The Old Model Isn't Working: Creating the Energy Utility for the 21st Century

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ABSTRACT

Traditional rate regulation of energy utilities creates conflicts between utility financial objectives and the objective of saving energy through utility customer energy efficiency programs. Under traditional regulation, utility spending to reduce customer energy use will yield financial losses compared to typical utility investments that increase energy supplies for customers. If these inherent regulatory barriers aren't addressed, electric and natural gas utilities will resist funding and implementing energy efficiency programs.

This paper examines regulatory changes that could help create a new business model for utilities. This new business model aligns utility financial objectives with meeting energy resource needs through a balanced, lowest cost portfolio of both supply and demand options. Such options include reducing energy use through improved customer energy efficiency.

Utilities face three primary financial concerns relative to customer energy efficiency programs: (1) recovery of program costs; (2) removal of the "through-put" incentive (profits linked to increased energy sales); and (3) providing earnings opportunities for shareholders comparable to alternative utility investments. The three primary concerns can be viewed as creating a three-legged "financial stool" on which the new business model must stand to achieve the greatest impact and to overcome the inherent financial conflicts utilities face under traditional regulation.

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BACKGROUND: THE ORIGINS AND BASIS FOR UTILITY REGULATION

The electricity system that supports our modern way of life is a stunning technological achievement. From its earliest, simple roots in the discoveries of Thomas Edison and other leading scientists and inventors, the system has developed into a dizzyingly complex, highly integrated network of power plants, power lines, and associated technologies. Most of us in the U.S. take the availability of relatively low cost, highly reliable electricity for granted wherever we live, even in rural, remote locations. As our economy becomes ever more dependent on advanced computer and communications technologies, our dependence on reliable, low cost electricity increases.

The health of our economy also depends heavily on the widespread availability and low cost of heating and other fuels. Natural gas has become a primary fuel serving millions of households, businesses, and industries across the U.S. Like electricity, the natural gas system has developed and expanded rapidly over the past century. While not quite as universally available as electricity, natural gas is available to customers across vast parts of the U.S.

Electricity and natural gas have more in common than simply being fundamental elements of our modern economy and way-of-life. Their markets and activities are regulated by local, state, and federal agencies. The type and scope of regulation varies among different categories of what we collectively call "utilities." The principal types of utilities are (RAP 2011a):

- Investor-owned utilities (IOUs): Private companies that are subject to state regulation of rates and a wide variety of other aspects of operation, such as approval for major investments and terms of service to customers. They are financed by a combination of shareholder equity (stocks) and bondholder debt. About 75% of the U.S. population is served by IOUs.

- Public power (also known as "consumer-owned" or "publicly owned" utilities): This category of utilities includes municipal utilities, utility districts, and cooperatives, which combined serve about 25% of the U.S. population. Because they are public enterprises, they are not subject to state regulation in most cases. Some states regulate certain aspects of public power, but generally such entities are subject to regulation by municipal authorities, cooperative boards of directors, or similar bodies with representatives elected by customers, who also are the owners of the utilities.

This paper focuses on investor-owned utilities because of their dominant role in the economy and the unique regulatory structure that shapes the operations and investments of IOUs.

The exact degree of regulation varies from state to state, especially as the result of industry deregulation and restructuring efforts over the past 20–30 years. The fundamental reason for regulating electricity and natural gas markets is that they are "natural monopolies" in economic terms. The characteristics of these markets are such that it is significantly less costly to provide services without duplicating facilities necessary to provide such services. Imagine the costs of having multiple power lines and natural gas pipelines available to all customers in a given area. Clearly having a single provider would yield lower costs. However, in granting a single company the sole rights to serve customers in a selected area, customers have no competitive alternative. Thus, the company could exercise monopoly control and charge rates far in excess of reasonable costs. Regulation of rates substitutes for competitive market forces. Regulation provides a check on this potential abuse of monopoly power over customers.

The objectives of regulation of electricity and natural gas markets are numerous, but primary among these objectives is that of achieving "just and reasonable" rates for customers and "just and reasonable" returns for investors. Individual public utility commissions (PUCs), which are sometimes alternatively called public service commissions (PSCs) or state corporation commissions, are left to interpret and apply what "just and reasonable" means. This determination requires PUCs to balance customer and utility interests. Additional obligations include (Phillips 1984):

- Serving all who apply for service;
- Rendering safe and reliable service; and
- Serving all customers on equal terms.

Rate regulation is the trade-off for granting private companies exclusive service territories to serve customers. Customers who desire service, electricity and/or natural gas, in such an area must purchase such service from a single company. Without regulation there would be no control over rates charged and other important aspects of customer service, such as health, safety, reliability, and environmental protection.

Financial Motivations For Utilities Under Traditional Regulation

Modern utility regulation represents over a century of innovation and evolution. Our current electric utility system was largely developed in an era of rapid, consistent growth of energy demand. This growth was addressed through corresponding massive and consistent investments in new power plants and associated transmission and distribution networks. The regulatory processes and governing formulae for establishing utility rates have evolved to encourage such growth.

Regulatory commissions are responsible for determining the amount of money a utility needs to collect from its customers to cover its costs, known as the "revenue requirement." This includes operating expenses and financing costs associated with capital investments (including shareholder profits). Generally, the formula is (in its simplest form):

Revenue Requirement = (Rate Base Investment) x (Rate of Return) + Operating Expense

The "rate base investment" is the total of all long-lived capital investments made by the utility to serve customers with some adjustments such as deprecation. The rate base includes the wide array of physical assets most of us associate with electric utilities: power plants, buildings, and power lines. When new assets are added, the rate base increases accordingly.

The "rate of return" is a rate of earnings on investments that includes both profit to the company and recovery of interest on debts incurred to provide utility service. The rate is determined by regulatory commissions and varies according to risk of various sources of utility capital, principally shareholder equity and bondholder debt. The rate of return is not guaranteed, but "allowed," meaning the utility may earn this return on investment if its forecasts and costs match those used determining rates.

Once the revenue requirement is established, specific rates must be set by regulatory authorities to allow the utilities to recover this amount of revenue from customers. The general formula for setting rates is:

Customer Rate = Revenue Requirement/Volume of Energy Sales

Once a PUC has established rates, variations from the volume of sales used to determine rates will affect utility revenues and profits. If actual sales volume is greater, revenues and profits will increase. If actual sales are lower, revenues and profits will decrease.

These two rather simple formulae govern the primary business model for investor-owned utilities that has been in place in most states since such companies were created many decades ago.

Examination of these formulae reveals two primary drivers for utilities to increase their revenues and associated earnings or profit. These drivers are to: (1) increase the revenue requirement by increasing the "rate base" and (2) increase the volume of energy sales (either kilowatt-hours of electricity or therms of natural gas) after rates are established by PUCs.

CONFLICTING OBJECTIVES: SAVING ENERGY VS. EARNING PROFITS

This regulatory model has generally worked well for establishing a large utility system infrastructure to meet constantly growing energy demand. The utility systems we have in place meet many of the regulatory objectives outlined earlier. However, this model's emphasis on growth in utility assets (in order to increase the rate base) and in the volume of energy sales is at odds with the objective of reducing energy use through customer energy efficiency programs.

The energy crises of the 1970s gave rise to public concern for energy resource limits and environmental impacts of energy production and use. For a variety of reasons, the costs of new electric generation resources escalated rapidly. Energy conservation and energy efficiency emerged in this era as strategies that could save customers money, reduce environmental damage, and reduce America's dependence on foreign supplies of energy resources, such as oil. Policymakers and regulators turned to energy utilities to shift some attention to the "demand" side of their business by providing programs designed to help their customers reduce energy use through a variety of energy conservation and efficiency measures. Today's utility energy efficiency programs grew from these early initiatives.

However, providing energy efficiency programs to customers under the traditional utility business model creates fundamental conflicts with utility financial objectives. There are three primary financial concerns from a utility's financial perspective under this traditional model:

- Costs of providing programs must be recovered;
- Reducing sales through customer energy efficiency savings reduces utility revenues and thereby profits; and
- Money spent by utilities on customer energy efficiency programs does not provide a return on investment as do other utility investments such as power plants and other capital assets (anything that goes into the utility's rate base).

Each of these three problems can be viewed as a leg of a three-legged utility financial "stool." Addressed effectively together, the financial stool is strong and functional. If any leg is missing or weak, the stool collapses.

Program Cost Recovery

The first leg of this stool is program cost recovery, which is a minimum threshold for utilities to offer customer energy efficiency programs. Without such cost recovery, money spent on such programs constitutes financial losses to utility shareholders. ACEEE has performed periodic reviews of state regulatory practices and customer energy efficiency programs (Molina et al. 2010; Eldridge et al. 2007; York and Kushler 2005). Our work demonstrates very clearly that this minimum threshold, cost recovery of program expenditures, is fundamental for enabling utilities to provide energy efficiency programs beyond merely marketing or information-only campaigns (Kushler et al. 2006, 2009). Regulatory commissions today typically allow such expenditures to be treated as "expenses" in rate cases, meaning that utilities recover these expenses as they do the many other types of expenses included in revenue formulae, such as employee salaries and administrative expenses. Alternatively these costs can be added to the "rate base," meaning that such expenditures are capitalized and payments to recover these costs are amortized over a given period. We discuss these two approaches later in this paper.

Throughput Incentive

The second leg of the utility financial stool is addressing the "throughput incentive." Successful customer energy efficiency programs can reduce energy sales and therefore profits. As long as utility revenues are a direct function of energy sales, there will be an incentive for the utility to increase "throughput" by selling more electricity or natural gas. Utilities have a fiduciary responsibility to their shareholders to earn profits and yield appropriate returns to these investors. Thus there is an inherent conflict between corporate financial objectives and the energy savings objectives for utility energy efficiency programs. We discuss ways to address the "throughput incentive" later.

Provide Earnings Opportunities for Utility Investments in Energy Efficiency

The third leg of this financial stool is to provide earnings opportunities for utility investments in energy efficiency. Utilities seek to invest in activities and assets that can provide a financial return on those investments. Any money spent on customer energy efficiency programs is thereby not available for other investments, meaning that such spending does not provide earnings for investors. Utility managers seeking to maximize company earnings and profits for shareholders therefore are reluctant to divert available financial resources towards customer efficiency programs. Solutions are discussed later.

RE-THINKING AND RE-CREATING THE MODERN UTILITY

The traditional utility business model is ill-suited to support and reward utilities for investing in the energy efficiency of their customers' homes, businesses, institutions and industries. Changes in regulation are needed to create a new business model for energy utilities, a model that changes the fundamental financial motivations for utilities from commodity sales of energy (a focus on selling more units of energy used by customers—kilowatt-hours of electricity or therms of natural gas) to providing energy services at lowest cost to both customer and utilities. By energy "services" we mean meeting customer needs for energy and the "services" it provides, such as heating, cooling, lighting, and powering electronics through an integrated portfolio of both "supply" and "demand" resources, which includes energy efficiency.

Keeping customer energy costs low yields different results for the composition of utility energy resource portfolios compared to merely trying to minimize customer rates. Customers pay "bills" not "rates," and customer bills are based on the amount of energy used multiplied by the customer rate. Reducing the amount of energy that customers use through energy efficiency improvements reduces customer costs. For example, if a customer reduces their use by 10% but rates go up by 2%, then the customer's bill goes down by about 8%. ACEEE research (Friedrich et al. 2009) demonstrates that the cost of saving energy through customer energy efficiency programs is far cheaper to utilities than any new generation resource. This research shows that the cost to save a kilowatt-hour of electricity through utility programs costs the utility about 2.5 cents whereas it costs 9 cents or much more to generate that same kilowatt-hour from a new power plant, whether a renewable resource such as wind or a fossil fuel resource such as coal.

The fundamental financial problems facing utilities for investing in energy efficiency under the traditional regulatory business model have been recognized since the advent of utility customer energy efficiency programs (Kushler and Suozzo 1999; Moskovitz 1989). A variety of solutions have been developed and applied over many years, although such changes never have become dominant and some of them have come and gone due to other industry changes and policy objectives.

Cost Recovery

Cost recovery of energy efficiency program expenditures generally is the easiest and most readily addressed of these three problems. It simply requires PUCs to allow such cost recovery as part of regular rate cases in which they review and approve the full set of utility costs that comprise the revenue requirement. In addition to allowing such costs to be included, PUCs also must address the mechanism for cost recovery, which is either to: (1) expense these costs or (2) capitalize these costs. Utilities generally prefer to recover these costs as expenses, as they quickly get cost recovery. Capitalizing these costs treats them similarly to the way power plant investments are recovered. However, utilities are often reluctant to go this route, as unlike a power plant that can be sold or used as collateral, energy efficiency measures installed in customer facilities are owned by the customer and therefore are a "regulatory asset" and not a tangible asset. Most states now expense these costs, which seems to be the preferred treatment. And if energy efficiency is capitalized, most utilities prefer short capitalization periods (e.g., 3–5 years).

An alternative to cost recovery through utility rate cases is to establish some type of "public benefits" charge or similar separate rate charge directed specifically to collect revenue to cover the costs of customer energy efficiency programs. Many states have such charges in place, which have been established by legislation or through regulatory processes.

Addressing the Throughput Incentive

Addressing the other two fundamental financial problems requires greater changes to the traditional regulatory business model. The first of these, addressing the "throughput incentive," has long been recognized and there are a variety of solutions to this problem. We summarize the two primary regulatory approaches to this problem below:

- ***Decoupling*** is a rate adjustment mechanism that allows the utility to recover its investment and operating costs independent of the volume of actual electricity sales. Generally a symmetrical "true-up" is applied to adjust rates (up or down) to compensate for any difference between allowed and actual revenues. This true-up occurs periodically regardless of the cause of the change and whether the change is an increase or decrease from expected sales. Rates are designed to allow a utility to recover its fixed and variable costs[1] Decoupling addresses the fixed cost portion and adjusts rates so utilities recover their allowed fixed costs, but not less or more.

- ***Lost Revenue Adjustment Mechanism (LRAM)*** is a rate adjustment mechanism that allows the utility to recover revenues that are "lost" due to energy savings from approved customer energy efficiency programs. A typical approach includes some type of evaluation of energy savings attributed to energy efficiency programs to establish the amount of sales lost. Then that figure is multiplied by some established amount of fixed cost per unit of energy (e.g., kWh or therm) to determine the amount of additional revenue the utility is entitled to receive from customers. This additional amount is often collected via an adjustment to rates in the form of a "rider" on the customer's bill. While decoupling rate adjustments are symmetrical (i.e., may increase or decrease rates) and will be applied regardless of the cause of the change in sales levels, LRAM rate adjustments can only increase rates, and are based only on energy savings due to approved efficiency programs.

Of these approaches, decoupling is viewed as the preferred option by numerous industry experts. A recent report by the Regulatory Assistance Project (RAP) provides a comprehensive guide on the theory and application of decoupling (RAP 2011b). According to RAP, currently some form of decoupling is in place for at least one electric or natural gas utility in 30 states. Decoupling is being considered in another 12 states. The authors of this report strongly recommend decoupling as the preferred regulatory approach to "revenue stabilization" (removing the throughput incentive that ties utility profits to increasing sales revenues) (page 41):

> *There are a number of other revenue stabilization measures used by regulatory commissions, some of which are proposed as possible alternatives to decoupling. Some of these provide nearly the same benefits to utility shareholders as decoupling, but all of them fall short of the full range of benefits that revenue decoupling provides, particularly those for consumers and the environment.*

[1] "Fixed" costs are those costs that, once incurred, do not vary by the volume of energy sales. For example, once a power plant is constructed and allowed into a utility's rate base, the costs to pay for this long-term asset are set until all costs are fully recovered. "Variable" costs are those costs that vary according to the volume of energy sales. The prominent example is the cost of fuels to generate electricity.

They conclude (page 54):

> *Revenue regulation and decoupling provide simple and effective means to eliminate the utility throughput incentive, remove a critical barrier to investment in effective energy efficiency programs, stabilize consumer energy bills, and reduce the overall level of business and financial risk that utilities and their customers face…. Each utility and each state will be a little different, so there may not be a cookie-cutter approach that is right for all. However, the principles remain fairly constant: minor periodic adjustments in rates stabilize revenues, so that the utility is indifferent to sales volumes. This eliminates a variety of revenue and earnings risks, in particular those associated with effective investment in end-use efficiency, and can bring provision of least-cost energy service closer to reality for the benefit of utilities and consumers alike.*

While clearly a strong proponent of decoupling, RAP emphasizes the importance of decoupling as a key component of a broader strategy to better align utility financial incentives with societal interests.

The main alternative to decoupling is LRAM. ACEEE recently completed a national review of LRAM and related approaches to address this problem (Hayes et al. 2011a). The use of LRAM is not new. Several states had LRAMs in place in the 1980s and into the early 1990s, but largely dropped these due to negative experiences and other industry changes. In spite of previous negative experience, LRAMs appear to be having a resurgence of popularity recently. ACEEE found 22 states that are (or are considering) addressing lost revenues of electric or gas utilities with an LRAM or other rate adjustment mechanism. Of those, only four states have more than a year of current experience (Hayes et al. 2011a), making it difficult to evaluate the impacts and effectiveness of these new efforts. More time will be needed to gather and analyze data to perform such evaluations. While it is premature to draw firm conclusions on results from these recent experiences, ACEEE observed:

- *The use of LRAM has been increasing in recent years, particularly in states with relatively limited prior experience with utility energy efficiency programs and modest levels of energy efficiency spending.*
- *There is a lack of available data on prior experiences with LRAM. There is also a lack of data on current LRAM approaches as most have just been recently implemented.*
- *No standard approach has emerged. Instead, states are tailoring their approaches to lost revenues to fit their unique circumstances and preferences. The use of LRAM has been increasing in recent years, particularly in states with relatively limited prior experience with utility energy efficiency programs and modest levels of energy efficiency spending.*

We view LRAMs as a second-best approach to the through-put incentive and suggest that LRAMs should be pursued only if decoupling is not a viable option. As noted in ACEEE's review (Hayes et al. 2011a), there are a number of fundamental problems in using LRAM as opposed to decoupling. These include:

- Does not remove the utility disincentive regarding customer energy efficiency that is caused by factors other than approved utility programs (e.g., government programs, energy efficiency codes and standards, etc.). The general "throughput" incentive to increase sales and avoid declining sales, as discussed earlier, remains in place.

- Is an asymmetric upward adjustment in rates that protects the utility from sales decreases due to energy efficiency programs, but does not protect customers from utility over-collection of authorized revenues if overall sales increase above the forecast.

- Requires expensive and time-consuming processes to determine energy program savings, and the process to receive regulatory approval for recovery of "lost revenues" can be contentious.

Providing an Opportunity for Earnings from Energy Efficiency

Solving the problem of the throughput incentive does not place investments in energy efficiency on comparable financial basis compared to investments in supply-side resources, such as new generation. It eliminates a disincentive, but does not provide a positive incentive. Investments on the supply-side are able to earn a return to investors. There are several approaches that address this problem that have been developed and applied in selected states. These approaches can be divided into three general categories as follows:

- *Shared Benefits* allow utilities to earn some portion of the benefits of a successful energy efficiency program. For example, a utility may earn a share of the positive difference in efficiency program spending and the value (benefits) of energy savings achieved as a result the program.
- *Performance Targets* incentives reward utilities for meeting energy savings goals and other targets. For example, a utility may earn a percentage of efficiency program costs for achieving pre-established energy savings goals.
- *Rate of Return* incentives allow utilities to earn a rate of return based on efficiency spending or savings. For example, a utility may earn a rate of return for efficiency investments equal to, or even exceeding, the rate it earns for new supply capacity investments.

Together these approaches all fall under a broader category termed "performance incentives" for utility energy efficiency. ACEEE recently completed a national review of state experiences with these performance incentives (Hayes et al. 2011b). In this review ACEEE found:

- *States have shown a strong preference for mechanisms that award an incentive based on cost-effective achievement of energy savings targets rather than other metrics such as program spending. Further, when these efficiency goals are set, utilities are consistently motivated to achieve or exceed them to earn the financial "reward" of the incentive payment.*
- *Wide agreement from the industry experts interviewed that shareholder incentives influence utility decision-making and corporate "buy-in" by leveling the playing field between investments in new supply capacity and investments in efficiency programs, essentially "legitimizing" efficiency as an investment option.*

This study also examined certain quantitative indicators that might plausibly be affected by a utility incentive policy. Efficiency spending by utilities is increasing nationally and it is significantly higher in states that have adopted policy mechanisms to align incentives to promote efficiency. Our research indicates what appears to be a strong correlation between higher spending by utilities and the presence of a shareholder incentive. We have also found that many states have had immediate and substantial increases in efficiency investment following adoption of an incentive. In states where a shareholder incentive mechanism has been implemented, the per capita utility investment in efficiency is higher and increases faster as compared with states that have adopted other policy mechanisms to properly align incentives, but have not included a shareholder incentive mechanism.

ACEEE's research on performance incentives, one leg of the three-legged utility financial stool, revealed the importance of comprehensive, integrated approaches to customer energy efficiency programs. In this research we found repeated emphasis on the need for a larger framework of established policies supporting and encouraging efficiency. Shareholder incentives in the context of a larger framework, such as legislation or a state efficiency standard, can reduce controversy, help parties to reach consensus, solidify regulatory authority, and provide regulatory certainty. Fractured treatment of efficiency makes it difficult for regulators to see what the true impacts of policies are, reducing confidence and the ability to adjust mechanisms appropriately. States that can see where and why the spending and savings are occurring have greater support from regulators and stakeholders.

A great wave of regulatory change occurred during the 1990s, a period in which numerous states "deregulated" or "restructured" their electric utility markets to allow and promote competition in both wholesale (bulk power) and retail (consumer-level) electricity markets. As a result, in restructured states there are "distribution" utilities still regulated by state PUCs. In these states the distribution utilities purchase power through wholesale power markets. While a significant change to utility markets and regulation in these states, the resulting restructured utilities still face the financial barriers to investing in customer energy efficiency. The disintegrated market structure can exacerbate such barriers toward customer energy efficiency programs.

CONCLUSION: A UTILITY BUSINESS MODEL FOR THE 21ST CENTURY UTILITY

The importance of energy efficiency has never been greater than now as a utility resource helping to achieve multiple economic and environmental objectives. Energy efficiency lowers costs to energy customers and utility systems. It promotes job growth and local economic development. It also reduces negative environmental impacts by reducing fossil fuel use. Finally, energy efficiency is increasingly an important tool in addressing and maintaining electric system reliability

States clearly are recognizing the value of energy efficiency in addressing these key challenges. A majority of states have enacted "energy efficiency resource standards" (EERS), which set specific energy savings targets to be reached through utility and related customer energy efficiency programs and policies. The savings targets typically could be characterized as being aggressive, requiring states with long-standing programs to double or triple historic savings and states with newer programs to ramp up quickly to similarly high levels.

Pushing towards high savings exacerbates the financial problems utilities face regarding their investments in energy efficiency through customer programs. At small levels of spending on energy efficiency, these problems exist but generally have limited impact on a utility's overall earnings and financial picture. At much higher levels these impacts grow correspondingly higher and more pronounced, leading to significant negative financial impacts for utilities. These problems apply to both distribution utilities and vertically integrated utilities.

ACEEE's research on LRAM and shareholder incentives along with ACEEE's annual "State Scorecard" reveals that more and more states are enacting regulatory changes to address these fundamental financial obstacles to greater utility investment in energy efficiency. Decoupling or LRAM is in place to some degree (in several cases a single pilot program for a single utility) in 36 states and authorized in two additional states according to ACEEE research (Sciortino et al. 2011).[2] Shareholder incentives of some kind are in place or authorized in 31 states for at least one utility in the state (Sciortino et al. 2011).

These trends all signal the fact that a fundamental re-thinking of the utility business model is underway for energy utilities of the 21st century, a period of increasing resource constraints, rising costs for new generation, and increasingly negative environmental impacts from production and use of energy from conventional sources. At its core this new business model aligns utility financial objectives with meeting energy resource needs through a balanced, lowest cost portfolio of both supply and demand options. Such options include reducing energy use through improved customer energy efficiency.

The new business model must stand on three strong legs of the "financial stool" associated with supporting utility customer energy efficiency programs. Each of the fundamental problems we've discussed must be addressed through appropriate regulatory treatment. There is ample evidence that

[2] A number of national organizations track and report data on regulatory reforms such as decoupling and shareholder incentives for energy efficiency programs. In addition to ACEEE, these include the Regulatory Assistance Project and the Natural Resources Defense Council. The data reported on state policies may vary somewhat due to different criteria used to consider inclusion of states in such surveys.

this new business model can be established and that utilities can be financially successful operating in this new framework. ACEEE and other organizations have documented a growing number of states that have enacted policy and regulatory changes that yield this new business model that stands strongly on all legs of the utility financial stool. Unless we change the fundamental utility regulatory model to meet 21st century needs, we are destined to continue to achieve 20th century results—more and more power plants at higher and higher costs.

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APPENDIX A: STATE EXAMPLES

Connecticut

Connecticut has been a long-time leader among states with customer energy efficiency programs provided by energy utilities. In 2007 the Connecticut legislature passed the Electricity and Energy Efficiency Act (CT Public Act No. 07-242). This Act raised the bar for such programs by requiring electric utilities to procure "all cost-effective" energy efficiency as their first priority resource. Prior to this Act, Connecticut had effectively addressed both cost recovery of programs and shareholder incentives. A provision of this Act added the third leg of the financial stool, requirements for decoupling for both electric and natural gas utilities. In this way the Legislature acknowledged the necessity of addressing utility financial goals in conjunction with high energy savings targets to be achieved through customer energy efficiency programs. The Act requires the Department of Public Utility Control (Connecticut's utility regulatory commission) to order the state's electric and natural gas distribution companies to decouple distribution revenues from the volume of natural gas or electricity sales through one or more of three strategies: (1) a mechanism that adjusts actual distribution revenues to equal allowed distribution revenues, (2) rate design changes that increase the amount of revenue recovered through fixed distribution charges, and/or (3) a sales adjustment clause.

Michigan

Michigan is a state that re-instituted utility energy efficiency programs after over a ten-year absence of such programs as a result of electric utility restructuring. Public Act 295 of 2008 brought energy efficiency programs back to Michigan in the form of an "energy efficiency resource standard" that requires all electric providers and all rate-regulated natural gas utilities to file energy optimization (efficiency) programs with the Michigan Public Service Commission (MPSC or Commission). The MPSC has the authority to approve or reject the plans.

PA 295 (2008) and associated orders by the MPSC clearly address the three legs of the financial stool for aligning utility financial objectives with energy savings goals from customer programs. Energy efficiency programs are supported by customer rates via a volumetric charge (charge per unit of energy used, either kilowatt-hour or therm) for residential customers and monthly "per meter" charges for commercial and industrial customers. These charges provide program cost recovery. Act 295 addresses the through-put incentive by mandating that the Commission consider decoupling mechanisms proposed by the state's electric utilities. As a result, Consumers Energy and Detroit Edison have decoupling in place (U-15768 and U-15751). Act 295 also authorized natural gas decoupling, which has been implemented in a series of Commission orders. The Commission has approved natural gas decoupling for Michigan Consolidated Gas Company (Docket No. U-15985), Consumers Energy (Docket No. U-15986), and Michigan Gas Utilities (U-15990). Finally, PA 295 (2008) also contains two provisions whereby utilities can receive an economic incentive for implementing energy efficiency programs. First, they are allowed to request that energy efficiency program costs be capitalized and earn a normal rate of return. Second, they are allowed to request a performance incentive for shareholders if the utilities exceed the annual energy savings target. Performance incentives cannot exceed 15% of the total cost of the energy efficiency programs. The Commission has approved performance incentives for Detroit Edison Company (U-15806).