

How to Construct a Service Quality Index in Performance-Based Ratemaking

Nothing will derail the movement to competition quicker than a falloff in service quality. During the uncertain transition to a more competitive electricity market, utility regulators should carry out their duty to ensure adequate service quality by adopting innovative performance tracking methods.

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Despite all the talk—and there is plenty of that—the restructuring of the electric utility industry is not yet upon us. But many state regulatory bodies—having already experienced restructuring in the telecommunications industry, in which many employed new regulatory models known under the rubric of performance-based regulation (or ratemaking)—are beginning to experiment with some form of PBR in the increasingly competitive electricity industry.

PBR is usually undertaken on the assumption that, in a more

competitive industry, a lighter regulatory hand coupled with the discipline of market competition will produce better results for both utility customers and shareholders. PBR, as an alternative to traditional base rate regulation, typically retains strict control over basic service rates for core customers, either by freezing prices or establishing a formula that restricts the utility's ability to raise prices for these customer groups. The utility is usually given significant pricing and marketing flexibility over more competitive services

and the ability to retain earnings from these services. A hallmark of these alternative schemes is their multi-year nature: the utility is offered the opportunity to earn higher profits over, say, a two-to-five year period, in return for stricter regulatory controls on prices charged to core customers.

However, most utility commissions have struggled with how to retain sufficient oversight of customer service and reliability during the term of the performance-based regulation. Early PBR decisions contained no special provisions for maintenance of customer service,¹ as commissions reasoned that they would rely on their existing rules and investigatory authority to address any problems that later arose. Many commissions have since found that this approach is insufficient. Particularly in the western U.S., states are scrambling to address deteriorating telephone service quality that occurred after performance-based regulation was approved.²

As a result of this unsatisfactory early experience, more recent alternative regulatory plans contain specific customer service and reliability provisions. The purpose of this article, based in large part on the telecommunications experience, is to describe why it is necessary to address customer service issues that are inherent in PBR and to provide the basic tools to create a customer service and reliability index that can be included in any alternative rate plan for a utility.

I. Why Is it Necessary to Regulate Customer Service?

Some advocates reason that, because in a competitive world customers choose their supplier based on both price and customer service, the traditional close oversight of customer service by regulators—e.g., credit and collection rules, constraints on disconnection, service reliability and outage standards—should also be

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phased out or eliminated immediately. However, the adoption of an alternative rate plan does not usually change the commission's authority to enforce its customer service rules or open an investigation upon allegation of unreasonable service even if rules do not exist. Indeed, there are several compelling reasons why regulators should include specific performance criteria for customer service and reliability categories in any alternative rate plan.

A. Skimping on Quality

Degraded service quality is more likely to occur when a util-

ity can increase profits by slashing O&M costs. This is, of course, the imperative set in motion by a classic price cap plan that links profits to sales. Once a utility is allowed to make more money by selling competitive services under flexible pricing schemes, it is only natural for corporate management to want to reduce operations and maintenance budgets in areas that are still monopolistic under the drive for efficiency, and divert the resulting savings into more lucrative unregulated markets. Indeed, even well meaning managers who seek to improve efficiency may engage in such an orgy of downsizing and centralization of far flung local offices that, even though not intended, poor service quality results.³

This may be a short-run concern. If the electricity business is ultimately to be competitive at the retail level, power providers, whether utilities or not, cannot survive long if they fail to provide high-quality customer service. But there are several big "ifs" here, not least of which is how far and how fast meaningful competition will penetrate. Even if retail competition comes to pass, in the transition service quality risks are real. Any decrease in service quality soon arrives at a commission's doorstep in the form of customer calls and complaints, followed by reporters hot on the trail of a good story.⁴ Until competition is a reality for core customers and market information allows customers to make a realistic choice between providers, utility commissioners need to

create tools to monitor and respond to poor performance in utility customer service programs.

B. Regulatory Lag Redux

During the term of an alternative regulatory plan such as PBR, traditional rate cases will not occur. The commission will not, therefore, be able to review compliance with customer service rules and customer satisfaction with utility services as part of the accustomed review of operating and maintenance expenses. This means that a common practice of using a rate case as a means of reviewing service quality—and sometimes adjusting the rate of return to reflect poor service—is not available to regulators. The lack of a rate case is a liability with respect to service quality concerns. If a commission lacks statutory authority to assess fines or penalties for violation of its rules, the void created with the elimination of base rate cases effectively vitiates enforcement of customer service rules during the term of a price cap plan.⁵

C. Lax Service Rules

While some commissions have detailed customer service rules in some areas, most are deficient or less than complete. For example, while most states regulate the disconnection process, many do not regulate more modern service quality issues such as the performance of a utility's phone center, installation and repair deadlines, complaint resolution procedures or bill accuracy, or require utilities to track and report customer satis-

faction surveys.⁶ Even the model telephone service quality standards prepared by the National Association of Regulatory Utility Commissioners⁷ address technical standards for telephone companies (e.g., dial tone quality), but do not include measurements of service reliability and outages: the true measure of service quality from a customer's perspective. A utility-specific service quality index can overcome these deficiencies without a lengthy rulemaking proceeding.



II. How to Construct a Service Quality Index

A. Performance Measurement Categories

What should be measured is a function of the type of utility, its previous record on customer service compliance, current "hot-spots," existing state statutes and regulations, and the availability of the utility's historical data. However, most service quality monitoring plans include selections from the following types of customer service measurements:

1. *Customer Satisfaction.* Utilities measure how customers react

to service quality by asking customers what they think. While most utilities have asked their customers the general "How'm I doin'?" question, a more useful set of survey questions is being asked of customers with recent transactions at the phone center or with field personnel on installation or repair visits. These questions often ask whether the customer thought the utility representative was knowledgeable or responsive to their request or concern, as well as whether service was provided courteously, promptly and professionally. Customers are then asked to rate their overall satisfaction with the contact. The general survey of customers who have done nothing more than receive a bill and pay it is not as good a predictor of service quality as the responses of those customers who have initiated a request for service or called the utility with a question or concern on their bill. These transaction-based surveys should be done routinely (monthly or quarterly), by telephone or postcard, and should show a statistically valid response rate.

2. *Business Office Performance.* Typical measurements in this area include the performance of the phone center (percentage of calls answered within 30 seconds; busy signal rates; average speed of answer, etc.), response time on customer complaints, as well as the performance of field personnel (percentage appointments kept; repair or installation delays; accuracy of meter readings). Other items that could be included in

this category are billing error rates (percentage cancel and re-bill) and violations of commission rules determined by commission-sponsored audits.

3. Service Reliability. Customers expect continuous and high-quality service. Electric utilities have monitored outages and collected such data for many years: System Average Interruption Frequency Index (SAIFI); Customer Average Interruption Duration Index (CAIDI); and Customer Average Interruption Frequency Index (CAIFI). Telephone utilities have not routinely monitored service outage in a meaningful way, i.e., as a function of number of customer affected, length of outage, and number of services affected. However, the Network Reliability Steering Committee has developed a proposal for monitoring telephone service reliability that shows great promise.⁸ The Maine Commission has required NYNEX to devise such an index for use in the recently mandated Service Quality and Reliability Index as part of a five-year price cap plan.⁹

4. Regulatory Performance Measurements. This category would measure utility programs that respond to commission mandates—e.g., the ratio of complaints appealed to the commission per 1000 customers; penetration ratios for low income programs (such as lifeline telephone assistance or an electric or gas utility's low-income bill payment assistance program); performance measurements for DSM programs; and utility credit and

collections programs. For example, a commission concerned about the utility's commitment to a utility low-income weatherization program could include a penetration target for delivery of the program to eligible customers.

A commission could mandate a tracking account for a particular program, requiring a utility to monitor and track expenditures for a program and requiring that spending below a target level be returned to ratepayers (and conversely for above-target spending to be recovered from ratepayers).

Another area of vital concern is a utility's disconnection policies. A utility driving toward a more competitive environment may pursue tougher collection policies, permit fewer payment exten-

sions and require swifter disconnection for nonpayment with stiff reconnection requirements. This suggests the need for closer monitoring of payment arrangements and disconnections, particularly with respect to residential and small-business customers. A service quality index could track the frequency of disconnection compared to historical performance and prevent a significant increase in this performance category by assessing penalties for an increase over the baseline.¹⁰

B. A Service Quality Index

A service quality index recently approved by the Maine Public Utilities Commission for NYNEX¹¹ includes the categories shown in *Inset 1*.

Inset 1: NYNEX Service Quality Index

Customer Service

1. Installation appointments not met (company reasons).
2. Held orders (average total delay days).
3. Business office calls answered over 20 seconds.

Service Reliability

1. Customer trouble reports per 100 access lines.
2. Trouble reports not cleared within 24 hours-residence.
3. Trouble reports not cleared within 24 hours-business.
4. Dial tone speed over 3 seconds.
5. Service outage index.

Customer Satisfaction

1. Service provisioning, not meeting expectations-residence.
2. Service provisioning, not meeting expectations-business.
3. Maintenance of service, not meeting expectations (residential).
4. Maintenance of service, not meeting expectations (business).

A service quality index for an electric utility is very similar. The first service quality index approved for an electric utility was devised in New York for New York State Electric & Gas and Niagara Mohawk Power Corp. as part of a multi-year incentive rate plan. These were referred to as "customer service incentives" and were constructed primarily on the "carrot" approach; that is, company profits would increase in return for improved service quality performance.¹² However, the first comprehensive price cap plan for an electric utility was ordered by the Maine Commission for Central Maine Power Co.¹³ The service quality index for that utility contains five items (two reflect satisfaction with a recent contact with the company at its phone center and for installation of new service; two involve outage-related statistics; and the last involves a PUC complaint ratio) and establishes a penalty structure that will require the company to suffer revenue reductions of up to \$3 million per year for failure to comply with the baseline performance indicators.

C. Setting the Baseline Performance Standard

One of the most perplexing issues that confront commissions in establishing a service quality index is how to set the baseline from which to measure changes in service quality over the term of an alternative regulatory plan. The answer to this problem is relatively easy if the utility's service quality performance has been

above average or even adequate in the recent past. In that case, the utility's own historical data should be used to establish a baseline that reflects the most recent performance.

The actual baseline number used in the index should reflect some allowance for normal variation and statistical error. For example, recent cases in Maine have calculated the average performance over the last two to three

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years (longer for outage and reliability categories), and then set the baseline as the average minus some factor that reflects statistical variation. However it is done, the objective is to establish a numerical value that reflects recent performance and then allows for some margin of error.

A more difficult challenge exists when a commission determines that current service quality is inadequate and should not be used as the baseline from which to measure future performance. Still, it is vital to review and analyze historical data. It may be that recent degradation in service can be

detected and removed from the calculation to arrive at an acceptable baseline. If such data do not exist, second-best options are available:

- *Use standards that exist in commission rules.* Obviously if the utility's recent performance does not meet these mandated standards, the baseline should be set to assure compliance.

- *Use actual performance of comparable utilities or other industries in the state or region.* If a nearby utility can achieve higher results, the burden should be on the non-performing utility to demonstrate why similar results cannot be achieved.

- *Litigate or negotiate the performance goal or objective and then establish a gradual movement toward that standard during the term of the plan.*¹⁴ Again, using benchmark data from other utilities or even nonregulated business may provide guidance. For example, a common service quality standard for phone center performance is to answer 80 percent of all calls within 30 seconds. There is no reason to believe that utilities should be held to a lesser standard.

D. How to Track Performance; Reporting Requirements.

If the utility has been collecting the required performance data for several years, it is relatively easy to require the same information to be compiled monthly and reported annually as part of an annual price cap review or other annual performance review under the rate plan. If the data collection is relatively new, reporting for-

mats should be agreed upon up front. It is vital to have specific agreement on the definitions of the data to be gathered, as well as the source of the information within the utility's information system. For example, if "complaints" are to be measured, this term must be defined carefully to prevent later arguments about whether it includes all contacts or only those appealed to the commission. Installation appointments should be tracked based on whether the customer or the utility failed to keep the appointment.

Ideally, the data should be provided to the commission on computer disk in a previously agreed-upon spreadsheet format. Commissions should accept the data subject to audit by their staff or independent consultant. When significant penalties or incentive payments are tied to performance categories, the integrity of the data should be monitored routinely and with the same degree of importance as annual financial data.

E. What if the Baseline Performance Is Not Met?

Should the utility be rewarded for service quality above the baseline or only penalized for failure to achieve at least the baseline level? Should good performance in one category outweigh bad performance in another? These sorts of issues have vexed commissions in many states. While there are legitimate arguments that can cause these questions to be decided differently, the following policies should be considered:

1. Keeping Performance Up. The basic purpose of a service quality index is to make sure that the utility does not degrade service while it uses its new-found authority to make more money. It is an insurance policy against the utility's desire to reduce customer service spending in the short term while positioning the company to meet competitive threats. This basic policy orientation suggests that the penalty-only approach is better.

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The purpose of the index and the penalty is to prevent poor performance. In the long run, utility profits will increase because of excellent customer service; efficient debt collection and increased market share as a result of satisfied customers will go directly to the bottom line. The commission's main objective is to prevent short-term degradation of service and a penalty is best suited to that objective.

2. Subpar Performance. If current service quality is subpar, the combination of both incentives and penalties makes some sense. In a recent New York case involv-

ing New York Telephone, the New York Public Service Commission approved a complex series of both penalties (for performance below stipulated levels) and incentives (to obtain improved service quality in some targeted areas of the state and for some service quality measurements).¹⁵ The Maine PUC, on the other hand, rejected NYNEX's attempt to obtain a reward for performance in excess of the baseline because the company's historical service quality was excellent and the commission sought only to prevent its degradation.¹⁶

3. Offsets. It is probably not a good idea to allow the utility to offset less-than-acceptable performance in one measurement with excellent performance in another category. Presumably each item was selected for the index because its performance was valued independently of other items. Customers who suffer missed service installation appointments are not consoled by the fact that the phone center that handled their complaint answered promptly. Utilities that violate commission rules cannot offset that violation by compliance with another one.

4. The U.K. Experience. The United Kingdom privatization of its electric utility industry was accompanied by close monitoring of service quality. Specific service quality requirements are established by the Director of the Office of Electricity Regulation and imposed on the regional electric companies (RECs) which have a monopoly for the distribution of

electricity for customers with less than 1 MW demand until at least 1998. The minimum service quality standards are enforced with customer-specific rebates. During the 1991-92 fiscal year, the RECs and two Scottish companies reported a failure ratio of 0.1 percent in all services rendered and incurred penalty payments totaling £140,000. Media interest in the annual report on service quality compliance is significant.¹⁷ This approach has the advantage of targeting the utility penalty dollars to those directly affected. Several states have taken this approach to the US West service quality debacle. For example, the Colorado PUC requires a telephone utility that fails to keep an appointment for installation of new or upgraded service by more than four hours to provide the affected customer a credit equal to one-third of the installation fee. A rule change is also pending which would require the utility to provide alternative service, including vouchers for cellular service, when a new installation order is

held more than 30 days.¹⁸ These innovative customer-specific remedies are particularly useful when a specific customer is affected by service quality. They will not work as well to ensure adequate phone center performance, service reliability or delivery of low-income programs, for example.

E. Establishing the Level and Consequence of a Penalty

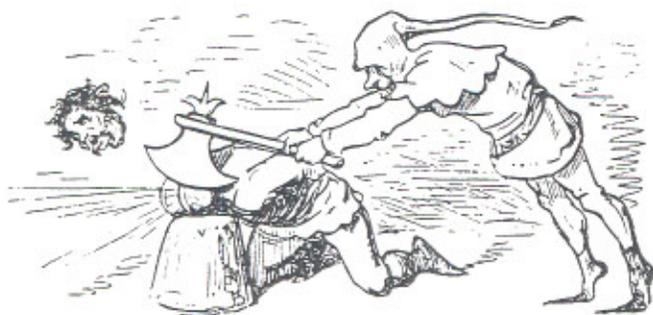
The penalty amount is a matter of wide discretion and should obviously be set as a function of the size and revenues of the utility. In addition, it is proper to take into account the utility's recent service quality performance. If, as in the New York Telephone case, the utility has been the subject of prior commission investigations and unkept promises, the penalty should be set at a significantly higher level than for a utility whose service quality has generally been good.¹⁹

Perhaps the greater impact of a failure to meet the service quality index during the term of the plan,

however, is not the shareholder dollars at stake but the potential loss of market share and public confidence that may accompany such publicity. Any marketing manager knows that a company's reputation can be damaged quickly, but rarely recovers as fast even if the cause of the loss of customer confidence is remedied quickly. Barring any unusual circumstances, a general starting point for discussion might be 0.5 percent of jurisdictional revenues.

Each item in the index should be assigned points (usually 10 for ease of calculation). Future performance is then compared to the baseline value. The percentage change in performance should then be related to the ten points assigned to that item. If the penalty dollars are assigned to points (\$X per point), the total points for all categories are then added and penalty dollars assigned accordingly. If there are eight items in the index, each of which is worth 10 points, and the utility reports performance at 80 percent of the baseline in two of the eight categories, a total of 76 out of a maximum of 80 points results. If each point is worth \$100,000, the utility pays a penalty of \$400,000.

This penalty must be paid in a way that benefits ratepayers, such as a one-time credit on customer bills or in the form of rebates to affected customers where that is possible to identify (e.g., free or reduced-price installation for those who suffered late or missed appointments). Alternatively, the amount can be offset for any rate increase otherwise due under the



There must be penalties for failing to meet service standards.

alternative rate plan. In any case, customers should be informed of the failure to achieve adequate service quality levels on a bill message or similar communication from the utility. The Maine Commission has ordered NYNEX to return any future service quality penalty as a one-time credit on customer bills labeled as "Rebate For Below Standard Service Quality."

II. Conclusion

Commissions have for the most part retained their responsibility to ensure adequate service quality and should now adopt innovative methods to address service quality and reliability concerns during a time of transition to new regulatory regimes, such as performance-based regulation in which utility rates or revenues are capped. Nothing is more likely to derail the movement to increased competition than a dramatic drop in service quality for residential and small commercial customers. Both commissions and utilities have a self-interest in devising regulatory oversight mechanisms that make sure this does not occur. ■

Endnotes:

1. See, e.g., the FCC price cap plan for AT&T, as well as some of the early US West incentive plan orders.
2. *Telcos' Halo Fading on Customer Service*, MULTICHANNEL NEWS, vol. 16 no. 47, Nov. 20, 1995 at 1.
3. The Wisconsin Public Service Commission, having seen deterioration of Ameritech's service—in terms of time of service restoration and time to answer customer calls—recently brought

suit against Ameritech in state court to compel it to improve its performance.

4. See, e.g., *US West Accused of Service Violations*, GAZETTE TELEGRAPH, Sept. 29, 1994; *Balky Phone Service Again Bedevils City*, ARIZONA DAILY STAR, Oct. 12, 1994; Leon Satterfield, *Don't Run the U.S. like US West*, LINCOLN STAR, Aug. 29, 1994.

5. Even where the commission has the authority to assess fines and penalties, the length and cost of such litigation and further court appeals is not an effective response to poor service quality. The Montana Public Service Commission voted to sue US West in October, 1994 and the case is not yet settled or litigated.



6. Pa. Pub. Util. Comm'n, A Proposal for Quality of Service Standards, Bureau of Consumer Services, (undated).
7. Staff Subcommittee on Telephone Service Quality, Model Telecommunications Service Rules (Nat'l Reg. Res. Inst., July 22, 1987).
8. T1A1.2 Working Group on Network Survivability Performance, A Technical Report on Analysis of FCC-Reportable Service Outage Data (prepared by Alliance for Telecommunications Industry Solutions, formerly Exchange Carriers Standards Association Report No. 38) (Aug. 1994).
9. Maine Pub. Util. Comm'n, Order After Investigation into Regulatory Al-

ternatives for the New England Telephone and Telegraph Co., Docket 94-123 (May 15, 1995).

10. Robert E. Burns, Alternatives to Utility Service Disconnection (Nat'l Reg. Res. Inst., May, 1995).

11. Maine PUC, *supra* note 9, at 79.

12. Ed Rodger, Deputy Director, Consumer Services Division, New York Public Service Commission, (presentation to NARUC Staff Subcommittee on Consumer Affairs) (Tampa, Fla., Sept. 1995).

13. Maine Public Utilities Commission, Detailed Opinion and Subsidiary Findings, Proposed Increase in Rates (Phase II)—Central Maine Power Co. (Jan. 10, 1994).

14. New York Public Service Commission, Order After Proceeding on Motion of the Commission to Investigate Performance-based Incentive Regulatory Plans for New York Telephone-Track 2, Case 92-C-0665 (Aug. 16, 1995).

15. *Id.*

16. Maine PUC, *supra* note 9, at 85.

17. ALEX HENNEY, A STUDY OF THE PRIVATIZATION OF THE ELECTRICITY SUPPLY INDUSTRY IN ENGLAND AND WALES (EEE Ltd., London, 1994).

18. *Oversight Group Agrees on US West Benchmarks*, CONNECTIONS, Dec., 1995 at 4 (newsletter of Colo. Pub. Util. Comm'n).

19. The New York PSC's decision on New York Telephone's alternative rate plan increased the penalty dollars at risk such that had these amounts been in effect during 1994 the company would have paid a \$80 million penalty. Case 92-C-0665 at 39-43. Part of the justification for the substantial increase in penalties was that a prior 1994 Service Quality Plan offered the company a potential incentive payment of up to \$121 million. The company's actual service quality performance in 1994 was so poor that almost none of these dollars were earned.