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Assessing Maine's ERAM experiment

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by Leslie Hudson and Stephanie Seguíno

Maine's utility regulators have occasionally ventured into the uncharted waters of utility regulation reform. Some such efforts have been more successful than others. The following article documents the process and outcomes of one such attempt at alternative electric utility regulation, the Electric Revenue Adjustment Mechanism, or ERAM. The authors endeavor to answer several questions arising from this brief, but interesting regulatory experiment.

Introduction

In a state which had already earned a reputation for progressive utility regulation, the May 1991 decision of the Maine Public Utilities Commission (MPUC) to adopt an innovative mechanism to encourage demand-side management (DSM) was not surprising. Labeled ERAM (Electric Revenue Adjustment Mechanism), the mechanism is better described as "revenue-per-customer decoupling" because it decouples profits from sales and uses customer numbers to determine allowed non-fuel revenues. The state's largest utility, Central Maine Power Company (CMP), agreed to test the ERAM model.

Less than two years after the initial decision to implement ERAM, widespread opposition and alarm prompted the MPUC and other supporters to pull back from the ERAM experiment. At its inception, it had broad support, with reluctance on very few accounts. But it fell rapidly into disfavor, and was rather abruptly curtailed. What happened to bring about ERAM's premature demise. How does Maine's experience relate to that of other states? This article documents the unique set of circumstances and the driving forces behind Maine's ERAM experience, and explores some of the factors that affected the success of the program.

The origins of ERAM

ERAM was the result of an extended MPUC effort to evaluate the impacts of traditional rate-setting practices on utility incentives to increase sales rather than pursue DSM. Noting that both Maine public policy and federal law direct utilities to pursue least-cost planning, the MPUC acknowledged that current regulations instead created incentives to increase sales, while penalizing conservation and other efficiency measures that comprise least-cost planning. "A utility that succeeds in cutting the waste from its customers' usage will sell fewer kilowatt hours and earn less profit, putting its own business interest in direct conflict with public policy" (MPUC 1991b). Therefore, in March 1989 the Commission adopted Chapter 382 of its Rules, entitled Least-Cost Planning Performance Proposals, which asked CMP and other parties to consider this inherent conflict between conservation and profit, and to develop ideas to counter it. The goals were: to eliminate disincentives in order to create a level playing field for demand-side management relative to supply-side options; to provide incentives to a utility to invest in conservation and least-cost energy resources; and to reward utility performance in achievement of real cost reductions.

Over a period of time, CMP developed a series of proposals in response to Chapter 382. These eventually led to a six-month-long collaborative effort among the various parties, who issued a Joint Report in early 1991. Those filing the Joint Report were Central Maine Power, the MPUC staff, the Industrial Energy Consumer Group (IECG), the Natural Resources Council of Maine (NRCM), Madison Paper Industries, and the Public Advocate. CMP's original decoupling proposal had been based on a California program dubbed "ERAM/ARAM." David Moskovitz, a former MPUC commissioner who was working at the time with the states of Maine and Washington under a Department of Energy grant to develop DSM incentives as well as mechanisms to remedy DSM disincentives, convinced the parties in Maine to adopt "ERAM-per-customer," a variation on the California model.

ERAM was instituted as a three-year experiment that had imperfections and would need fine-tuning. While no one could be described as wildly enthusiastic, most parties felt that ERAM was an acceptable option worth trying. There was some sense of urgency and widespread support to do something. As Steve Ward, Public Advocate, described it at the time, it was "an interim, i.e., pilot, i.e., exploratory investigative kind of operation rather than a once-and-for-all total transformation of regulation in Maine" (MPUC 1991a). Likewise, in a letter to the MPUC, Beth Nagusky of the Natural Resources Council of Maine stated that for the most part the organization supported the findings of the Joint Report, and that it was "under no illusion that the approach which it supports...is perfect, or even the only reasonable way to address the issues raised in this proceeding. The approach endorsed by the Council does accomplish our two primary objectives: 1) it eliminates the utility's current incentive to increase sales (and therefore profits); and, 2) it provides a positive reward to utilities for promoting DSM aggressively and successfully" (Nagusky 1991).

All the parties signed off on the Joint Report except the Industrial Energy Consumer Group (IECG), an association of eight large industrial customers of CMP. IECG supported least-cost planning and incentives, but not specifically ERAM-per-customer, favoring instead the alternative "lost base revenue approach." This approach compensates the utility for revenues lost as a direct result of DSM programs. This method does not decouple sales from revenue and profits, however, and therefore does not eliminate the conflict between DSM and sales. For example, although utilities can recover lost revenues under this system, they could also earn additional profits by expanding sales. Another drawback of this approach is that DSM program performance must be measured and verified. The necessary measurements are complex, making it possible for the utility to benefit from DSM measures that do not actually produce savings. Thus, it may give utilities the incentive to adopt ineffective DSM measures.

IECG's member industries were concerned about the timing of implementation of ERAM, given the looming recession, and urged the MPUC to wait a year or two before commencing the three-year trial. IECG members were already feeling the effects of the sluggish economy, and had tried in vain during the recently-completed base rate case to alert the MPUC to the magnitude of the slump. Implementation of ERAM at that juncture, they argued, would result in a decline in sales, large accruals, and, therefore, a rate increase.

Nevertheless, given the nearly-unanimous support for ERAM in the Joint Report, the MPUC was eager to give ERAM its backing. On May 7, 1991, an MPUC Order (Docket 90- 085) made

ERAM official, and retroactive to March 1, 1991, to coincide with recent base rate changes. In making that ruling, the MPUC disagreed with the IECG's assessment of the depth of the coming recession. Indeed, in its ruling, the MPUC concurred with CMP that "it is entirely possible that the next twelve months will prove to be an expansionary period" (MPUC, 1991b: 4).

The relative optimism about Maine's economic future was perhaps surprising, given the mounting evidence of a recession. Maine's economic fate is tied to Massachusetts, with economic activity there rippling out to Maine and other parts of New England. Employment in Massachusetts had begun to decline by 1989 (See [Figure 1](#)). In Maine, the economic slump became apparent by January 1990, well before the Joint Committee filed its final report in early 1991 and the MPUC gave final approval of ERAM-per-customer.

At the time the revenue-per-customer program was agreed on by the parties, it seemed neither obvious nor significant that CMP's primary interest in ERAM was the mechanism's potential to accommodate the MPUC's excessive income projections in the recent rate case, rather than in its DSM virtues. The company's lack of commitment to the conservation goals of the other parties later emerged as a contentious issue.

How revenue-per-customer decoupling works

Decoupling separates sales from profits, thereby removing disincentives to energy efficiency and incentives to increase sales. The objective of decoupling programs is to maintain a constant level of non-fuel revenue per customer. To achieve this, rates are set as usual in conventional rate cases; at the conclusion of the case a per-customer base revenue figure is established. The following year, revenues are retroactively adjusted by reconciling actual versus allowed revenue-per customer based on the actual number of customers in the year. If per-customer revenue falls, as a result of successful DSM programs or any other cause, rates are subsequently adjusted upward and the utility collects as much revenue-per-customer as it would have without the added conservation. Theoretically, however, the impact on consumers' bills should be neutral. Even though rates might be raised, customer energy usage would fall in response to DSM measures, producing a zero effect on the total electric bill. Conversely, if electricity use increases, rates are adjusted downward to match the revenue-per-customer projections. Debits (accrued in years when revenue reductions are required to lower revenues to the allowed revenue-per-customer) and credits (accrued in years when an increase in revenue is required to bring the utility up to the allowed revenue-per-customer) are accumulated in an "accrued utility revenue account," and later incorporated into rates.

There was considerable debate over whether to use a "test year" or a "rate year" to determine the number of customers. The test year method uses historical data to arrive at sales, revenue, and customer projections, while the rate year method uses projections based on sales forecasts in order to determine revenue-per-customer. In-house, Central Maine Power had analyzed revenue per-customer in both ways, and found that the test year method gave a higher income (a difference of some \$6 million annually). The test year approach was proposed in the Joint Report, and most parties strongly endorsed those calculations. (In rate cases, Maine relies on the historic test year, so the parties' endorsement of this method for calculating revenue-per-customer is not surprising.) IECG took exception, arguing that the test year method would produce a windfall for CMP, and therefore, if ERAM were to be adopted, the rate year method

must be used. No one except CMP did any calculations and no one asked for them at the ERAM hearings. The company gladly went along with the supporters of the test year approach, which was eventually approved.

An important aspect of Maine's revenue-per customer decoupling model is that, by design, it does not distinguish between sales variations due to DSM programs or to other factors such as fluctuations in economic activity and the weather. It shifts to ratepayers the risks associated with changes in sales levels, regardless of their causes. Therefore, the cost effects of variations in weather and economic activity are clearly removed from the company and have virtually no impact on its profit. The MPUC argued that, because the weather and the economy are outside the control of the utility, "there are practical limits to the amount of efficiencies that can be squeezed out by the utility in response to these factors...[so] requiring the utility to remain exposed to these risks does not really save the ratepayer any money" (MPUC, 1991b).

Limiting the utility's risk exposure should result in a decline in the cost of borrowing. If adjustment to revenues is not made to reflect the decline in capital costs, the net effect of adopting a program such as ERAM may be to increase the utility's profit rate. Unfortunately, the MPUC never made this downward adjustment during the life of the ERAM experiment. (At the time ERAM was instituted, there was limited information from which to estimate the impact of reduced risk exposure on the utility's cost of capital. The parties had anticipated that a revenue adjustment would be made during a future rate case, based on actual information of the capital market's response to reduced utility risk. Due to the program's early elimination, that adjustment was never made.)

Aftershocks

It was unclear whether the MPUC had the existing legal authority to implement ERAM, so, before this could be done, authorizing legislation was sought. At the legislative hearings, for the first time, CMP revealed its comparative rate year/test year calculations forecasting \$15-20 million in ERAM accruals during the first year of a test-year-based calculation. These figures were \$6 million higher than the revenue calculated under a rate year- based approach, and substantially higher than the \$3 million figure which most of the parties had assumed for the first year's revenue. Nonetheless, despite this information and IECG's continuing expressions of opposition, the legislature gave the MPUC the go-ahead for ERAM, requiring only that it limit the impact on customer rates. Accordingly, the MPUC ruled that the first year ERAM customer rate increase from any accruals would be capped at one percent of revenues (or \$8 million), allowing for later collection of any remaining accruals. IECG asked that this cap be final, without later collection, also suggesting that if the annual cap were approached, the program should be reviewed sooner than the three-year sunset called for in the original order.

Rate case filing and withdrawal

In late October 1991, with ERAM in place less than eight months, Central Maine Power filed for a \$54.5 million increase in base rates. Some of this increase was intended to recover existing ERAM accruals; some was in anticipation of large future accruals. Sales were already dropping with the recession, proving that the high revenue projections of the recent rate case were clearly out of reach, and in turn ensuring high ERAM accruals. However, by January, the parties had signed off on a stipulation agreeing to CMP's withdrawal of the rate case. While IECG did not

sign the stipulation, it reluctantly agreed not to oppose it. CMP agreed to the withdrawal for several reasons: the Federal Reserve Board had dropped interest rates, the independent ERAM revenue stream protected shareholders' returns regardless of electric rates, and the state's continuing financial crisis presented an inopportune time for a rate increase.

The rate case withdrawal was a political solution: no one wanted a rate hike during a recession. The parties knew they were creating a "credit-card" situation, allowing the accruals to grow ever-larger rather than raising rates. Their goal was to defer the rate increase until later when, it was hoped, the economy would be stronger. Use of the ERAM accruals as a means to avoid a rate case was of course not the intended purpose of ERAM. Meanwhile, the accruals grew to \$26 million at the end of the first year, with only \$8 million immediately recoverable under the MPUC-imposed cap. These actual accruals exceeded CMP's test year forecast by 30 to 40 percent and the rate year projections by 44 to 66 percent.

The customer revolt

Concurrently, another crisis was developing; certainly its initial rumblings influenced the MPUC to accept the stipulation to withdraw the rate case. In December 1991, several factors unrelated to ERAM combined to produce a substantial increase (up to 50 to 60 percent in some cases) in residential customers' electric rates:

- A scheduled rate increase due to fuel adjustment charge
- The annual rate increase at the start of the winter heating season; and,
- A rate design change which reallocated cost responsibilities among groups of ratepayers and produced an eight percent shift from industrial to residential customers.

These rate increases, the worsening state of the economy, and IECG publicly pointing out the huge ERAM accruals and claiming that ERAM was insulating CMP from the recession, prompted a customer revolt. Legislators were besieged with calls. Ten thousand people signed a petition pleading that something be done about the skyrocketing rates. At the Public Advocate's request, the MPUC agreed to reconsider one component of the recent rate design change, which might lessen the impact on residential customers. Public hearings were held statewide, which the IECG once again used as a forum to protest against ERAM. Referring to it as putting the utility on "automatic pilot," IECG maintained that other companies had to struggle to remain competitive during the economic downturn, while CMP was protected with a guaranteed revenue stream and thus had no incentives for efficiency.

No one disagreed with this, and, with the consumer uprising, IECG finally gained broad-based support in its opposition to ERAM. Additionally, environmentalists and other ERAM supporters were antagonized by CMP's position during the public hearings in which the company called for a return to declining block rates and the elimination of time-of-use and seasonal rates. Frustrated customers even began to question the idea of a public regulated utility with a guaranteed rate of return, and began to attack the MPUC, calling for term limits and election, rather than appointment, of Commission members. Some of these proposals took the form of legislative bills the following year, although none of them passed.

The FASB ruling

In May 1992, on the heels of the customer uprising, ERAM sustained another blow. The Emerging Issues Task Force (EITF) of the Financial Accounting Standards Board (FASB) determined that accruals from ERAM-type mechanisms must be recovered through rates within two years if they were to be recorded currently as revenue (which CMP was doing). The Securities and Exchange Commission concurred. Two months later, in response, CMP asked the MPUC for an accounting order to confirm this two-year recovery. The EITF/FASB national standard conflicted with the Maine legislature's mandate to limit ratepayer impact, and the resulting MPUC plan to defer recovery of accruals exceeding an annual cap. In part, the initial acceptance of ERAM had hinged on the recognition that, while accruals might rise during a recession, they would balance out during better economic times. But the span of time required for the accrual account to balance would likely extend beyond two years.

Suspension

As a result of all the concerns over ERAM, the MPUC reopened the case in June 1992, stating its intention to reexamine and possibly suspend the program. In August, the Public Advocate, with the support of IECG, proposed modifying the calculation for allowed revenue-per customer. The MPUC denied this motion, and, in October 1992, gave CMP two choices: would the company prefer to modify ERAM, or to suspend it? CMP claimed that both choices were illegal: changing or cutting off ERAM would constitute "confiscation" under the U.S. Constitution. In addition, the company's rate of return would be cut nearly in half, and an offsetting adjustment to current rates would be needed should ERAM be discontinued. However, the company did choose the "modification" option. The MPUC replied that suspension would indeed be legal: the Commission had a responsibility to ensure fair and reasonable rates, and the law provided for urgent actions if necessary.

On December 7, the MPUC revoked the choice it had offered CMP, and announced it was considering immediate suspension of ERAM. Citing concerns over legalities and the impact on Wall Street from such a precipitous dismantling of the experiment, the MPUC staff and the Public Advocate warned that immediate suspension could be disastrous, and proposed a delay. IECG urged the MPUC to go ahead with it. Late in the month, CMP filed for an emergency \$30 million rate increase, which it said would be necessary if ERAM accruals were halted immediately.

By the end of the year, the accruals had reached \$52.4 million, an amount equal to more than six percent of CMP's annual revenues. CMP acknowledged that nearly all of this was due to the impact of the recession on sales, not to demand-side management, and that this trend was likely to continue, resulting in \$41.5 million in additional accruals by the end of the three-year ERAM trial in February 1994, and making the total projected accruals over that period some \$95.5 million.

During the suspension hearings, some parties had favored a revised decoupling procedure, some preferred the lost base revenue adjustment approach, and some wanted to defer consideration of all options for the time being, allowing the current ERAM program to lapse. Ultimately, CMP, the MPUC staff, and NRCM supported ERAM in some form, while the others opposed it. In a letter to the MPUC, Beth Nagusky of the NCRM (1992) wrote that "ERAM was and continues to

be the right principle,” despite “unforeseeable, and unforeseen, events”; that “the 1991 bargains cannot be ignored”; and that “ERAM is no `boondoggle’”—“rates would easily be the same with or without ERAM.” She added that the MPUC should take additional steps to ensure ERAM’s effectiveness: initiate a rate case to determine the appropriateness of CMP’s earnings, limit shifting the risks due to weather and economy if necessary, and require CMP to document the aggressiveness of its DSM program. Among the industrials, IECG took its usual hard line, saying that ERAM should be suspended and CMP denied the money, while Bath Iron Works (not an IECG member) urged suspension but with full payback.

CMP reminded the MPUC that the Commission had asked for ERAM when it promulgated Chapter 382; now it was acting as if CMP had pushed for ERAM. But ERAM was designed specifically for DSM purposes, and CMP acknowledged that nearly all of the large accrual was due to the recession and decreased sales, not to DSM, and that this trend would continue. In fact, over the course of ERAM’s existence, CMP’s annual DSM budget declined from \$25 million to \$17 million; the company made the maximum cuts possible without violating existing commitments. However, CMP had previously made a considerable investment in DSM. Given the poor economy and the resulting excess capacity, some decrease in DSM expenditures may have been warranted. As a result of the surplus supply of power, avoided costs were less than the cost of DSM programs in place. CMP argued that under those circumstances, additional DSM investments were simply not cost effective. But, as David Moskovitz notes, CMP might have taken another tack: the development of more cost-effective DSM programs. This option was apparently not pursued.

Finally, the parties negotiated, and on January 15, 1993, Central Maine Power filed a stipulation, signed by CMP, the MPUC staff, the Public Advocate, Bath Iron Works, Madison Paper Industries, and the American Association of Retired Persons. IECG and MAIN (Maine Association of Interdependent Neighborhoods) took no position; one of the original parties, the Natural Resources Council of Maine, was not an intervener in this case and so was not involved in the agreement. Under the stipulation, which was accepted by MPUC Order on February 5, 1993 (Dockets No. 90-085-A, 90-085-B, 92-174, and 92-346):

- CMP agreed to withdraw its \$30 million emergency rate request in exchange for a \$41.5 million increase for recovery of accruals to take effect on July 1, 1993.
- The rate of future accruals was reduced, resulting in a reduction of \$6.5 million in pre-tax earnings for the utility.
- The two-year accounting order resulting from the FASB ruling was approved.
- ERAM was scheduled for suspension three months earlier than originally ordered (i.e., on November 30, 1993, rather than February 28, 1994). Another rate increase would take effect at that time, the amount to be determined in a new rate case commencing March 1, 1993.
- CMP was not found to be over earning under the “just and reasonable” criterion.

DSM incentive program

The original MPUC Order establishing ERAM also contained a DSM incentive mechanism, the “Shared Benefit Incentive Program,” which created a linkage between the utility’s profits and its performance in achieving real cost reductions. By comparing customer bills before and after the

implementation of efficiency measures with those of a non-participating control group, the incentive program sought to measure savings achieved through successful conservation and load management efforts. The cost of achieving these savings was then compared with the cost of the avoided power supply, and the utility received a percentage of the net benefits above a certain baseline amount.

Much time was spent on developing this plan; even though it involved much less money, it was very complex compared to ERAM. In the end, the incentive program brought \$1.5 million into CMP's coffers. Although it did not prove controversial, the incentive program was suspended along with ERAM in the stipulation of February 5, 1993.

Unintended outcomes

The demise of ERAM in Maine can be attributed to the convergence of a number of unforeseen circumstances which, coupled with the design of the program, produced several unexpected and ultimately unacceptable outcomes. On the plus side, the ERAM program did decouple sales from profits and, ostensibly, produced a level playing field for demand-side management relative to supply-side options.

To a large extent, however, the IECG's dire predictions of the potential negative impact of ERAM were borne out. Large accruals, resulting primarily from the economic recession, were exacerbated by the inaccurate revenue forecast of the preceding rate case and the withdrawal of the 1991 rate case filing. Warm weather during one heating season and the test year method of revenue calculation also contributed to the large accruals. Former MPUC staffer Tom Austin says that probably the only clear mistake made in the original ERAM plan concerned the rate year/test year calculations. Some extra work at that time would have created a system based on a "future test year," resulting in accruals that were about \$6 million less per year.

Unfortunately, the conjunction of circumstances could hardly have been worse. Under different weather and economic conditions, ratepayers might have found ERAM to be quite appealing or quite benign. For example, cold weather during the first year could have balanced out the poor economy, resulting in zero accruals. In any case, it was acknowledged from the start that ERAM accruals would rise and fall, but that they would average out over time if the program ran long enough.

Although ERAM was designed to decouple sales from profits, the program also served a number of purposes that were not among its stated goals. It moderated CMP's revenue fluctuations caused by the weather and the economy, a function which may be considered desirable because it reduces a utility's cost of capital. However, the utility's revenues were not adjusted to reflect these reduced costs. Therefore, while ratepayers absorbed an increased share of risk, they did not benefit from lower rates, a factor that may have undermined support for the experiment.

ERAM also deferred the need for a rate case at a politically convenient time by allowing large accruals to build up. With the recession, and without ERAM, CMP would not have been able to increase revenues enough through rates alone, nor to cut costs enough to protect its rate of return; a rate case would have been essential to rectify the substantial drop in the company's earnings.

But by being shielded from the recession, CMP may not have been pressured to economize in the way that other companies were at that time.

In addition, ERAM did not succeed in providing CMP with a sufficient incentive to pursue DSM and other conservation measures. DSM expenditures actually fell after the adoption of ERAM. Although the reduction in DSM spending can be explained by the recession and the drop in demand, fluctuations in DSM spending were certainly not an anticipated outcome of the program.

While the magnitude of the accruals, and the amount of future rate increases necessary to cover them (exacerbated by FASB's ruling that the accruals must be recovered within two years in order to be counted as revenue), were the obvious reasons for ERAM's premature demise, there may be other reasons, too.

ERAM might have been less problematic if members of the MPUC had stood firmly behind it throughout the three-year trial period, and had clearly explained the rationale behind, workings of, and benefits of the program. Instead, no one was ever certain whether the MPUC really supported ERAM. Influenced as much by politics as policy, the Commission was quick to question ERAM, to threaten to cancel it on short notice, and eventually to abandon the experiment—arguably before it was adequately tested. During the customer revolt, the Commission had come under harsh ratepayer scrutiny, and its actions were in response to that pressure. There were also significant changes in MPUC membership during the ERAM experiment. Cheryl Harrington's term expired shortly after the program began; her replacement, William Nugent, was appointed by a different governor of a different political persuasion. The MPUC was short-handed as a result of the December 1992 departure of its chair, Ken Gordon, for a new position in Massachusetts; the vote to suspend ERAM was made by a two-member Commission.

Another important issue is that some of the parties who originally supported ERAM feel that they were misled by CMP. Prior to the institution of ERAM, the utility had demonstrated its willingness to pursue DSM with an extensive conservation program; therefore ERAM was a way to recognize CMP for its efforts by removing disincentives and establishing incentives for DSM. Many of the parties believed that CMP was genuinely committed to DSM, and would respond positively to ERAM with increased conservation efforts. Therefore, when CMP's investment in DSM dropped dramatically following the adoption of ERAM, and, in 1992, when CMP proposed a return to declining block rates and other programs considered to be anti-conservation, some supporters then saw ERAM as industry had seen it all along — simply a large and comfortable, but unmerited, cushion during economic hard times.

Proposed modifications

During the suspension hearings, David Moskovitz proposed a series of modifications to the ERAM program. A change in the mode of calculating the allowed revenue-per-customer to an "incremental revenue-per customer" approach was suggested, which would make moot the issue of rate year vs. test year calculations. The exclusion of zero- or low-use customers from the customer count was also proposed. (During an economic slump, these numbers are inflated, and result in a larger allowed revenue figure. The proposed change would put more of the economic

risk on the utility). Other modifications included the use of a two-year rolling average when incorporating accruals into the rate base and a shift of weather- and economy-related risk back to the utility. And finally, a cap to accruals was proposed.

CMP opposed these proposals, asserting that they were unnecessary, complex, and controversial; that it is unclear that putting some of the risk back on the utility is desirable (although the magnitude of the accruals' volatility would be reduced, the cost of capital would rise); and that a cap on accruals would mean that decoupling would stop once that point was reached. CMP said that a number of simple adjustments would be adequate to improve ERAM. More accurate sales forecasts and a change in the mode of calculating the allowed revenue-per-customer would reduce accruals. And if large accruals occur, CMP argued, the company should be directed to file a rate case to better reflect new sales levels.

The Washington PRAM Experiment

One month before Maine adopted ERAM, the state of Washington's Utilities and Transportation Commission approved PRAM (Periodic Rate Adjustment Mechanism). PRAM, also instituted with a three-year trial period, contains several major features, one of which is a revenue-per-customer decoupling mechanism nearly identical to Maine's. This is not a coincidence, as David Moskowitz had been working with both states to develop DSM incentives as well as mechanisms to remedy DSM disincentives.

Because much of the development of the revenue per-customer decoupling mechanism adopted in Maine actually took place in Washington, it is useful to compare these two experiments. The overall PRAM program has had mixed reviews and has resulted in large accruals, but most of this is due to the impact of its hydro adjustment feature (comparable to a fuel adjustment clause), and not to revenue-per-customer decoupling. There has been widespread understanding of the reason for the large accruals, and some modifications were made to the program to improve its effectiveness. The program has been retained after recently being reviewed.

PRAM's revenue-per-customer decoupling mechanism is generally viewed as relatively effective, although it has been criticized as difficult to administer. Further, although conservation goals are being met, it is not clear that there is a true cause-and-effect relationship between the PRAM mechanism and conservation. However, since the implementation of PRAM, Puget Sound Power and Light Company has tripled its conservation programs, and earned broad-based support and goodwill for these efforts. Unlike CMP, Puget Power's management saw conservation as an integral and beneficial component of least-cost planning. This may be due to the fact that, in spite of the recession, Puget Power continues to face an excess of demand over supply. As a result, demand for new sources continues to stimulate Puget's DSM efforts.

Lessons for ERAM- ERAM per-customer programs

The principal goal of the ERAM experiment in Maine was to test an incentive program that was designed primarily to reduce the regulatory barrier to demand side management. The revenue decoupling program used in Maine did not, however, provide sufficient incentives to induce CMP to continue to promote DSM during an economic slump when the utility was awash with surplus power. Earlier in the 1980s, New England had built surplus capacity, anticipating a continued growth of demand. The recession coincided with that increase in capacity, and resulted

in a decline in the avoided cost of power. Under these combined conditions, DSM was no longer cost-effective, and CMP did not pursue other more cost-effective DSM measures.

The utility's behavior under these circumstances suggests an important lesson: economic downturns, by reducing the strain on capacity utilization, may make it unlikely that utilities will maintain level funding for DSM investments over the business cycle. During a recession, the problem becomes one of finding outlets for surplus capacity not adding to it. Maine's ERAM experience stands in stark contrast to that of Washington. While the recession there apparently reduced demand, Washington continued to face a supply constraint. As a result, Puget Power's cost of avoided power was not competitive with the cost of DSM, making the latter strategy an attractive supply option.

A second lesson, already referred to, is that the constraints imposed by the FASB ruling, which limits the period during which the utility can recover accruals, can undermine programs that are long-term in scope, such as the program adopted in Maine. The combined effects of that ruling, the decision to design the ERAM program in a way that reduced the utility's exposure to variations in weather and economic cycles, and a recession that was more severe than most had anticipated, highlighted the incompatibility of the ruling and the program design. The jump in rates, which would have been necessary to finance payment of the accruals within the two years required by the FASB ruling, was simply an unacceptable burden.

One option for addressing the problem, advanced by David Moskowitz, is to modify the method of calculating revenue-per-customer in order to shift more of the economy-related risk back to the utility, and thereby reduce the variability and magnitude of accruals. This would make it feasible to ensure accrual recovery within the two-year guidelines set by the FASB. The drawback is that the latter method is more complicated than the one adopted in Maine. But the results of ERAM in Maine suggest that a simple formula for calculating revenue per-customer may not be adequate, given institutional and political constraints.

The success of ERAM in Maine may also have been affected by an apparent shift in corporate strategy at CMP, evidenced by the decline in DSM spending. DSM programs require a long-term commitment by the utility, which must build a human infrastructure to carry out the tasks associated with the program. The decision by CMP to reduce investment in DSM suggests a shift in business strategy to a shorter-term focus on profits. This result suggests that another variable that can affect the success of an ERAM-type program is the corporate philosophy of the utility. Firms that have a longer-run focus or are supply-constrained may be the best candidates for an ERAM experiment. Absent these conditions, a state that wishes to pursue ERAM in some form may have to consider alternative measures to shift the incentives of the utility to adopt DSM measures.

Finally, Maine's experience with revenue decoupling suggests that consideration ought to be given to the differential impact of rate hikes on classes of consumers, which may affect public support for the program. Public support for ERAM-per-customer in Maine had been undermined by the combined circumstances of the recession, the proposed rate hike to cover CMP's accruals, and the sharp rise in residential rates during this period. The recession also altered electric consumption patterns by class of consumer, a phenomenon that would influence the

distributional effect of any ERAM-associated rate hike. Residential consumption remained flat over the period 1989-1992, while net sales to industrials plummeted 28.5 percent. The number of residential customers increased slightly over the period 1989-1992, however, so that average consumption per residence declined marginally. For residential customers, this meant that even though usage fell slightly, total bills were rising in real terms due to the combined effects of rate increases and the rate redesign. The proposed rate hikes, required to cover CMP's accruals, loomed large and evidently were perceived as an unacceptable burden. A rate hike clearly would have imposed costs on the industrials as well, raising electricity's share of their total production costs. But arguably, rate hikes associated with the large accruals would hit hardest those least able to reduce their consumption or to afford those higher rates. The differential impact of rate hikes on consumer bills in response to an economic downturn, or DSM for that matter, warrants additional study and appropriate solutions if ERAM-per customer is to be acceptable.

Conclusion

Maine's ERAM docket has officially been closed and it appears unlikely that the original program will be resurrected in modified form any time soon. While the reasons for the early demise of the program are understood, it is unfortunate that the three-year trial could not have been completed. Revenue-per customer is an acknowledged long-term approach and does not work well on an annual basis. Certainly, Maine's experience with revenue decoupling underscores the complexities involved in shifting to a new form of utility ratemaking. But perhaps the clearest lesson from Maine's ERAM experience is that the adoption of revenue decoupling at the onset of a recession was unwise, given the degree of uncertainty surrounding the program's potential effects and the magnitude of the economic downturn.

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