IssuesLetter

Performance Based Regulation
A Policy Option for a Changing World

This is a complex period for electric utilities and for the regulators who regulate them. Increased competition is demanding changes in how the industry is structured. But the debate over how increased competition will affect the utility industry is by no means a simple one.

While all agree that market competition can provide excellent incentives to cut costs and promote innovation, competition will not wholly preclude a role for regulation and the need to look for ways to improve regulation. This is true for two reasons. First, only part of the industry -- generation -- can be competitive (see sidebar "Why A Generation PBR?"). Second, two major parts of the industry, transmission and distribution, will remain a natural monopoly for the foreseeable future. While there is considerable discussion about competition in generation, unless and until the necessary structural changes have been made, deregulation of generation is not yet an option.

As the industry changes, regulators must decide whether and how to reform regulation. Traditional, rate-of-return regulation evolved to fit a monopoly structure designed to support major investments in large, central station generating plants and is less well suited for today's utility industry. The challenge before regulators now is to consider reforming regulation in ways that not only improve the status quo but also lead the way to an even more competitive future.

An Alternative -- Performance Based Regulation

Performance based regulation (PBR) is a concept presented as a regulatory alternative. Rather than frequent reviews of utility costs and setting rates to reimburse utilities for what they spend, PBR takes a longer term view and focuses on how utilities perform. In a well-designed PBR, good performance should lead to higher profits. Poor performance should lead to lower profits.

The modern roots of PBR in electric utility regulation can be found in NARUC[1]s 1989 Resolution which calls for ratemaking practices that align utilities' pursuit of profits with the implementation of their least-cost plans. Section 111 of the Energy Policy Act of 1992 subsequently embraced this policy.

PBR may be best described as a new term for an old concept. This means that by considering PBR, regulators are not going back to the drawing board. Examples of existing mechanisms that are similar to PBRs include:

Stay outs. Cost-of-service ratemaking can create opportunities for the utilities to either increase (or lower) earnings when they are given a fairly long regulatory stay-out period between rate cases.

Decoupling. Revenue-per-customer decoupling schemes in Washington and proposed in California, by setting an amount to be recovered for each customer, give utilities the opportunity to increase efficiency and earnings.

Fuel efficiency incentives. Fuel cost adjustment clauses have been structured so that the utility cost recovery is tied to power plant performance, rather than to the size of the checks the utility writes to its suppliers.

Creating PBRs That Work

Creating or evaluating a PBR consists of three basic steps:

1. Identify The Goals. The first step of any successful PBR is to identify the goals to be achieved. This might include the following:

Cost cutting. Regulators can substantially increase the incentives for utilities to reduce their costs, with a significant portion of the savings passed through to customers.

Streamlining regulation. Simplifying the regulatory process allows utility management to turn its full attention to improved performance in all areas of its business and away from managing regulatory relationships.

Restructuring risk exposure. In many cases, there is a wide difference between utility management's perception of a risk and the actual financial consequences resulting from a decision. Management may worry that an investment may be disallowed as imprudent. Customers, on the other hand, rarely care whether a decision is prudent as long as it turns out to be smart. PBRs can allow a more thoughtful allocation of risk between utilities and customers.

Insuring good non-financial performance. PBRs can be extended to meet non-financial performance as well, such as acquiring a clean, diverse resource mix, achieving an acceptable level of reliability and providing strong and effective customer service.

2. Get The Structure Right. The structure of a PBR defines the incentives that a PBR produces. Once the goals are set, a PBR structure can be created to focus on those goals.

For example, one of the major choices (discussed more fully below) is whether a structure should be centered on electricity prices or utility bills. A structure focused on prices produces powerful incentives to cut costs, increase sales and reduce cost-effective conservation. Structuring the PBR around bills, on the other hand, does not diminish the incentive to cut costs but creates an incentive for cost-effective energy efficiency.

Why A Generation PBR With Competition Around The Corner?

There is a long distance between saying generation can be competitive and making it competitive. Before market competition can substitute for regulation certain elementary conditions must be present, including:

1. An adequate number of competitive generators
2. Relatively easy market entry for new generators
3. Access to the transmission network at reasonable costs
4. Institutions to facilitate trading and the reliable operation of the power grid.

The presence of these conditions assures that a competitive marker for generation is free from manipulation by sellers. Experience from other countries and other industries in this country shows that separating generation and forming large regional independent transmission companies, with the necessary transmission pricing and access rules, are likely prerequisites to establish a competitive industry.

3. Get The Numbers Right.
Even if the structure is right, if the numbers are not right, there is a good chance that customer bills will be unreasonably high or utilities' financial health will be threatened. The right PBR structure, for example, might be $X per customer plus inflation minus productivity. Getting the

numbers right means starting with the right "X" and using the right inflation index and productivity factor.

One reason it is especially important to get the numbers right is that PBRs will probably be considered first for utilities that already have relatively high costs. High costs may be a result of high fixed costs that are likely to go down relatively fast through amortization of cancelled plants, front-end cost recovery of recently added expensive plants, etc. Where costs are high, it is probably easier to control cost escalation. In such a situation, locking in current costs plus an average level of inflation will be much too generous to utilities and too costly for consumers. To support cost cutting and not the status quo, caution must be exerted.

PBRs are not 'one-size-fits-all.' An approach that works well for one utility, say a distribution company with unacceptably high average rates, may be quite different from the approach one would adopt for an integrated utility entering into a large resource acquisition program.

It may also be desirable to have separate PBRs for each aspect of a utility's business: generation, retail distribution and transmission. Separate PBRs that match the industry structure desired in the future may have the effect of accelerating the time it takes to achieve the actual structure.

PBRs To Reflect Non-Financial Performance

Carefully designed PBRs can also create mechanisms to achieve non-financial goals, including energy efficiency, resource diversity and environmental performance.

Energy efficiency: Bill Cap Versus Rate Cap

As commissions consider alternative ways to set revenues and lower short-term costs, some such as Niagara Mohawk have turned to rate caps. Others such as San Diego Gas and Electric and Southern California Edison have looked to bill caps. Both have proposed features that stretch out the period between rate cases, thereby creating stronger incentives to avoid cost increases or pursue cost savings.

Bill caps and rate caps, however, produce very different incentives. Rate caps provide strong incentives to cut costs, but they also provide utilities with very powerful incentives to promote electric use and equally strong disincentives to DSM. This pro-sales, anti-DSM bias is similar to the biases of traditional regulation, without decoupling or a lost revenue adjustment, but the effect is even stronger precisely because the regulatory lag period is extended. Because rate caps are clearly inconsistent with cost-effective energy efficiency, they should be avoided except in very limited situations, such as wholesale electricity sales where investments in DSM are not an issue. (This issue is not a problem in the telephone industry

A Sample Bill Cap Mechanism

A typical bill cap mechanism is generally structured:

$RPC_{Year1} = RPC_{Year\ t-1} \times (1 + i - p + adj.) + (\text{delta UPC} \times MEC)$

where

RPC *is Revenue per Customer*
i *is a measure of inflation such as the consumer price index or a utility price index*
p *is a measure of expected productivity gain, for example 2 percent per year*
adj. *are adjustments to reflect items such as exclusions, targeted incentives or penalties, and any rebates or surcharges to reconcile over- or under-recovery of allowed revenue*
delta UPC *is change in average kWh use per customer*
MEC *is the marginal energy cost*

where rate caps have been in use for some time because there is nothing in telecommunications that resembles cost-effective energy efficiency.)

Bill caps, on the other hand, produce the same cost cutting incentives as rate caps but very different and much better incentives for energy efficiency. Bill cap PBRs are a logical choice for retail sales (sales to final users electricity).

A simple bill cap PBR consists of four basic elements:

- Following a rate case which looks at the usual cost items and customers served, an allowed base revenue per customer (RPC) is set at a reasonable level. These, with certain adjustments, remain in place for a number of years, thus stretching out the regulatory lag period.
- Once a year, the RPC is adjusted by setting a growth rate for RPC. The simplest approach allows a growth based on some broad inflation measure, less adjustment for productivity improvements. One example would be to let the RPC rise by the annual change in the Consumer Price Index less two percent for productivity improvements. Other approaches might base the increase on the change in other electric utilities' costs.
- Often, the utility is allowed to directly pass through certain costs, typically referred to as "exclusions" or "Z-factors." These costs are generally desirable expenditures and/or outside the utility's control. Examples might include the costs of DSM and Superfund site cleanups.
- Adjustments can be made to accommodate changes in customer usage. For example, to the extent customer use under a cap falls (rises) outside a specified range, there would be a rebate (surcharge).

Fuel Clauses -- The Anti-PBR

It is not possible to discuss PBRs without briefly touching on the other extreme -- the fuel adjustment clause. Most utilities have fuel adjustment clauses which, for the most part, allow utilities to recover every dollar they spend on fuel and some forms of purchased power. Fuel clauses, particularly the simpler versions, leave the utility with no incentive to control fuel costs. At the same time, they tilt the playing field in favor of high fuel cost options

Fuel clauses also create a disincentive to the utility to operate its units efficiently. If a utility spends money to improve the fuel efficiency of a generator, the money spent on improvements decreases profits, while the savings‹the lower fuel costs‹are passed through to ratepayers under the fuel clause. Fuel clauses tell utilities that investments that save fuel are not a good expenditure.

There are two potential solutions. The easiest and best is to recover fuel costs in the same manner as all other costs. If this is not feasible, the other option is to sever the link between actual fuel expenses and allowed revenues as fully as possible. Options here include adjusting only for changes in the price of fuel, but not in the generating mix or allowing recovery of only a portion of the variance between expected and actual fuel expense.

By following these steps, the net effect is that the utility will have a specified amount of money to serve customers' needs. If they spend less, their profits rise. But profit will hinge on cost control, not customer usage. This reduces the disincentive for DSM and the incentive for load building.

Resource Diversity: Portfolio PBRs

While rate and bill cap PBRs are proposed to lower short-term costs, IRP and certificate cases raise a different and more subjective set of issues -- the need to acquire a good, diverse, low-cost set of resources. Here, the major challenge is to come up with performance based measures that fairly reward (or penalize) utilities who achieve (or fail to achieve) the established goals. These cases call for a different PBR approach, and portfolio PBRs have emerged to fill this niche.

To design a portfolio PBR, the first step is to define the goals of resource acquisition as clearly as possible and decide how to trade off the potentially conflicting goals of low costs, low risks, resource diversity, a clean environment and customer preferences. The specific resource PBR will depend on how these tradeoffs are made.

For example, if the policy goal were to get a specified level of DSM, the PBR might reward or penalize the utility based on whether it achieved or fell short of the goal. If the goal were a diverse resource mix, a PBR might be structured to provide a bonus, say 110 percent of costs, for any resource type which composed a small percentage of the total and a penalty, say only 95 percent recovery of costs for any resource which dominated the mix.

Environmental And Other Non-cost Performance Measures

PBRs can be directed explicitly at environmental goals using targeted incentives that focus on specific aspects of utility performance. Prototypes already exist in DSM incentive programs where a utility that acquires DSM at or below avoided cost is allowed to keep a portion of the savings. To target emissions of a specific pollutant, such as carbon dioxide, rewards or penalties can be set based on a utility's ability to restrict its emissions of the pollutant. A simple approach uses a bonus/penalty of $X per ton for variations around the target.

Targeted PBR schemes are not meant to cover the full range of utility performance but can be directed at almost any area of utility performance from average outage hours to customer service.

Conclusion

It is not by chance that the PBR discussion is occurring amid the debate over increased competition in the utility industry. The PBR route gives regulators the responsibility and the opportunity to define objectives for the industry. This can set the groundwork for just what is expected in a more competitive environment and can provide the best vehicle to articulate what, in addition to low-cost energy services, is important for the industry to provide customers. Even in the absence of competition, PBR offers a simpler and speedier regulatory process; one which emphasizes measurable results and does not depend on the myriad of inputs needed to conduct a cost-of-service study.

While it is too early to say whether PBR will emerge as the primary alternative to traditional ratemaking, it is not too early to begin thinking about what PBRs are and what it takes to do them and do them well.

Additional Reading

Tom Austin of The Regulatory Assistance Project has prepared a Working Paper evaluating specific Performance Based Regulation schemes. This can be obtained from RAP.

The Regulatory Assistance Project

177 Water Street
Gardiner, Maine 04345-2149
Tel (207) 582-1135
Fax (207) 582-1176

50 State Street
Montpelier, Vermont 05602
Tel (802) 223-8199
Fax (802) 223-8172