option for encouraging distribution utility support, especially when utilities have limited roles in partnership initiatives. But mandates alone are unlikely to overcome the disincentives listed above, and are very unlikely to elicit the enthusiasm and substantial support needed if distribution utilities are to be one of the primary agents for achieving market transformation.

If cost recovery is provided through a wires charge mechanism, and if the disincentives are fairly small, we believe a targeted performance incentive can be very effective. Therefore, the performance incentives we discuss below are probably viable for two scenarios: future distribution utilities whose earnings are not based on energy or demand throughput, and whose costs are recovered through wires charges; and existing vertically-integrated utilities with small disincentives (e.g., those with effective decoupling mechanisms, or with frequent rate cases and future test years).

Also, encouraging distribution utilities to support market transformation initiatives and commit to long-term action will require a conscientious, sustained effort by regulators and a stable regulatory environment—two conditions that have been lacking in recent years.

## WHY THE EXISTING REGULATORY FRAMEWORK IS INADEQUATE

Customarily, utility program evaluation estimates resource benefits based on energy and demand savings of participants who receive financial support for program-eligible measures.

After adjusting for free riders (customers who would have installed the measures without utility assistance), the resource benefit estimates are generally used in a shared-savings mechanism that allows a utility to collect additional money (usually a share of net benefits) as an incentive for successful program implementation and performance.

Market transformation initiatives do not fit readily into this incentives/evaluation framework for many reasons:

- (1) The goal of market transformation, from a public policy perspective, is not acquisition of savings and resources on a customer-by-customer basis. The goal is to achieve savings by fostering changes in “business as usual” by *all* customers in the market, as well as by other market actors. These changes will lead to *ongoing* conservation and energy efficiency investment. The issue of what individual participants did in a single year is of secondary importance to the longer term, lasting market effects.
- (2) While free riders may sometimes indicate that utility programs are engaging in unnecessary actions, they are not always avoidable when working in the most efficient possible manner toward maximizing market share of energy-efficient products, services, and practices. Utilities should be encouraged to focus on market segments that have not yet adopted the targeted efficient technologies and practices. However, the current level of obsession of many regulators with penalizing free riders tends to distract from the broader issue of rewarding utilities for changing the behavior of market actors and/or the structure of the market.
- (3) Market transformation initiatives often require utility support, but utilities are not the only responsible entities, and sometimes not the key entities. Therefore utilities cannot control the final outcome of an initiative to the same degree as a utility-sponsored customer incentive program.
- (4) Many of the evaluation and regulatory methods actually subtract beneficial market effects from net savings, either by mislabeling these effects “free riders” and subtracting the savings from the estimates of program effects, or by failing to recognize that some increases in efficiency baselines are due to market effects of the utility programs. Because the earnings/incentive mechanisms are based on these evaluation estimates, a utility loses earnings if it achieves market effects. The more utility programs are targeted to cause market effects, and the more successful these programs are at changing markets, the larger the resulting disincentive.

- (5) Attribution of savings from market transformation initiatives to individual utilities is difficult for three reasons. First, in most market transformation initiatives, utilities are one important member of a team of public, utility, and private sector actors working in concert. Second, key players (e.g., vendors, manufacturers, owners and managers of multiple properties) often work with several different utilities. Third, many market transformation initiatives attempt to extend or expand on trends toward improved efficiency that are part of the natural market or have been created through prior programs. Because there are often multiple players or multiple factors that caused savings, current regulatory standards of certainty for linking program actions to efficiency effects generally cannot be met.
- (6) Market transformation initiatives can be long-term investments. Many market transformation initiatives will not produce measurable savings for one to four years. Current incentive mechanisms would leave utilities without positive financial incentives through years of program investment. Worse, some mechanisms would actually penalize utilities for supporting an initiative if it was not cost-effective in the early years, or if the savings or net benefits achieved were below minimum performance thresholds.
- (7) While modification of market behavior and/or structure through market transformation initiatives has been demonstrated to be feasible and predictable, the effort and time required to succeed is difficult to predict. Persistence is often required as intervenors in the market try, fail, learn, and then succeed. The eventual rewards (benefits and net benefits) have been shown to justify the cost of experimentation. Current incentive systems tend to penalize mistakes, thereby inhibiting experimentation by utilities. While regulators should encourage distribution utilities to take the wisest possible course, and must assess whether programs are going anywhere, they must also be partners in risk-taking. Failed best efforts should not be penalized as long as they are competently executed and are consistent with agreed-upon market transformation plans.

These issues lead us to conclude that, while impacts due to market transformation initiatives can be estimated, the current regulatory framework for utility incentives, evaluation, and attribution will not provide adequate support for the initiatives.

## DEVELOPING EFFECTIVE PERFORMANCE INCENTIVE MECHANISMS

To be effective in encouraging a utility to behave as desired, a targeted performance incentive mechanism should be:

aligned with the policy objectives; clear in its intended message; understandable and accessible; composed of rewards and/or penalties tied to outcomes the utility can affect; reasonably balanced between risks and rewards for shareholders and customers; large enough to attract and retain management's attention; timely; and relatively easy to monitor with respect to evaluating performance (Laffont & Tirole 1993; Schlegel et al. 1993; Stoft et al 1995).

Incentive mechanisms should balance the risks and rewards between customers and shareholders so that a utility is encouraged to work effectively in the market (because shareholders have the opportunity to receive meaningful earnings), with customers receiving the majority of benefits due to changes in the market. At the same time, customers should be assured that they will not be paying large incentives to utilities for market changes that were not necessarily caused by the utility.

### Aligning Performance Incentives With Public Policy Objectives

The first step in developing an effective performance incentive mechanism is to be clear regarding the public policy objectives it is meant to support, and then to align the mechanism with those objectives.

In recent years, most energy efficiency public policy has been focused on resource acquisition in an IRP system, often with some consideration of environmental benefits. The resulting regulatory framework demanded fairly rigorous assessments of costs and benefits on an annual basis. In contrast, one part of future energy efficiency public policy will be focused on transforming markets and reducing market barriers (CPUC 1995, MDPU 1996, ACC 1996).

Clearly, these are two different policy objectives that require different regulatory frameworks. There may be valuable information and experience that can and should be brought over from the old framework, but policy makers would be ill-advised to try to fit the new market transformation policy objectives and strategic efforts directly into the old framework (and we predict that such attempts would fail). With some significant adjustments, the old framework may be adopted as a decision-making tool for distribution utility DSM designed to avoid or defer distribution system investments.

An effective regulatory framework designed for market transformation objectives would: focus the selected agent (e.g., the distribution utility) on achieving lasting market effects and reductions in market barriers; encourage strategic initiatives that work both within markets and with existing market transactions and actors; ensure that feedback on the process of the initiative, the changes in the market, and the

indicators of effects is available on a regular basis; and provide information on the costs, benefits, and performance of the initiatives. We expect that the rigor and level of evidentiary standards for estimates of the effects and benefits of market transformation will be lower than they have been under the resource acquisition framework. We believe this for several reasons: the nature of markets and market transformation initiatives make it more difficult to develop precise estimates of benefits; there is less need for rigorous and precise estimates in a market transformation framework (assuming no net lost revenue payments, lower levels of performance incentives, and clear agreed-upon plans); and policy makers will not want to spend inordinate resources on evaluation.

### **Linking the Incentive Level to the Degree of Responsibility and Effort**

Not all market transformation initiatives will need to or should provide performance incentives to encourage distribution utility support, and the incentive levels should vary based on the circumstances. When the responsibility of the distribution utility, expected level of effort, and predicted benefits are high, larger performance incentives will help to encourage the necessary enthusiasm and commitment of resources. When the distribution utility responsibility or level of effort is moderate, and the disincentives to market transformation are small, lower incentive levels should be effective. In some cases regulatory mandates without performance incentives may be sufficient (e.g., where a utility is a small partner or supporting entity in an initiative implemented by others).

Historically, utility performance incentive levels have varied dramatically across utilities, from 2% to almost 100% of the sum of DSM program and evaluation costs, and from 2% to over 30% of net resource benefits (Stoft et al. 1995). We propose that incentive levels towards the low end of this scale will be sufficient in most cases because there will be fewer disincentives for distribution utilities compared to integrated utilities (assuming distribution utilities do not earn on energy or demand throughput, or on energy sales). In addition, regulators should be able to combine performance incentives with clear messages and regulatory mandates. As discussed earlier, we do not believe that the moderate-sized performance incentives described in this paper will be effective if large disincentives to market transformation are present.

Before setting incentive levels in a particular state, additional work should be done to examine the specifics of the distribution utility rate design, and the resulting motivations and disincentives faced by distribution utilities—as well as the other factors discussed above.

### **Defining Performance or Success: the Incentive Basis**

Performance or success can be defined, measured, and rewarded using several different metrics, including: (1) *ultimate outcomes* (energy and demand savings, product sales as a proxy for energy and demand savings, or market penetration); (2) *indicators of effects* (indicators of lasting market effects and/or reductions in market barriers); or (3) *effective and efficient performance of planned activities* (good-faith implementation).

Regardless of the metric used, it will be challenging to accurately estimate the benefits due to market transformation initiatives (often more difficult than estimating direct program savings from customer incentive programs), partly because it will be difficult to quantify the degree of the causal effect of the initiative in a market where things change for many different reasons, and partly because these changes happen over time (Prahl and Schlegel 1993, NYPS Staff Evaluation Consultants 1995).

**Ultimate Outcomes.** For the reasons discussed above, it is impractical to base performance incentives for utility participation in most market transformation initiatives on ultimate outcomes used to assess resource acquisition programs (e.g., on the traditional measures of annual savings and net resource benefits). This option may be worth considering for the limited number of market transformation initiatives that are designed both to acquire resources and to transform markets, although we suggest that even then it may be more useful and valuable to focus on indicators of effects rather than ultimate outcomes.

Data on product sales can be very valuable for assessing the ultimate outcomes of initiatives, as well as for tracking penetration and diffusion over time. This approach assumes that the number of units is a proxy for overall savings, and uses per-unit engineering estimates to develop load impact estimates. It does not explicitly address market structure changes or whether the specific installations actually saved energy as planned. Others have described problems both with using sales and market penetration data (Van Lier 1995), and with the ultimate usefulness of these data since they are lagging rather than leading indicators (Feldman 1995b).

**Indicators of Effects.** In general, we recommend basing incentives on indicators of market effects and observed reductions in market barriers, as evidenced in program evaluations and tracking data. This leaves the distribution utility responsible for end results (though not ultimate outcomes such as load impacts) without engaging in a level of detail and focus on customer participants which is incompatible with market transformation. We prefer basing incentives on

indicators of market effects because they are timely and observable, the utility has the ability to impact them, often they can be used to develop or forecast estimates of market penetration and load impacts (for purposes of assessing ultimate outcomes), and the information collected can help improve the initiative in a timely manner.

While others have also stated their preference for focusing evaluation efforts on indicators of market effects and reductions in market barriers (Hastie et al. 1996, Feldman 1995a), they are less clear whether they believe moderate performance incentives should be based on such indicators.

To carry out this system, the utility and regulators should agree in advance on the scope of the markets, the indicators of success, the intended indices of market effects and reductions in market barriers, and the methods used to evaluate market effects and reductions in market barriers. For example, one regional plan (Gordon and Tumidaj 1996) describes the market for commercial lighting remodeling (with specific focus on three market segments), identifies several market barriers in those markets, proposes indices used to assess market effects and reductions in market barriers, and proposes evaluation approaches.

The following are examples of indicators of market effects which are pertinent to the market for efficient lighting during remodeling (Gordon and Tumidaj 1996): increased knowledge or awareness among specifiers, designers, and decision-makers; existence and deployment of decision-making tools and structures which are likely to lead to efficient design and equipment installation, and which are being used on more jobs; more frequent recommendation or specification of efficient equipment and design; increased application of efficient equipment or design; attendance at and intent to implement training; transfer of experience with efficient equipment and design to additional buildings; and changes in the costs of efficient technologies and practices. To evaluate these market effects, Gordon and Tumidaj (1996) propose interviews with vendors, contractors, and managers of targeted large firms, and walk-through surveys or plan reviews of samples of remodeled buildings.

This approach provides some data on the number of units sold (though less reliably than using sales data), and also can provide indicators of structural market shifts, such as changes in stocking practices, design practices, standard products, etc. This type of evaluation can provide very valuable interim directional guidance to initiative efforts between larger impact studies. In some cases, it may be easier to track impacts on specific markets through this type of approach rather than using aggregate sales data tracking.

Incentive claims based on indicators and estimates of market effects can be made more defensible with information and

supporting evidence regarding reductions in market barriers. We speculate that a utility incentive claim is more likely to receive regulatory approval if it is supported by an assessment of the market, a description of key market barriers on which it focused its efforts, an evaluation of market effects that are likely to result if those barriers are reduced, and other links between observed market effects and reductions in market barriers. In contrast, we believe regulators are less likely to approve an incentive claim that consists solely of observed market effects.

Feldman (1995c) has proposed to use observed reductions in market barriers (more precisely “market failures” in this case) together with associated reductions in transaction costs (Williamson 1989) in a formal process to assess the performance and cost-effectiveness of market interventions. While this approach deserves consideration and has some merit, we do not believe it will be applicable for all market transformation initiatives. This approach appears to require buy-in to certain precise economic concepts and a rigorous framework for assessing costs and benefits, yet relies on uncertain or moderately certain inputs for the analysis. We recommend that this approach be considered for those situations where reductions in transaction costs are the main objective and a rigorous framework for analysis of those reductions is required, but not for all market transformation initiatives.

**Activities and Actions in a Consensus-Based Plan.** There are circumstances where a distribution utility might balk at accepting responsibility for end results, even for short-term market effects, because of the uncertainties inherent in the proposed plan, expectations that results will take several years, or the reliance on other parties. One alternative is to reward utilities (or at least to allow cost recovery) for competent execution of actions within a consensus-based plan, regardless of whether they changed markets or not.

Such a system of incentives is possible only if regulators agree with utilities and other parties up-front on a coherent plan for market transformation. A plan should document overall program goals, describe strategies for reducing market barriers, provide action items, assign responsibilities, and provide time lines for execution. The approach used to assess performance of the specified activities should also be agreed upon in advance.

Once such a plan is in place, the successful completion of items in that action plan can be used as another indicator of success, or at least compliance. This could be monitored through reporting and process evaluations.

This third type of indicator is the least direct indicator of the ultimate outcome of a market transformation initiative. At the same time it is perhaps the only indicator where

attribution to a specific party (e.g., a distribution utility) is clear-cut. Good-faith implementation of plans is pertinent to the portion of market transformation initiatives that utilities can control, whereas the overall success, as measured by the other two approaches above, may be as much the result of the actions of other entities. We believe that many utilities may prefer this approach because their risks are low and more controllable.

Two conditions are important for implementation plan tracking to be a useful tool for incentives and evaluation. First, the criteria for good-faith implementation must be sufficiently rigorous that the implementors (e.g., the utilities) are encouraged to be aggressive and creative in their efforts. This may require process evaluation or compliance auditing as part of the basis for payment. Second, there must be a process for negotiating plan changes, because successful market transformation initiatives often require changes in course.

**Which one to choose?** The decision to rely more on ultimate outcomes, indicators of market effects, or good-faith execution of a consensus-based plan (or some combination of the three) depends on: (1) the overall public policy objectives for market transformation; (2) the objectives of the specific initiative; (3) the level of desire and commitment of the utility and the regulators; (4) the level of utility involvement and responsibility; (5) the ability to evaluate different types of effects and benefits; (6) the level of expected risk; (7) the expected elapsed time before results become evident; and (8) local politics, precedent, and preference.

## Types of Incentive Mechanisms

There are four main options for utility performance incentive mechanisms: shared savings, performance adder, bonus, and combinations of these three. Mechanisms can also be part of a performance-based ratemaking (PBR) approach, which is discussed in the following section.

**Shared savings.** Shared-savings mechanisms provide a share of net benefits (usually net resource savings) to the utility. This is a viable option for market transformation initiatives only when the level of responsibility and effort of the distribution utility is high, and the estimates of resulting load impacts can be estimated precisely. For most market transformation initiatives the option of using a shared-savings mechanism is limited because of the problems with the existing regulatory framework and the nature of market transformation discussed above. It may be possible to include near-term market effects that can be quantified as spillover load impacts in savings estimates, and to capture measure cost reductions in estimates of net benefits. However, estimates of load impacts due to most market transformation initiatives are unlikely to be sufficiently reliable to be used

as a basis for shared-savings mechanisms. Less precise estimates of load impacts could be used in a shared-savings mechanism, but using a shared-savings framework that relies on resource benefits would be meaningful only if resource acquisition were an important policy objective.

**Performance adder.** Performance-adder mechanisms provide an incentive as a percent of program costs based on performance standards (they are sometimes called mark-up or cost-plus, but the term performance adder is more accurate). “Performance” can be defined in many different ways. There appears to be much promise for performance-adder mechanisms—even now before restructuring is implemented. Performance standards within performance-adder mechanisms should be based on indicators of market effects (e.g., changes in products, stocking practices, prices, practices, etc.) that are easier to estimate than load impacts because of a clearer causal link and a shorter time period. The partial basis on program costs can protect against exorbitant claims, but it can also restrict the amount of incentive that can be offered (e.g., in very low-cost initiatives).

**Bonus.** Bonus mechanisms provide a set bonus or reward based on performance standards. Like the performance-adder mechanism, “performance” can be defined in many different ways, which provides a large amount of flexibility. Bonus mechanisms are not linked to the costs of the initiatives, but incentive caps can be used to protect against exorbitant claims.

**Combination approaches.** It may be possible to treat impacts from some initiatives (e.g., a manufacturer incentive or procurement initiative) two ways, with identifiable direct customer impacts being included as load impacts within a shared-savings mechanism, and market effects and reductions in market barriers being treated separately (possibly using one of the other mechanisms described above, such as a performance-adder mechanism).

## Integrating Performance Incentives With PBR

Performance-based ratemaking has received a great deal of attention as an alternative to rate-of-return/cost-of-service regulation, and is likely to have a major role in distribution utility rate design. The basic idea is to fix either utility prices (price caps) or allowable revenues per customer (revenue caps), while setting a limited number of additional performance targets (e.g. power reliability and customer service standards). This frees regulators from the need to oversee the details of utility operations. Utilities are motivated to reduce costs while meeting performance goals.

There are two main options for incorporating a market transformation incentive in a PBR framework. First, an incentive calculated using one of the above mechanisms could be

included as an explicit incentive outside of the PBR mechanism (and be paid out of wires charges). Second, the utility's performance in an initiative could be included as one aspect of a customer service component within a PBR mechanism, without using any of the above mechanisms.

By “getting out of the details,” PBR in its purest form provides no incentive for energy efficiency and generally provides disincentives. Price caps penalize programs that result in near-term rate increases (including those due to non-wires charge funded market transformation initiatives), even if total customer costs are reduced. They also provide incentives to vertically-integrated utilities for increasing sales, without addressing lost revenues. Revenue caps force energy-efficiency services to compete with other needs, often with a focus on short-term benefits. Because market transformation initiatives often take years to work, they will not fare well in this type of system. Funding market transformation initiatives through a non-bypassable wires charge, requiring divestiture or strongly-enforced functional separation, and preventing distribution utility earnings from being affected by changes in energy or demand throughput can all be used to reduce the disincentives. But even if the disincentives are reduced in this manner, PBR alone does not provide any positive incentives.

The appeal of PBR is in its simplicity. PBR works best when the public has few goals (e.g., low power cost, reliability), which can clearly be indicated through simple yardsticks. We believe that electric utility regulation involves a complex set of public objectives, including cost minimization, reliability, environmental impact minimization, energy efficiency, universal service, and others. The more that incentive mechanisms are used as an overlay on PBR to encourage additional public purposes, the more that PBR begins to resemble the current system of regulation, and the advantages of simplicity to the regulators and the utility are lost (Hill 1995). The underlying question is whether a PBR system which is sufficiently elaborated to deal with these issues is still “simple.”

## Options for Reducing Risks

Some options for reducing ratepayer risk associated with market transformation performance incentive mechanisms include: (1) lower performance incentive levels in general; (2) variable shares within shared-savings mechanisms, with smaller shares of net benefits due to market effects being provided to shareholders because of less certain estimates of those net benefits; (3) variable shares within performance adder mechanisms; and (4) caps on incentives tied to market effects so that the risks of large, unexpected payments that would not pass a “front page” test are eliminated. In general, incentive caps, thresholds, and bounds could be used to

reduce large upside and downside risks for utilities and regulators, as well as for customers.

## MEASUREMENT AND EVALUATION TO SUPPORT MARKET TRANSFORMATION

Measurement and evaluation should be used to support public policy and strategic objectives, and the programs/initiatives developed to meet those objectives. Therefore, evaluation should help meet the information needs of the market transformation initiatives. In addition, evaluation should be used to inform and support decisions about the performance incentives, rather than to reduce or dilute their effectiveness.

Evaluation of market transformation initiatives serves five distinct purposes: (1) support the planning and design of the initiatives, including providing up-front market studies and baseline analyses; (2) provide corrective and constructive guidance regarding the implementation of market transformation initiatives; (3) provide indicators of the effectiveness of specific market transformation strategies and activities (i.e., by evaluating indicators of market effects and reductions in market barriers); (4) assess the overall level of performance and success of the market transformation initiative (both moderate-and long-term); and (5) inform decisions regarding performance incentives provided to distribution utilities for market transformation activities.

Evaluation approaches will often need to meet multiple objectives and purposes. In some cases, timely information that is fairly accurate may be more valuable than less timely but very accurate information. As a practical matter, some evaluation activities (e.g., market and baseline studies, and some sales tracking) will likely be done *within* initiatives, in contrast to the common practice of separate outside evaluations of existing utility DSM programs.

Lessons from evaluations should be used, where appropriate, to revise consensus implementation plans for market transformation, and to adjust any performance incentive mechanisms based on those plans. To maintain credibility of the forward-looking planning process as a basis for establishing performance incentives, it is important that these adjustments be made on a negotiated consensus basis between regulators, utilities, and other interested parties.

Methods for evaluating market transformation initiatives are described elsewhere (Schlegel 1996). Rosenberg (1995) provides one example of a multi-year utility program evaluation that evaluated market effects, market transformation, and spillover using several methods.

## MAKING PROGRESS NOW

Valuable, incremental progress on many of these issues can be made during the next 18 months while restructuring is being implemented. Useful information on the effectiveness of market transformation efforts, the role and design of potential performance incentive mechanisms, the nature of distribution utility rate design and disincentives to market transformation, and the ability of various methods to evaluate market effects could all be developed now. In addition, utilities could conduct studies of markets to address in the future, the market effects of past programs, and/or current and evolving baselines.

In terms of exploring performance incentive mechanisms, one possibility would be to pre-negotiate a change in the existing mechanism for a specific program, e.g., by substituting a shared-savings mechanism based on net resource benefits with a performance-adder mechanism based on indicators of market effects (preferably with the same balance of risks and rewards, which may or may not mean the same target earnings). Another idea would be to supplement existing shared-savings or performance-adder mechanisms with performance-adder or bonus mechanisms based on market effects or reductions in market barriers.

However, for any of this to happen over the next 18 months, policy makers will need to dedicate some of their attention to short-term issues instead of devoting all of their attention to future issues under restructuring. This may be unrealistic given the existing workload of policy makers.

## CONCLUSIONS

Regulators in some states have decided that market transformation should be pursued, and that distribution utilities should be at least one of the agents used to meet market transformation objectives. Current utility incentive mechanisms and evaluation approaches do not provide sufficient support for market transformation. A different regulatory framework is needed to encourage distribution utilities to support market transformation initiatives. This new framework should:

- (1) Be willing to reward distribution utilities for efforts that are effective at changing markets, reducing market barriers, and increasing market penetration.
- (2) Recognize that it will be challenging to estimate the benefits due to market transformation initiatives (more difficult than estimating direct program savings from customer incentive programs), partly because it will be difficult to quantify the degree of the causal effect of the initiative in a market where things change for

many different reasons, and partly because these changes happen over time.

- (3) Balance the risks and rewards between customers and shareholders so that a utility is encouraged to work effectively in the market (because shareholders have the opportunity to receive meaningful earnings), with customers receiving the majority of benefits from changes in the market—without facing substantial risks of providing large incentives to utilities for market changes that were not necessarily caused by the utility.

One major choice for regulators is whether to regulate *ultimate outcomes, indicators of effects, or activities*. Performance or success can be defined, measured, and rewarded using several different metrics: energy and demand savings (load impacts); product sales as a proxy for energy and demand savings; market penetration; market effects; reductions in market barriers; or performance of planned activities in an efficient manner (good-faith implementation). For most market transformation initiatives that rely on utility support, we believe that focusing on market effects and reductions in market barriers is the most viable approach.

We recommend that regulators base utility performance incentives on indicators of market effects, with the observed market effects linked to reductions of market barriers. We prefer basing incentives on indicators of market effects because they are timely and observable, the utility has the ability to impact them, often they can be used to develop or forecast estimates of market penetration and load impacts, and the information collected can help improve the initiative in a timely manner. Regulators can use incentive caps, thresholds, and bounds to limit upside and downside risks for customers and distribution utilities.

We also recommend that regulators consider basing utility incentives on good-faith execution of a consensus-based implementation plan when the expected risk is low, the expected elapsed time before results become evident is long, and the utility is only one of several organizations responsible for the initiative. We believe that many utilities may prefer this approach, even if they are the primary implementor of an initiative, because their risks are low and controllable since the incentive is based on their performance of defined activities instead of on end results.

We believe that performance-adder incentive mechanisms may have the most promise in the near future because of the flexibility they provide in terms of defining “performance,” the risk-limiting nature of their being linked to (and limited by) program costs, and the familiarity that many individuals and organizations have with this type of mechanism.

Regulators, utilities, and interested parties need to work together very to develop and implement the new regulatory framework. Without expeditious action, we believe that many of the existing and proposed market transformation initiatives that rely (at least to some degree) on current and future utility support will be severely threatened.

## ENDNOTE

1. See Golove and Eto 1996 for further discussion of market barriers, market failures, and justifications for government intervention. We use the term “market barriers” throughout this paper consciously, and we consider the existence of market barriers, as discussed by Golove and Eto, to be sufficient justification for government intervention.

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