



STATE OF CONNECTICUT

DEPARTMENT OF PUBLIC UTILITY CONTROL
TEN FRANKLIN SQUARE
NEW BRITAIN, CT 06051

DOCKET NO. 99-06-21 DPUC INVESTIGATION INTO PERFORMANCE-BASED
REGULATION FOR ELECTRIC DISTRIBUTION
COMPANIES

February 2, 2000

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DECISION

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DECISION

I. INTRODUCTION

A. SUMMARY

Section 68 of Public Act 98-28, An Act Concerning Electric Restructuring, requires the Department to conduct an investigation and report to the General Assembly its findings and recommendations with regard to performance-based regulation plan design and whether performance-based regulation would better meet the goal of reducing costs to all customer classes than traditional cost-plus regulation. When issuing its findings and recommendations regarding performance-based regulation plan design, the Department must: (1) consider the objective of encouraging electric distribution companies to control costs while they continue to provide efficient, safe and reliable distribution services; (2) provide an analysis of how performance-based regulation should be structured to provide distribution companies with sufficient flexibility in implementing it; and (3) identify appropriate performance standards. Section 68 requires the Department to design or cause each electric distribution company to design a plan for performance-based regulation.

In this Decision, the Department conducts analyses and submits findings as required by Section 68 of the Act. A singular plan for performance-based regulation should not be prescribed: to do so would unnecessarily constrain future plan design. Instead, this Decision provides guidelines for future plan design.

Functional unbundling narrows the potential scope of performance-based regulation. Certain unbundled rates are collection mechanisms only: the Renewable Investment Charge, Competitive Transition Assessment and Generation Services Charge. Their status as collection mechanisms means that: (a) their cost to ratepayers is unrelated to an electric distribution company's performance; and (b) they are unrelated to an electric distribution company's overall earnings. The unbundled Distribution and Transmission Charges Systems Benefits Charge and Conservation Charge can be subjected to cost control measures through performance-based regulation although there is limited flexibility for the latter two. Therefore, the Department's investigation and report center on the use of performance-based regulation for the unbundled distribution and transmission rates.

B. BACKGROUND

By letter dated July 1, 1999, the Department requested that The Connecticut Light and Power Company (CL&P) and The United Illuminating Company (UI; jointly, Companies) file performance-based regulation (PBR) plans addressing the specific issues listed in Section 68 of the Act. On October 1, 1999, the Companies filed their PBR plans with the Department.

C. CONDUCT OF THE PROCEEDING

By letter dated October 15, 1999, the Department issued a Notice of Request for Written Comments (Request for Comments), requesting that Parties and Intervenors submit comments with regard to the merits of the PBR plans submitted by CL&P and UI. Pursuant to a Notice of Prehearing Conference dated October 28, 1999, the Department held a prehearing conference on November 1, 1999, to discuss the method by which the consultation with the Office of Consumer Counsel (OCC) the Attorney General of the State of Connecticut (AG) and the State of Connecticut Office of Policy and Management (OPM) required by Section 68 of the Act would occur.

By Notice of Hearing dated October 22, 1999, the Department held a public hearing on this matter in its offices, Ten Franklin Square, New Britain, CT 06051, on November 4, and 5, 1999. Pursuant to a Notice of Additional Hearing dated November 8, 1999, the Department held an additional hearing on November 12, 1999.

The Department issued a draft Decision on this matter on January 20, 2000. All Parties and Intervenors were provided the opportunity to submit Written Exceptions to and present Oral Argument on the draft Decision.

D. PARTIES AND INTERVENORS

The Department recognized The Connecticut Light and Power Company, P.O. Box 270, Hartford, Connecticut 06141-0270; The United Illuminating Company, P.O. Box 1564, New Haven, Connecticut 06506-0901; and the Office of Consumer Counsel, Ten Franklin Square, New Britain, Connecticut 06051, as parties to this proceeding. Connecticut Industrial Energy Consumers (CIEC) requested and was granted intervenor status.

II. PBR PLAN PROPOSALS

A. CL&P

CL&P lists three guiding principles for PBR design and implementation: (1) risks and potential rewards should be symmetrical; (2) ratemaking provisions within the present statutory framework that are inconsistent with PBR should be eliminated; and (3) CL&P should be provided the opportunity to accumulate performance and cost data as an Electric Distribution Company (EDC) before instituting PBR. CL&P Filing, p. 2.

Fixed price caps, a Return on Equity (ROE) collar, sharing mechanisms and performance standards are among the most common PBR elements mentioned by CL&P. CL&P states that initially, it would be appropriate to include an ROE collar and sharing mechanism, combined with a recognized reliability performance standard. To implement this first step, CL&P proposes to file a rate case with a historical test year based on a totally disaggregated company. The rate case would include a PBR proposal that would initially include a target ROE, with a dead band around the target. It could work in conjunction with a target reliability measure, such as the System Average Interruption Duration Index (SAIDI) by decreasing the target ROE floor by a pre-determined amount for each increment by which the target reliability is not reached.

Generally, CL&P supports a gradual evolution from Rate of Return (ROR) regulation to base rate PBR, since there is limited experience and understanding of what effects are likely to result from PBR implementation.¹ Id., pp. 4, 7-9, 11.

B. UI

Since the Decision dated December 31, 1996, in Docket No. 96-03-29, DPUC Financial and Operational Review of The United Illuminating Company (PBR Docket/Decision), UI has had a PBR plan in effect. This plan includes an overall fixed price cap, an ROE collar with a 1% dead band below its allowed ROE and a sharing mechanism. UI Filing, p. 14.

The PBR Decision dictates the treatment for earnings above the allowed ROE of 11.5%. Specifically, they are divided equally among ratepayers, shareholders and increased amortizations. If earnings fall below 10.5% for any calendar year, UI is permitted to back off the amortization amount necessary to restore its ROE to 10.5%. According to UI, its effective PBR plan would serve as the foundation for any additional PBR measures implemented as a result of this proceeding. UI requests that its current PBR plan be maintained without modification during the rate plan period, which is scheduled to end December 31, 2001. Id., pp. 1, 7 and 8.

UI observes that the General Statutes of Connecticut (Conn. Gen. Stat.) § 16-244i(d) requires the Department to ensure that the quality and reliability of service for each electric distribution company are the same as or better than levels that existed on July 1, 1998. In addition, no later than October 1, 1999, and annually thereafter, each electric distribution company shall report its SAIDI and System Average Interruption Duration Frequency Index (SAIFI) to the Department. UI's recommendations regarding PBR plan design take into account these mandates. According to UI, any PBR plan must, at minimum, include the following:

- (1) Mechanisms to ensure that electric distribution companies continue to provide efficient, safe and reliable distribution services;
- (2) Mechanisms and a review process under which the Department can oversee quality and reliability of service for each electric distribution company and ensure that quality and reliability are the same as or better than levels that existed on July 1, 1998; and
- (3) A formal reporting system and process to monitor the SAIDI and SAIFI for the preceding 12 months for each electric distribution company. Id., pp. 4 and 5.

UI asserts that PBR better meets the goal of reducing costs to customers than Rate of Return (ROR) regulation. It claims that the price cap and earnings sharing mechanism of its current plan have lowered prices for consumers, both through near term surcredits and through the accelerated amortization of costs that would have

¹ Base rate PBR applies to rates such as unbundled distribution rates. In contrast, PBR has been used in the past to apply to adjustment mechanisms such as the Energy Adjustment Clause.

otherwise been stranded. Id., p. 14. To supplement its PBR plan in the future, UI proposes five preliminary service quality measures:

<u>Indicator</u>	<u>Service Measured</u>
SAIFI	Electric Power Reliability
SAIDI	Electric Power Reliability
Average Speed of Answer (ASA)	Call Center Responsiveness
Missed Appointments	Field Service Responsiveness
Conducting Meter Reads on Schedule and Controlling Overall Accuracy of Bills	Billing Efficiency

C. OCC

OCC's witness, Peter Navarro (Navarro) advised the Department to proceed cautiously towards PBR, since it is "easy to do poorly, but difficult to do well." Tr. 11/12/99, p. 301. He recommends modifying the current UI PBR rate plan because the factual assumptions underlying it were not developed in the context of a full rate case review, and they have been rendered obsolete as a result of unbundling. Id., p. 303; Navarro PFT, p. 6.

According to Navarro, three basic rules of PBR should be followed: (1) the baseline revenue requirement should not be set too high; (2) a progressive sharing mechanism should be used; and (3) a quality control mechanism should include meaningful penalties to prevent an electric distribution company from capturing cost savings that result merely from cutting quality. Navarro PFT, pp. 4-5.

Navarro discusses the pitfalls of PBR. In particular, he points out the potential for false cost savings under PBR. According to Navarro, false cost-savings are achieved by inflating (during a rate proceeding) an EDC's initial baseline revenue requirement and then keeping the earnings obtained by moving (during the rate plan period) from the EDC's observed baseline revenue requirement to its actual baseline revenue requirement. Tr. 11/12/99, pp. 313-314. In addition, Navarro expresses concern with the incentive for EDCs to assign costs appropriately borne with their unregulated affiliates to the distribution side for ratemaking purposes. Navarro PFT, p. 8.

III. DEPARTMENT ANALYSIS

A. ALTERNATIVE REGULATION

Regulated monopolies are subject to minimal market pressures to control their costs. Regulation is, to some extent, a surrogate for competition to promote the provision of services economically. Unlike competitive businesses, utilities cannot earn excessive profits indefinitely; however, they are protected from continuing losses, since they can petition for rate increases.

To date, the predominant regulatory framework in the United States has been cost of service or ROR regulation. Under ROR regulation, regulators: (1) examine the reasonableness of a utility's rate base; (2) ascertain a reasonable level of return on investment commensurate with the risk and expectations of the investment community whose capital the utility needs to support growth and modernization of its plant; and (3) evaluate a utility's proposed and actual operating expenses. Allowed expenses plus the allowed return on rate base determine a utility's revenue requirement, which in turn determines the prices a utility can charge customers for service. Since utilities are allowed a return on rate base, they may invest more capital than optimal.

ROR regulation does not guarantee the rate of return for a utility. A utility must meet prescribed, operational and financial goals to reach its allowed rate of return. Efficiency and cost control is thus rewarded under ROR regulation. Further, regulatory lag acts as an incentive to operate efficiently and control costs.² The ability of these incentives to control costs has been questioned.

As discussed in the Decision dated March 13, 1996, in Docket No. 95-03-01, Application of the Southern New England Telephone Company for Financial Review and Proposed Framework for Alternative Regulation, critics of ROR regulation claim that it can create perverse economic incentives because cost savings from operational improvements and modernization are passed along to ratepayers, while losses from unsuccessful ventures are absorbed by shareholders to the extent that these expenses are deemed imprudent by regulators. Risk and rewards for the regulated utility are thus asymmetrical, according to critics. As a consequence, a regulated utility may operate less efficiently and more costly. Decision, p. 19. Alternative regulatory schemes have been devised and implemented in response to the perceived failings of ROR regulation. These regulatory schemes include Price Cap Regulation, Revenue Regulation and PBR.

The Act institutes non-indexed price caps during the standard offer period.³ The price caps are 10% less than rates in effect on December 31, 1996. These price reductions were instituted independent from the cost to serve (Price Cap Regulation). Despite this fact, no evidence has been presented that UI will suffer financially as a

² Regulatory lag is the period of time between the recognized need for a rate increase and the decision authorizing said rate increase.

³ Base rates are not indexed to inflation or productivity factors. See Section III.D.2. of the Decision.

result, or that reliability is expected to decrease.⁴ Further, these price reductions did not force the Companies off Statement of Financial Accounting Standards (SFAS) No. 71.⁵ See Section III.F, below. Price Cap Regulation provides an incentive to reduce costs to increase profits. It also creates an incentive to oversell electricity to increase profits; thus, it counteracts conservation efforts.

The most prominent characteristic of Price Cap Regulation is that rates are established independent from the cost to serve. The degree of independence varies. Obviously, some consideration must be given to an estimate of the overall cost to serve: to do otherwise would risk maintenance of reliability and customer service levels. Relying solely upon an estimate of the cost to serve, however, reinforces the cost levels to which a utility has become accustomed. Using Statistical Benchmark Modeling (SBM), inter-utility comparisons could be used to reduce rates. See Section III.D.1, below. It is in this manner that Price Cap Regulation might properly be incorporated with PBR.

Revenue Cap Regulation caps revenue independent of costs. It creates an incentive for a utility to reduce sales, and thereby costs, to stay within the revenue cap and maximize profits. Revenue Cap Regulation promotes conservation. To achieve a reduction in sales, the utility is permitted to increase prices. In the event that demand is inelastic, relatively large price increases are necessary to reduce sales. Consequently, Revenue Cap Regulation could result in price gouging. Residential ratepayers, in particular, could be gouged since their demand is less elastic.

The Department does not recommend using Revenue Cap Regulation because it results in price inflation. As such, Revenue Cap Regulation contravenes a fundamental objective of the Act, to lower prices. Revenue Cap Regulation is unfair. It shifts financial risk associated with bad management entirely to ratepayers: additional costs resulting from poor management would be passed on to ratepayers through higher prices. Further, Revenue Cap Regulation raises prices above the marginal cost to serve and may increase cross-subsidization.

PBR is different from ROR Regulation, Price Cap Regulation and Revenue Cap Regulation because it links utility performance to explicit financial incentives. This link is established using an earnings sharing mechanism (sharing mechanism). The fundamental purpose for PBR is to motivate an electric distribution company (EDC) to achieve cost savings it might not have achieved under ROR regulation, and to lower rates and/or bills. This objective is underscored by Conn. Gen. Stat. § 16-244, which notes that rates in Connecticut are higher than the national average.

⁴ Pursuant to the Decision dated October 1, 1999, in Docket No. 99-03-36, DPUC Determination of The Connecticut Light and Power Company's Standard Offer, CL&P will allocate the entire rate reduction to the unbundled Competitive Transition Assessment rate. Decision, p. 8. Consequently, the mandated rate reduction should have no effect on CL&P's system reliability. In contrast, a portion of the mandated rate reduction will come from UI's unbundled distribution component. See the Decision dated October 1, 1999, in Docket No. 99-03-35, DPUC Determination of The United Illuminating Company's Standard Offer, p. 36.

⁵ SFAS No. 71 provides guidance for reflecting the effects of rate regulation in a regulated enterprise's financial statement.

The types of regulation are not mutually exclusive. For instance, UI is presently operating according to Price Cap Regulation (under the Act) and PBR (under the PBR Decision). Components of each regulatory type could be combined and/or altered as the need arises. Depending upon circumstances, ROR regulation, Price Cap Regulation or PBR (or a combination thereof) could be the optimal method for promoting cost reduction and maintaining reliability. The Department agrees with the Companies that PBR, properly designed, provides better incentives to reduce costs. CL&P and UI Responses to Interrogatory EL-1.

B. PBR THEORY

The theory of PBR is simple: a regulated company will respond to financial incentives. According to the theory, by linking explicit financial incentives to particular objectives, regulators can more effectively influence the behavior of the regulated entity. This is an economic theory of organizational behavior. In contrast, ROR regulation relies primarily on legal obligations enforced by Department review to assure efficient operations.⁶ ROR regulation relies more heavily on regulatory lag as an implicit financial incentive.

PBR provides clearer and more certain incentives for cost-savings. In theory, these incentives will cause an EDC to operate more efficiently and at lower cost. It is difficult, however, to establish a direct, causal link between PBR and cost savings. Tr. 11/4/99, p. 125; Tr. 11/5/99, p. 248.

PBR and ROR regulation have much in common. Initial base rate levels are determined (either in whole or in part) according to a company's cost to serve, regardless of whether or not services will be provided under a PBR or ROR regulatory regime. Cost of service accounting is maintained under PBR to allocate costs properly among rate classes and to conform to the Statement of Financial Accounting Standards No. 71 (SFAS 71). With few exceptions, companies operating under PBR rate plans share the same legal obligations as companies operating under ROR rate plans.⁷

According to Navarro, the prospective nature of ratemaking under ROR regulation and PBR limits the ability of regulators to discern the minimum cost, or maximum level of efficiency, at which goods and services could be provided. It is only discernable after the fact, and indirectly through a regulated utility's ROE. Tr. 11/12/99, p. 317. Regulated utilities under either ROR or PBR benefit by inflating their baseline revenue requirements. Navarro PFT, Attachment A.⁸ Regardless of the type of regulatory regime being practiced, the incentive for a utility to inflate its baseline revenue requirement persists. Regulated utilities have dual obligations to shareholders and ratepayers. To fulfill these obligations, regulated utilities must assure their financial integrity. Consequently, they have a tendency to understate anticipated output and overstate projected costs during rate proceedings. Navarro PFT, Attachment A.

⁶ Conn. Gen. Stat. § 16-19e(a)(5) requires that the level and structure of rates charged customers reflect prudent and efficient management.

⁷ One exception would be the relaxation under PBR of a utility's level of allowed earnings.

⁸ Navarro, Peter. "The ABCs of PBR." *Public Utilities Fortnightly*. July 15, 1995.

Ratemaking under ROR regulation and PBR is similar: (1) it is conducted prospectively; and (2) utilities are motivated to inflate projected costs and underestimate production. The difference between ROR regulation and PBR lies in their respective incentive structures and is manifested in the treatment of earnings above allowed levels during the rate plan period.

Under ROR regulation, a utility that successfully minimizes costs and/or maximizes output is likely to exceed its authorized ROE and trigger an interim rate decrease pursuant to Conn. Gen. Stat. § 16-19(g)(1). In effect, the utility is punished for performance above expectations.⁹ Conversely, a utility is rewarded for superior performance under PBR because it is permitted to retain a portion of its earnings above allowed levels.

ROR regulation provides incentives to operate at a lower level of efficiency and at higher costs. The threat of an interim rate decrease motivates utilities to over invest in capital equipment, so called gold plating. Eventually, these increases to a utility's rate base translate into higher rates. In addition, less efficient utilities may be rewarded with higher rates of return because they are perceived as more risky. The additional risk may be due to lower economies of scale and/or poor management. Rates are driven higher as a result.

C. GENERAL GUIDELINES FOR PBR

1. Plan Design

A variety of PBR alternatives exist. PBR components, as well as its overall structure, create incentives or disincentives to act. To avoid unintended consequences, PBR plans should be constructed with specific objectives in mind. The sources for these objectives may be legislation, customer survey results or customer complaints received by the Department. Specific objectives such as maintaining reliability, improving customer service or reducing rates are best served by using performance measures or performance standards and targeted incentives. In principle, PBR plan design should strive to align the interests of ratepayers and shareholders.

A PBR plan should be relatively easy to administer. Regulatory cost savings will decrease as the complexity of administration increases. The number and type of performance measures used should be manageable and reporting requirements should be minimal, yet provide sufficient oversight. In general, a PBR plan should be transparent. It should be readily understood by EDCs and regulators to limit the potential for abuse or ineffective implementation. Moreover, an overly burdensome PBR plan is contrary to the procedural objective of PBR, which is to grant regulated utilities a greater degree of discretion (with sufficient oversight) to attain cost savings during the rate plan period.

⁹ As a corollary, utilities under ROR will be less likely to be innovative or invest in new technology because they bear all the risk that the venture will fail and potential benefits are limited to the utility's authorized ROE.

2. PBR Components

Typically, PBR is constructed pursuant to a general rate hearing that establishes rates based (either in whole or in part) on the utility's cost to serve. These rates may be held constant (fixed price cap). UI presently has a fixed price cap.¹⁰ Alternatively, rates could be adjusted at prescribed levels based on forecasted inflation, productivity and sales growth (price cap formula). Base rates may also be adjusted during the rate plan term in response to changes in the cost to serve that have derived or developed from external causes totally beyond the control of the regulated utility (a "Z" factor adjustment). A generic price cap formula can be defined as follows:

$$\text{Price Cap (current)} \leq \text{Price Cap (base)} * (1 + \text{Inflation} - \text{Productivity Gains}) + \text{"Z" Factor}$$

CL&P Filing, p. 4.

A target ROE is established during the general rate hearing. PBR permits a utility's actual ROE to deviate from the target level, usually within the confines of an ROE collar. The ROE collar thus prescribes and limits the regulated utility's overall risk and potential rewards. Ongoing, the utility's ROE is evaluated periodically to assure compliance with the ROE collar and to calculate the sharing mechanism. Sharing mechanisms distribute the benefits of cost savings to the regulated utility by increasing the allowed level of earnings, and to ratepayers through rate reductions and/or bill credits.

To assure that costs are reduced for all rate classes, customer surcredits should be issued to rate classes proportionately (based on energy usage and demand). Additionally, reductions to stranded cost amounts should benefit customers of all rate classes through a proportionate reduction to their Competitive Transition Assessment.

Quality control mechanisms are meant to assure that a regulated utility does not achieve cost savings merely from reductions to reliability or quality of service. Components of quality control include performance measures, performance standards and financial incentives. Quality control may be exercised through monitoring and financial rewards or penalties.

3. Implementation

The EDCs' cost structures have changed as a result of unbundling and divestiture. Costs have been distributed between regulated electric distribution companies and their unregulated affiliates: as well as among unbundled functions, such as transmission and distribution. If approved, the proposed merger between CL&P's parent company, Northeast Utilities, and Consolidated Edison would further obscure CL&P's near-term cost structure. Effective PBR rests upon an accurate portrayal of an EDC's costs. Such a portrait is difficult to achieve during a period of fundamental change. Undertaking PBR in the near-term for CL&P is therefore inadvisable.

¹⁰ This requirement does not preclude exercise by the EDC of its right to seek an interim rate increase.

PBR may be applied to specific functions (targeted) or to a regulated utility's overall earnings (broad-based).¹¹ Fully-integrated electric companies in Connecticut have operated according to targeted PBR plans for functions such as fuel procurement, nuclear output and conservation. UI has had a broad-based PBR plan in effect since 1997. The primary elements of PBR include (1) cost control; (2) quality control; and (3) regulatory oversight.

D. COST CONTROL UNDER PBR

Cost control under PBR is effected at the outset of the PBR plan period through establishment of a proper (i.e., non-inflated) baseline revenue requirement. A determination must be made regarding the use of inflation and productivity factors, as well as a "Z" factor adjustment mechanism for exogenous costs. Once PBR is in effect, cost control is exercised through the ROE collar and sharing mechanism. Together, they provide the EDC with financial incentives to achieve cost savings.

1. Baseline Revenue Requirement

A PBR plan should be developed in concert with a general rate hearing or a complete financial and operational review. As discussed in Section III. B, above, utilities are motivated to inflate their baseline revenue requirement during such reviews, which dilutes the effects of cost savings. PBR is only as good as the baseline revenue requirement.

Navarro recommends using SBM to limit the ability of utilities to inflate their baseline revenue requirement. SBM establishes a comparison group of utilities to separate cost components under the utility's control, such as the number of personnel, from cost components beyond the utility's control, such as weather and regulatory climate. Cost components beyond the utility's control are then normalized to determine how well each utility is minimizing its costs. SBM could function as a separate check on the reasonableness of requested revenue amounts and subsequent rates. Navarro PFT, Attachment B.¹² It could also indicate the relative level of efficiency at which the subject EDC is operating: and thus the potential utility of PBR.

The Department agrees with Navarro that SBM should be used to establish base revenue requirements and create a proper incentive to control rates over the long-term. Presently, relatively few EDCs exist. As a consequence, sufficient data are unavailable on which to base SBM.

¹¹ According to the Companies, the Conservation Charge should be subject to targeted PBR. Each EDC is proposing to institute targeted incentive mechanisms in accordance with their respective year 2000 conservation and load management (C&LM) budgets. Tr. 11/4/99, pp. 139-143; CL&P Filing in Docket No. 99-09-30, DPUC Review of The Connecticut Light and Power Company's Conservation and Load Management Budget for 2000, pp. 143-145. Conservation efforts have been subjected to targeted PBR in the past to compensate fully-integrated electric utilities for lost sales resulting from those programs. According to the Companies, performance incentives are necessary to reward EDCs for exemplary performance in the delivery of conservation programs. *Id.* The Department will rule on the appropriateness of the proposed conservation performance incentives in each Company's respective C&LM proceeding (which are presently open).

¹² Navarro, Peter. "Seven Rules for the PBR Regulator." The Electricity Journal. 9:13 (1996): 23-30.

2. Inflation and Productivity Factors

Inflation and productivity factors may be used to adjust (at predetermined levels) base rates automatically during a PBR rate plan term. Inflation and productivity gains constantly exert influence over the ability of a utility to meet its operational and financial objectives. Over time, they may distort the appropriateness of the target ROE. If, for instance, inflation were to outpace productivity gains, the target ROE would be biased upward. Consequently, it would be more difficult for an EDC to meet its target ROE. Conversely, if actual sales growth is greater than projected levels the target ROE would be biased downward.

There is disagreement among the Parties regarding the use of inflation and productivity factors. CL&P and Navarro agree that PBR should include inflation and productivity factors. CL&P Response to Interrogatory EL-13; Tr. 11/12/99, p. 239. In contrast, UI rejects the use of inflation and productivity factors, stating that they inevitably lead to “oversimplification of cost recovery.” UI Response to Interrogatory EL-13. The Parties agree that if used, inflation and productivity factors should be industry specific.

The use of inflation and productivity factors is problematic. According to Navarro, as baseline revenue requirements are established, utilities tend to overstate inflationary pressures to create generous escalation factors. Consumer advocates tend to overstate productivity gains and minimize the escalation factor. Navarro PFT, Attachment A.

In the PBR Decision, the Department determined that inflation and productivity factors would offset one another. PBR Decision, p. 15. Also, the Department noted that the percentage change in output per hour in the electric industry runs below the percentage change in the Consumer Price Index (CPI). *Id.* Nevertheless, the Department believes that since labor will make up a greater proportion of costs for EDCs, the annual level of productivity gains may increase.

Generally, inflation and productivity levels for EDCs are little understood at this time. The Department does not recommend the institution of inflation and productivity factors until the utilities have gained sufficient experience (2 years or more) operating as EDCs. The Department would consider such factors, as well as potential sales growth, at the outset of a PBR plan.

3. “Z” Factor Adjustments

A “Z” factor adjustment mechanism functions to adjust base rates in response to exogenous costs. The Parties disagree on the appropriate manner to treat exogenous costs under PBR. CL&P and Navarro endorse the use of a “Z” factor adjustment mechanism. CL&P Filing, p. 4; Navarro PFT, Attachment C.¹³ On the other hand, UI

¹³ Navarro, Peter. “The Simple Analysis of Performance-Based Regulation: A Guide for the PBR Regulator.” *The Yale Journal on Regulation* 13:105 (1996): 104-161.

states that such an adjustment mechanism is unnecessary because a company should be able to manage risk accordingly. Tr. 11/4/99, p. 113.

Generally, the Department has acknowledged a very limited need to respond to exogenous events and the costs they bring. In the PBR Decision, the Department found that UI should not be without recourse from exogenous events beyond its control that can upset financial expectations. Decision, p.38. Further, Conn. Gen. Stat. § 16-244c provides for adjustments to specific exogenous events during the standard offer period.¹⁴ The issue is a procedural one.

The process by which exogenous events are treated can create disincentives that contravene the objectives of PBR. As recovery is made easier, it provides a disincentive for utilities to manage risk internally and an opportunity to game PBR. Consequently, the Department recommends against incorporating a “Z” factor adjustment mechanism into PBR. Rather, EDCs should be required to reopen their most recent rate case to make base rate adjustments for exogenous costs.

All businesses have costs that are beyond their control, but they cannot automatically pass rate increases on to their customers. Often they must reduce costs in other areas to remain profitable. If the Department allowed an EDC to pass through certain costs automatically, it could increase rates even though the company is already very profitable because other cost decreases or revenue increases are not considered.

4. Return on Equity Collar

A utility’s profits are measured by actual return on common stockholders’ investment, return on equity (ROE). The ROE is calculated by dividing income available to common stock (net profits after taxes) by total common stockholders’ equity. Typically, an annual average ROE is calculated based on each month’s ROE during the fiscal year. Utility profits, as conveyed by ROE, are a straightforward and popular indicator of a utility’s performance and financial health. As such, ROE is a valid basis upon which to construct PBR.

An ROE collar places an upper and lower limit on a range of potential earnings. Within this range, a utility’s profits are tracked and shared with ratepayers to the extent that they differ from a pre-determined threshold. Late Filed Exhibit No. 9. An ROE collar may be firm, in which case it is not adjusted from pre-determined levels (Firm ROE Collar). Alternatively, the ROE Collar could be adjusted according to a utility’s performance (Sliding Scale ROE Collar). For example, the collar (ceiling and floor, or floor) could be adjusted downward if an EDC failed to meet its targeted SAIDI

¹⁴ Pursuant to Conn. Gen. Stat. § 16-244c, the standard offer rate shall be adjusted to the extent of any increase or decrease in state taxes attributable to Conn. Gen. Stat. § 12-264 and 12-265, and any other increase or decrease in state or federal taxes resulting from a change in state or federal law. The standard offer may be adjusted, by an increase or decrease, in the event that the revenue requirements of the company are affected as a result of changes in legislative enactments, administrative requirements or accounting standards occurring after July 1, 1998, or if an electric distribution company incurs extraordinary and unanticipated expenses required for the provision of safe and reliable electric service.

performance level. The UI PBR plan presently in effect lacks an ROE collar. It does, however, limit the potential decline in the Company's ROE to 10.5% (an ROE floor).

Depending on its configuration, a Sliding Scale ROE Collar might provide greater risk and opportunity than a Firm ROE Collar. To the extent that potential adjustments fall outside the Firm ROE Collar, greater risk and opportunity will exist under a Sliding Scale ROE Collar because it increases the range of potential ROE. A Firm ROE Collar is limited in its ability to apply financial incentives: such incentives can only be applied through the sharing mechanism. A Sliding Scale ROE Collar provides an additional mechanism to apply financial incentives: the ROE Collar itself can be adjusted. As a result, a Sliding Scale ROE Collar is more complicated to administer. It requires additional reporting on and regulatory oversight of the ROE Collar itself. In addition, adjustments might be made to the sharing mechanism, since it tracks the ROE collar. The Parties recommend using a Sliding Scale ROE Collar. The Department, however, believes that either type of ROE collar could achieve the objectives of PBR.

The width of an ROE collar determines the overall risk and potential rewards under PBR. The broader the ROE collar, the more risk and more opportunity. CL&P Response to Interrogatory EL-73. The Department agrees that ROE collar width should bring with it an appropriate level of risk. Moreover, the width of an ROE collar should be company-specific so that an EDC's particular level of risk tolerance can be considered.

An ROE dead band may be established around an EDC's target ROE. The dead band represents the threshold at which a utility's profits and/or losses are shared with ratepayers. A utility and its shareholders absorb profits or losses so long as its ROE falls within the dead band, which provides incentives to operate efficiently. Conversely, a dead band could limit the overall incentive to achieve cost savings because an EDC might be satisfied to capture only the benefits obtained within the dead band. A dead band represents an opportunity to game PBR by attempting to unnecessarily inflate its width to gain additional earnings regardless of cost savings. Moreover, as the width of the dead band increases, potential price reductions for ratepayers decrease.

The Parties disagree on the appropriate width of an ROE dead band. Presently, the UI PBR plan has a dead band of 100 basis points below its allowed ROE. UI Filing, p. 8. Because of the difficulty in determining a precise level of ROE necessary to provide adequate funding for utility operations, but not to shift disproportionate risk onto shareholders, CL&P proposes a hypothetical ROE dead band of 150 basis points. Response to Interrogatory EL-54; CL&P Filing, p. 4. In contrast, Navarro recommends against the use of any ROE dead band. Tr. 11/12/99, pp.328-329.

Dead bands may be justified as a protection for ratepayers and the EDC. Similar to earnings within the confines of the dead band, ratepayers would not share financial penalties associated with performing below ROE target. Such an argument belies the underlying premise of PBR that potential cost savings exist that are unattainable through ROR regulation. Nevertheless, to protect ratepayers against immediate, upward price adjustments it might be appropriate to permit the EDC to back off amortizations to restore its ROE to target (as with the UI PBR plan). A dead band acts as a financial cushion against contingencies. This cushion is less necessary because

the financial and operational performance of an EDC should be less volatile than a fully-integrated electric company.

The Department generally recommends that there either be no ROE dead band, or a relatively small one. In some circumstances, however, a wider dead band might be appropriate. The economics of the sharing mechanism should work unimpeded in the absence of an ROE dead band because an EDC would not retain the first one to two percent of cost savings. Further, by having a relatively small dead band or none at all, the opportunity to game PBR is reduced.

5. Sharing Mechanisms

A sharing mechanism is the means by which the distribution of benefits from cost savings is prescribed and implemented. The sharing mechanism signals to EDCs the potential reward for cost savings. It works in tandem with an EDC's target ROE and ROE collar. As actual ROE varies from target, benefits are shared between ratepayers and the EDC in accordance with the sharing mechanism. The ROE collar may limit the total amount of benefits shared, and it may be used as a framework to construct incremental rewards.

CL&P recommends using a regressive sharing mechanism. CL&P Supplemental Response to Interrogatory EL-54. Under a regressive sharing mechanism, the portion of earnings retained by the utility decreases as the total amount of cost savings increases. Consequently, a utility would retain a majority of the earnings from the easiest cost savings. Tr. 11/5/99, p. 259.

Presently, the UI PBR plan has a proportionate sharing mechanism. The portion of earnings retained by the utility and distributed to ratepayers remains constant regardless of the total amount of cost savings achieved. A proportionate sharing mechanism is superior, claims UI, because it is more straightforward and less subject to utility gaming. Tr. 11/4/99, pp. 136-137.

Navarro recommends using a progressive sharing mechanism, whereby earnings retained by the utility increase as total cost savings increase. Navarro PFT, p. 5. The progressive sharing mechanism therefore creates an incentive to achieve maximum cost savings. According to Navarro, this incentive is necessary since cost savings become more difficult to attain as total savings increase. Navarro PFT, Attachment A.

It might be appropriate to use either a progressive or a proportionate sharing mechanism. As an economic matter, a progressive sharing mechanism provides an incentive to achieve the greatest cost savings. A progressive sharing mechanism may also over reward an EDC for sales growth that is beyond its control or create an undue incentive to increase sales which is inconsistent with the State policy goal, as stated in Conn. Gen. Stat. § 16a-35k, to promote efficient energy use.

A proportionate sharing mechanism may not provide the optimal economic incentive to achieve maximum cost savings. However, it is relatively easy to administer and is less subject to gaming than a progressive mechanism. It is possible that a proportionate sharing mechanism could return more benefits to ratepayers than a

progressive one. For instance, in the event that an EDC's after-tax net profits exceed all projections, a progressive sharing mechanism, such as the one provided in the table below, might render a huge majority of benefits to an EDC while limiting the total amount of savings for ratepayers.

A regressive sharing mechanism results in decreasing returns as the total amount of cost savings increases, thus there is limited incentive for an EDC to achieve maximum cost savings. Further, a regressive sharing mechanism could be an impetus for an EDC to inflate its baseline revenue requirement because it would retain a majority of the benefits from achieving false cost savings.

For simplicity's sake, the number of steps in a progressive sharing mechanism should be limited. The proper placement of each step is less straightforward.

Sample Progressive Sharing Mechanism

	Earned ROE	Sharing (Utility/Customers)	
ROE Collar - Upper Limit	16.0	100/0	Step 4
	15.0	75/25	Step 3
	14.0	50/50	Step 2
	13.0	25/75	Step 1
	12.0	0	Target ROE
	11.0	25/75	Step 1
	10.0	50/50	Step 2
	9.0	75/25	Step 3
ROE Collar - Lower Limit	8.0	100/0	Step 4

To determine the earned ROE level at which each step should be taken, an assumption could be made regarding the total amount of potential savings and incremental ROE levels could be calculated accordingly. Alternatively, steps might be established at one-hundred basis point increments (as above) and adjusted as experience dictates, a "trial and error" period.¹⁵ In the event that net losses occur, the PBR plan should indicate how losses will be shared and when the company can request a rate increase.

There is potential to game a progressive sharing mechanism. Specifically, an EDC may defer cost savings one year to achieve greater cost savings in a subsequent year's calculation. Tr. 11/4/99, pp. 136-137; Tr. 11/12/99 p. 327. Before implementation, it would be necessary to devise a sufficient accounting mechanism to eliminate or limit this potential. The administrative difficulty of such an accounting mechanism, and the development and maintenance of the progressive mechanism in general, must be weighed against potential benefits to ratepayers and the EDC.

The assumption underlying PBR is that significant cost savings can be achieved through the proper application of economic incentives. The logic of this assumption extends to the use of progressive sharing mechanisms. It would be reasonable to expect that potential benefits would outweigh additional, administrative costs associated

¹⁵ During a "trial and error" period, it would be prudent to institute a narrow ROE collar that caps the total amount of earnings retained and losses absorbed by the utility.

with implementation of a progressive sharing mechanism. The Department should have flexibility in choosing either a proportionate, progressive or regressive sharing mechanism, as appropriate, in its future review of PBR plan proposals.

6. Cost Reduction under PBR

Section 68 of the Act requires the Department to determine whether PBR would better meet the goal of reducing costs to all customer classes than ROR. Such a determination cannot be made generally; rather, it should be made on a case-by-case basis. In its evaluation of the potential for PBR to reduce costs, the Department used UI's experience as a case study.

Presently, UI is under a five-year PBR plan. In accordance with that plan, UI annually calculates after-tax, net operating income above the amount necessary to achieve an ROE of 11.5%. Subsequently, the net income is allocated on a proportionate basis between accelerated amortizations, surcredits to customer bills and retained earnings.

Benefits through the UI Sharing Mechanism

	1997	1998	1999 (est.)
Customer surcredits	\$170,000	\$0	\$15,000,000
Accelerated amortizations	170,000	0	15,000,000
Retained earnings	170,000	0	15,000,000

Sources: Late Filed Exhibit No. 2-1; UI Response to Interrogatory EL-66.

The customer surcredit amount is grossed up for taxes to determine the total surcredit amount.¹⁶ As a result, the total customer surcredit in 1997 was \$302,000. This amount was credited on the May 1998 bills (revenue adjustment line item) at the rate of .074 cents/kWh. Late Filed Exhibit No. 2-1. According to UI, cost savings will account for approximately 38% of the estimated \$45 million after-tax, net operating income amount in 1999. Late Filed Exhibit No. 3.

During the PBR rate plan period, UI projects that it will have achieved \$71.9 million in reductions to operating costs.¹⁷ Due to these cost savings, UI has been able to amortize conservation and load management costs fully and \$20 million (pre-tax) in regulatory tax assets during the 1997 through 1999 time period, thereby lowering the stranded cost balance. UI Filing, pp. 14-15. In addition, rates were reduced to all customers ahead of the mandatory 10% reduction pursuant to the Act. *Id.*, p. 15.

The cost and rate reductions achieved by UI are in accordance with the PBR Decision and are not attributable to PBR. In that Decision, the Department anticipated that "absent any changes to current rates and/or amortization schedules, [UI] is likely to earn significantly more than its required return on equity." PBR Decision, p. 63. To assure that UI's rates would be no more than just, reasonable and adequate, the Department mandated additional amortizations of regulatory assets, a reduction in

¹⁶ Gross Revenue Conversion Factor of 1.77.

¹⁷ Approximately \$43 million has been achieved to date. Late Filed Exhibit No. 1.

current conservation adjustment mechanism charges, and a modification to the fuel adjustment clause.

Actual sharing under the plan has been minimal for 1997 and 1998. There were no savings in 1998 and \$170,000 in 1997. Savings are expected to be significant for calendar year 1999, however, resulting in a possible return of \$15 million to ratepayers and \$15 million in additional stranded cost recovery in year 2000.

E. RATE PLAN TERM

According to UI, the rate plan term for PBR should be at least five years. Tr. 11/4/99, p. 74. In particular, UI stressed the need to design PBR so that it captures in one period the outlay of expenditures and the resulting benefits and additional earnings. Tr. 11/4/99, p. 75. Use of rate plan terms that exceed five years contributes to a reduction in regulatory costs, since a rate case costs UI approximately \$1 million. UI Response to Interrogatory EL-72; Tr. 11/4/99, p. 123. CL&P believes that a rate plan term for PBR should be in the range of four to six years. Tr. 11/5/99, pp. 244-245. Subsequent to the trial period discussed above, Navarro endorses the use of a PBR rate plan term in the range of three to five years. Tr. 11/12/99, p. 319.

The theory of PBR rests upon the notion that utilities should be rewarded for cost saving measures. Certain types of cost saving measures do not yield short-term benefits. Consequently, a mandated rate proceeding within a short period may sever the cost-benefit link and provide a disincentive for EDCs to undertake long-term, cost saving measures. Any approved PBR plan must include sufficient reporting requirements. Thus, accountability to the Department and to the public would not suffer regardless of the rate plan term. The Department finds that a rate plan of 3 to 6 years would be appropriate.

F. STATEMENT OF FINANCIAL ACCOUNTING STANDARDS NO. 71

The Parties agree that cost of service is not discarded with the institution of PBR. Like traditional cost of service regulation, PBR is predicated upon a forecast of company costs to establish a baseline revenue requirement and rates necessary for recovery. A full rate case review, or a financial and operational review should be conducted before instituting PBR. Furthermore, the Companies state that cost of service accounting would be maintained throughout the PBR rate plan period. Such accounting treatment is necessary so that the Companies may maintain SFAS No. 71 financial accounting standards.

Paragraph 5 of SFAS No. 71 states that SFAS No. 71 can only be applied to enterprises or a portion of the enterprise's operations that meet the following three criteria:

1. The enterprise's rates for regulated services or products provided to its customers are established by or are subject to approval by an independent, third-party regulator or by its own governing board empowered by statute or contract to establish rates that bind customers.

2. The regulated rates are designed to recover the specific enterprise's costs of providing the regulated services or products.
3. In view of the demand for the regulated services or products and the level of competition, direct or indirect, it is reasonable to assume that rates set at levels that will recover the enterprise's costs can be charged to and collected from customers. This criterion requires consideration of anticipated changes in levels of demand or competition during the recovery of capitalized costs. UI Response to Interrogatory EL-37.

According to UI, the second criterion is most affected by the form of regulation. Id. CL&P states that the following should be given consideration to determine that, under PBR, the cause and effect relationship between a company's costs and revenues exists and is expected to continue:

- The basis used for setting the enterprise's initial rates under PBR and whether the regulatory intent is for such rates to be based on company specific costs.
- The company's specificity of price adjustment formulas and how closely changes in the company's actual costs track the changes in revenues produced by applying the price adjustment formulas. The nature and extent of exogenous cost changes allowed to adjust rates.
- The degree of true-up of actual costs through sharing provisions.
- The ability to "escape" the alternative regulation plan by way of cost-justified tariff filings or other procedures. CL&P Response to Interrogatory EL-37.

UI stated that the second criterion is deemed to be met as long as the enterprise approximately earns its allowed return on common equity. UI goes on to say that PBR would appear to be compatible as long as the plan provided for a reasonable earnings floor and for corrective action if earnings were projected to fall below the floor. UI Response to Interrogatory EL-37. UI believes that as long as the Company were to earn within 10 to 15% of its allowed return, its accountants would consider the criterion to be met. Tr. 11/4/99, p. 156.

Currently, a company defers a cost if it believes that the Department will allow recovery from future revenues. Tr. 11/5/99, p. 280. The deferred cost becomes a regulatory asset when the Department approves rates that allow for recovery of that cost. Id. If costs do not meet the criteria to become a regulatory asset, a company would have to expense the cost, thus reducing current earnings. UI and CL&P believe that the creation or elimination of regulatory assets under ROR regulation and PBR should not be different. Responses to Interrogatory EL-32. The PBR plan must meet the criteria of SFAS No. 71. In particular, a company must be able to account for and recognize regulatory assets and liabilities under SFAS No. 71. Id.

If a company no longer meets the criteria of SFAS No. 71, then SFAS No. 101, "Regulated Enterprises – Accounting for Discontinuation of FASB Statement No. 71" would apply. CL&P's Response to Interrogatory EL-47. SFAS No. 101 requires, among other things, that when an enterprise no longer meets all of the criteria of SFAS No. 71, it must eliminate from its balance sheet (through an immediate charge to income as an

extraordinary item) the effects of any actions by regulators that have been recognized pursuant to SFAS No. 71 but would not have been recognized as assets and liabilities by unregulated enterprises in general.

The benefit of remaining on SFAS No. 71 is that a company would avoid the write-off costs it would incur if it were required to apply SFAS No. 101. If CL&P had to write off such costs, there would be major negative repercussions, including the failure to meet financial covenants in debt agreements, which could possibly force it to declare bankruptcy. Id. On the other hand, it would be acceptable under SFAS No. 71 for a company that operated an ROE collar to use a portion of the earnings above the ROE collar to accelerate recovery of regulatory assets. Tr. 11/5/99, p. 281.

The Department agrees with the Companies that PBR should not affect their ability to meet the criteria of SFAS No. 71. UI's current PBR plan, discussed in Section II.B, above, is an example of how PBR can be structured to allow a company to continue to recover the regulatory assets recorded on its books.

G. QUALITY CONTROL

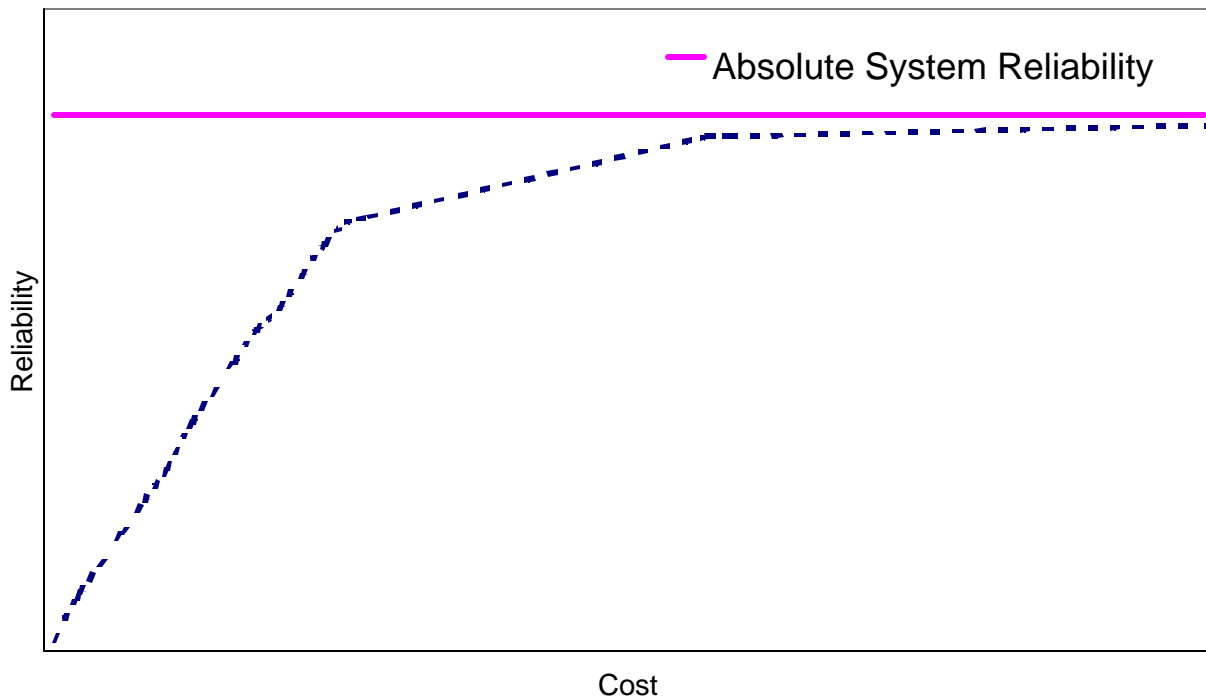
1. Financial Incentives

Financial incentives may be linked to performance standards to maintain or improve performance on certain aspects of a utility's operation. There are three things that must be determined before applying financial incentives to an EDC's operational performance: (1) the structure of financial incentives – whether rewards and penalties will be provided or penalties only; (2) the proper level of penalties and/or rewards; and (3) the process to execute financial rewards and/or penalties.

a. Structure

The objectives of PBR dictate the overall structure of financial incentives. The Act places emphasis on cost reduction and the maintenance of reliability service levels. This approach is proper for EDCs that experience relatively high levels of reliability and relatively high rates concurrently. In such a circumstance, rewarding improvements to reliability likely would raise the overall cost to serve, and thus prices, since incremental reliability improvements become less cost effective as an EDC approaches absolute system reliability, as shown below. Tr. 11/4/99, pp. 96-97.

The Microeconomics of System Reliability



Generally, rewarding improved performance runs counter to a key objective of PBR, which is to lower rates. Financial rewards should be excluded for EDCs with relatively high reliability levels because (a) additional improvements most likely are not cost-effective; and (b) the Company should not be rewarded for maintaining reliability at present levels. In contrast, financial penalties could provide an effective means to assure reliability is maintained in accordance with the Act.

b. Penalty and Reward Amount

To link financial incentives to operational outcomes requires choosing the proper performance measures and standards. Performance measures are categories used to evaluate a utility's operation and may include reliability, safety and customer service. In contrast, performance standards denote specific benchmarks against which a utility's performance is measured. An EDC could be rewarded or penalized for operational outcomes that vary from targeted levels. It might be appropriate to include reasonable null zones, or operational dead bands, around certain targeted levels of performance.¹⁸ Additionally, treatment for the effects of exogenous events, such as storms, must be prescribed.

Incentives must be meaningful to promote cost savings and assure quality control. Penalties should be made large enough to deter a utility from cutting quality to achieve cost savings. Tr. 11/12/99, p. 310. Rewards should be large enough to provide

¹⁸ In accordance with Conn. Gen. Stat. § 16-244i(d).

an incentive, but not overly large such that a utility shifts an inordinate amount of resources toward achieving one objective to the detriment of others.

It is impractical to derive penalty and/or reward amounts quantitatively according to the effect that service levels have upon customers. It is difficult to ascribe monetary values to reliability, in particular. According to UI, it has “wrestled for years about how to place a monetary value on reliability. . . I don’t think we have ever come up with a good answer to that question.” Tr. 11/4/99, p. 91. As a general principle, the marginal cost of penalties must be greater than marginal benefits obtained by decreasing performance levels.

c. Penalty and Reward Assessment

The Parties presented three mechanisms to assess penalties or rewards. According to Navarro, it might be appropriate to deny a utility its share of retained earnings should any quality parameter be breached. Alternatively, some fraction of retained earnings could be withheld. Navarro PFT, Attachment B. UI proposes that its target ROE be allowed to fluctuate according to performance. UI Filing, p. 16. Determination of an appropriate mechanism should await approval of a specific PBR plan.

2. Performance Measures

A variety of PBR alternatives exist. The Parties agree that certain types of PBR are better suited to meet certain objectives. Performance measures can be developed to address particular concerns such as reliability, customer service or the implementation of conservation programs. In particular, if the objective is to maintain service reliability levels, reliability performance measures should be included in PBR. They may be included as reporting requirements only or linked to financial incentives.

Reliability performance measures include SAIDI, SAIFI and Customer Average Interruption Duration Index (CAIDI). SAIDI is defined as the sum of customer interruptions in a year in minutes, divided by the average number of customers served during that year. SAIFI is defined as the total number of customer interruptions in a year, divided by the average number of customers served during that year. CAIDI is the sum of customer interruptions in a year, divided by the number of customer interruptions during that year. SAIDI can be viewed as the average outage duration experienced by all customers on a utility’s system, while SAIFI can be viewed as the average outage frequency on a utility’s system, and CAIDI can be viewed as the average outage duration experienced by a single customer. These measures are readily understood industry standards collected by the utilities in the past and applicable to the operations of an EDC. CL&P Response to Interrogatory EL-43; UI Response to Interrogatory EL-8. Furthermore, the Act requires the Department to oversee reliability of service and to submit an annual report to the General Assembly on each EDC’s SAIDI and SAIFI data.¹⁹

¹⁹ See Sections 16(d) and 77(a) of the Act.

A company's performance in one or more finite functions, such as billing accuracy, may be used to measure service quality.²⁰ On the other hand, customer surveys could provide the Department and EDCs with a broader indication of customer service. Customer surveys could be a useful means of communication among customers, the Department and EDCs.

In general, performance measures must: (1) reflect services that are most important to customers; (2) be quantifiable and objective; and (3) be relatively simple to implement, monitor and evaluate. Once performance measures are selected, performance standards are developed by benchmarking against a utility's own, historical performance or the performance of comparable utilities. Performance standards should be developed upon review of a detailed PBR plan proposal.

a. Reliability

The Parties agree that a PBR plan should include a reward and penalty mechanism for reliability of the distribution system. In traditional cost of service regulation, there is little incentive for an electric distribution company to improve reliability, other than the negative incentives of customer dissatisfaction and public pressure that accompany poor reliability. Reliability has often been one of the first areas of an electric utility's operations that is adversely affected when the utility initiates cost containment programs.

There is substantial disagreement regarding the mechanics of how reliability would be measured, and regarding the benchmark against which it would be compared. UI believes that its reliability should be benchmarked against the reliability performance of other utilities in the region. Under UI's proposal, the reliability statistics of utilities in the region would be divided into four quartiles. UI would be penalized if its reliability fell into the fourth quartile. There would be no reward or penalty if reliability fell into the second or third quartile, and UI would be rewarded if reliability fell into the first quartile. UI Response to Interrogatory EL-30.

CL&P believes that reliability should be benchmarked against its own historical performance. According to CL&P, comparisons to other utilities are useful, but a utility's reliability is largely the result of past decisions regarding the design of the distribution system, which would take substantial time and investment to change. Further, CL&P suggests that a comparison to other utilities is not consistent with Conn. Gen. Stat. § 16-245y, which requires an EDC's reliability to be no worse than on July 1, 1998. Therefore, the Act implicitly compares a distribution company's reliability to its own historical performance. Tr. 11/5/99, pp. 216-218.

The Department prefers a PBR reliability component based on an EDC's performance relative to its own history. Because each distribution system evolves over time within its unique service territory, no two distribution systems are fully comparable.

²⁰ Pursuant to Conn. Gen. Stat. § 16a(b), if the Department approves performance-based incentives for a particular company, the Department shall include in such approval a framework for periodic monitoring and review of the company's performance which shall include, but not be limited to, the company's ROE, reliability and quality of service.

Important factors that can affect the performance of distribution systems include the tree density of the service area, the proportions of urban and rural territory, and the amount of underground plant. Therefore, the Department believes CL&P's observations regarding past decisions and present reliability are generally correct. They also comport with previous Department findings on the comparability of different utilities. For example, regarding the significant differences in reliability statistics between CL&P and UI, the Department noted the following in 1988:

The two Connecticut electric systems have distinctly different characteristics that have influenced reliability. Some are external factors beyond the control of each company. UI has a high density compact service area with over 865 customers per square mile, or over 66 customers per mile of distribution line. CL&P has 231 customers per square mile, or 46 customers per mile of distribution line. Higher densities permit more investment for reliability in each mile of distribution circuit. In this instance, over 30.8 percent of UI's distribution system is underground or in duct while only 18.4 percent of CL&P's system is so constructed.

Decision dated March 23, 1988, in Docket No. 86-12-03, Long Range Investigation to Examine the Adequacy of the Transmission and Distribution Systems of The Connecticut Light and Power Company and The United Illuminating Company (T&D Docket), p. IX-7.

UI's proposed use of quartiles and regional comparisons would present several difficulties. First and foremost, UI presently has the highest reliability of any EDC in New England. Tr. 11/5/99, p. 172. Therefore, it is likely that UI would be in the top quartile for the foreseeable future, if the PBR plan that UI proposes were implemented. UI could then qualify for a reward for reliability performance without necessarily improving reliability.

Second, differences in how EDCs calculate reliability would need to be investigated. The most significant issue is excluding major storms from the reliability data, which most EDCs do. Connecticut uses a statistical criterion that is different from major storm exclusion criteria that other jurisdictions use. The degree to which various major storm exclusion criteria affect the reliability data would need to be evaluated to determine whether reliability data between different jurisdictions are truly comparable.

Third, as noted previously, the reliability of different EDCs is affected to a high degree by the characteristics of their service territories and by how the design of the distribution systems evolved. Therefore, the Department does not believe it is equitable to compare UI, with a high percentage of networked underground systems, to a utility serving a rural, mountainous territory.

It is possible that an effective reliability incentive program could be developed that would incorporate comparisons to other utilities. Such a program could instill a competitive attitude in the distribution company, since it would tend to compare itself against other distribution companies in the region to improve reliability. Such an approach could also eliminate some of the effects of annual variations in reliability due to weather, since many of the region's utilities would be similarly affected by an

unusually severe winter, for example. However, such an incentive program would need to take into account the above-noted concerns regarding use of data from other jurisdictions.

A reliability incentive based upon historical comparisons is not without drawbacks. Since UI already has very high reliability, there is little potential for it to achieve a reward without major upgrades to its distribution system. It is not likely that UI could achieve a significant improvement in reliability without placing more of its distribution plant underground, which is extremely costly.

UI and CL&P do not agree on the reliability measures that should be used for a PBR plan. UI believes such a plan should include both SAIDI and SAIFI component because they would provide an incentive to reduce outage duration and frequency. Tr. 11/5/99, p. 179. CL&P believes SAIDI and SAIFI should not be used together because SAIFI is actually a component of SAIDI and there would be double counting of SAIFI, giving greater weight to the incentive for reducing outage frequency. CL&P recommends that a reliability component based on either SAIDI alone or SAIFI in combination with CAIDI would promote reduced outage duration and frequency equally. CL&P Response to Interrogatory EL-44.

SAIDI alone should not be the reliability component of a PBR plan, because it may not adequately reflect the frequency of outages. Specifically, if a utility experiences a large number of short duration outages, SAIDI may not change at all or may not change sufficiently to gauge the impact of these outages on customers. This may not have been a concern before the widespread use of digital displays on clocks, microwaves, or video cassette recorders, when such outages were barely noticed by customers. Now and for the foreseeable future, however, such short duration outages are a significant nuisance. Therefore, the reliability component should provide the EDCs with an incentive to reduce the frequency of such outages.

There is no correct set of reliability indicators that should be used for PBR. Other jurisdictions have implemented PBR based on a variety of combinations of SAIDI, CAIDI, SAIFI, or on just one of these statistics. Any plan should provide proper incentives for the EDCs to reduce both outage frequency and duration. Therefore, it should include SAIFI in combination with either SAIDI or CAIDI. Although using SAIDI and SAIFI together may increase the incentive in favor of reducing outage frequency, it may be appropriate given the sensitivity of customers to short duration outages. Using SAIDI and SAIFI together would also be consistent with Conn. Gen. Stat. § 16-245y, which requires the Department to report SAIDI and SAIFI data to the Legislature each year.

Conn. Gen. Stat. § 16-244i(d) requires the Department to oversee quality and reliability of service for each EDC and ensure that quality and reliability are the same as or better than levels that existed on July 1, 1998. The Department believes that it would be appropriate to link the reliability component of PBR to Conn. Gen. Stat. § 16-244i(d), whereby an EDC would be penalized for reliability worse than and rewarded for reliability better than that which existed on July 1, 1998. Therefore, PBR would act as an enforcement mechanism for Conn. Gen. Stat. § 16-244i(d).

Reliability trends are only observable when measured over long periods of time, generally, several years. Reliability can vary significantly from one year to the next, primarily since weather conditions have a significant effect on reliability data, even when major storms are excluded. For this reason, the Department and the EDCs have typically used a four-year period to evaluate reliability data for purposes of determining reliability trends. The Department believes four years should be used for calculating reliability for the purpose of determining a reward or penalty, to avoid large annual variations. Also, for the purpose of benchmarking historical reliability, calculating the reliability for each EDC for the four-year period ending 1998 would be an appropriate way of administering Conn. Gen. Stat. § 16-244i(d).

Each EDC must be evaluated from both a financial and a reliability perspective to arrive at a reasonable reward or penalty system that will accomplish the desired improvements without perverse unintended consequences, such as motivating a company to build its system in a manner that is not cost-effective. In sum, a future PBR plan may include a reliability component that would compare recent reliability performance against a company's own historical reliability performance and against comparable utilities (a hybrid approach). The Department believes that historical reliability comparisons should use a four-year average of SAIFI and either SAIDI or CAIDI. An appropriate historical reliability benchmark would be the average reliability in the four-year period ending 1998, as an enforcement mechanism for Conn. Gen. Stat. § 16-244i(d). As part of the investigation for implementing such a plan, each company's financial and reliability characteristics should be evaluated to determine an appropriate reward/penalty system.

b. Safety

The Companies do not recommend linking targeted incentives to safety. According to the Companies, worker and public safety transcends economic incentives. In particular, CL&P notes that targeted, financial incentives for safety levels contravene its policy of "zero tolerance" for major safety defaults. CL&P Response to Interrogatories EL-33 and EL-34. The Department agrees.

c. Customer Service

The companies offered a number of other indices by which their performance might be measured. UI pointed out that in the PBR Docket it filed proposals for measuring consumer service by surveys of random samples of UI customers and of UI customers who had had transactions with UI personnel. UI Filing, p. 7. The Companies also suggested billing accuracy, the quality of interactions with customers, the average speed of answer after the caller makes a selection, the number of field appointments kept, the number of abandoned calls and the number of estimated bills as areas of consumer service that should be considered in setting performance standards. Tr. 11/5/99, pp. 207-208; UI Filing pp. 20-24.

The Department is generally aware of what issues are important to consumers by way of its own records of complaints and inquiries, the Companies' filings in this and previous dockets, the results of surveys in related areas and the focus groups UI conducted in response to the Orders in the PBR Decision. This information gives the

Department sufficient expertise to conclude that overall reliability and consumer service are of paramount importance to customers.

UI has presented a list of three customer service performance measures that meet these criteria: Average Speed of Answer after the caller selects an option, percent of Field Appointments Kept, and Billing Efficiency. UI Initial Filing, Exhibits V-3 through V-5. To that list the Department would add Number of Complaints received by the Companies. Further, customers could benefit from PBR by way of reports on the Companies' customer service performance and comparisons of those reports with clearly articulated standards.

d. Rates

According to UI, rates should not be used as a performance measure, because meeting rate reduction performance standards might force an EDC to sacrifice returns, reliability or customer service. Tr. 11/4/99, p. 79. Moreover, UI asserts that customer surcredits are a sufficient mechanism to reduce rates. Tr. 11/4/99, pp. 81-82.

CL&P neither rejects, nor accepts rates as a performance measure in general. However, CL&P thinks that rates should not be used as a performance measure during the standard offer period since rate reductions are mandated throughout that time. Tr. 11/5/99, p. 250.

Rates are a legitimate performance measure given that both Companies have among the highest rates in the country. Furthermore, the Department believes that rates will be more comparable among EDCs than vertically-integrated, fully bundled utilities. Linking rate levels to allowed ROE levels would provide utilities with a straightforward and effective long-term incentive to control rates. In the event that rates are used as a performance measure, financial incentives may be linked according to the relative weight of each rate class, as determined by its total, annual amount of kWh sales or revenues.

H. REGULATORY OVERSIGHT/REPORTING REQUIREMENTS

The Department would exercise financial and operational oversight under both ROR and PBR. The nature of PBR necessitates more frequent, but less exhaustive, reporting. Certain PBR components, such as the sharing mechanism and financial incentives, require distinct, annual reports. Additionally, the Act mandates annual reporting on reliability. The Parties disagree as to what constitutes adequate oversight of a PBR plan.

UI and CL&P believe that an annual report on their ROEs, in conjunction with periodic reports that they already make with regard to reliability, would be sufficient. Navarro, on the other hand, recommends closer scrutiny, including a full rate case one year after PBR is implemented. Tr. 11/12/99, p. 319. He expresses concern that, particularly in the early stages of PBR, the potential for misuse of the sharing mechanism or unintended decreases in reliability poses too great a risk to ratepayers. Id.

Presently, both Companies are required to submit data annually regarding transmission and distribution reliability. See Order No. 1 of the T&D Decision. Under its PBR rate plan, UI submits quarterly reports describing its ROE level. It is also required to submit the journal entries effectuating its earnings sharing annually. PBR Decision, Order No. 7.

The Department shares Navarro's concern about the risks associated with initial PBR implementation. However, a mandated rate review one or two years after base rate PBR is instituted would be administratively burdensome. In addition, it might constrain PBR plan design. Tr. 11/4/99, pp. 124-125. Alternatively, a mid-term review could be conducted to assess the operation of a PBR plan. The precise scope of such a review should be determined at the outset of the PBR plan; however, it should not be a full rate review.

Annual reliability and service quality reports, in conjunction with quarterly reporting on ROE and annual reporting on the operation of an EDC's sharing mechanism, would provide sufficient operational and financial information to monitor PBR. As with ROR regulation, EDCs would be subject under PBR to Department audits to assure that only authorized expenses were charged to ratepayers.

I. FLEXIBILITY

The Act requires the Department to consider how a PBR plan should be designed so that EDCs would have flexibility in implementing it. The Parties agree that a broad-based PBR plan would meet this goal. It gives EDCs a greater degree of discretion to modify programs, functions or processes to respond to changing market conditions, to be innovative and take advantage of opportunities that would benefit ratepayers and shareholders.

In addition, company-specific PBR plans would enhance flexibility. CL&P Response to Interrogatory EL-18. Certain components, in particular, might be company-specific, such as an ROE collar, a sharing mechanism, performance measures and productivity factors. *Id.* UI states that an ROE collar, in and of itself, promotes flexibility. UI Response to Interrogatory EL-18.

A broad-based PBR plan, company-specific performance measures and an ROE collar each promote flexibility in implementing a PBR plan. Further, the rate plan term may be extended to provide additional flexibility. See Section III.E, above.

IV. CONCLUSION

PBR has the potential to reduce rates. However, a key obstacle to lower cost service remains; EDCs will continue to be motivated to inflate cost projections during ratemaking proceedings. PBR should not pose a risk to ratepayers so long as it contains reliability performance measures, sufficient reporting requirements or financial penalties. PBR should not be undertaken during periods of fundamental change to a utility's cost structure: hence, it should not be undertaken in the near-term.

V. SUMMARY RESPONSE TO SECTION 68 OF PUBLIC ACT 98-28

In accordance with Section 68 of the Act, the Department issues the following findings and policy recommendations:

Design a plan for PBR that encourages cost control.

- An appropriate baseline revenue requirement is critical to the achievement of real cost savings.
- The ROE dead band should be minimal to increase potential rate reductions and avoid a disincentive to achieve cost savings.
- Properly structured, a progressive sharing mechanism provides an incentive to achieve maximum cost savings; however, proportionate sharing mechanisms avoid an opportunity for gaming and under certain conditions may provide greater cost savings to ratepayers than a progressive sharing mechanism. In some limited instances, a regressive sharing mechanism might be appropriate.

Design a plan for PBR that provides for the maintenance of efficient, safe and reliable distribution services.

- A proper target ROE is an incentive to provide efficient distribution services regardless of whether ROR regulation or PBR is in effect.
- In conjunction with a proper target ROE, a sharing mechanism creates additional incentives to provide efficient distribution services.
- In the event that an EDC places sufficient emphasis on worker and public safety, it is unnecessary to link safety performance to financial incentives to provide for the maintenance of safe distribution services.
- Reliability performance measures such as SAIFI and either SAIDI or CAIDI could be linked to financial incentives (rewards and penalties, or penalties only) to provide for the maintenance of reliable distribution services.
- Reliability performance incentives must be made meaningful to assure the maintenance of reliable distribution services.

- It is difficult to quantify the value of reliability and match financial incentives accordingly: instead, penalties for reliability erosion should be greater than corresponding financial benefits.

Design a plan for PBR that provides EDCs with flexibility for implementing the plan.

- A broad-based PBR plan, company-specific performance measures and ROE collar provide an EDC with flexibility in implementing the plan.
- An extended rate plan term (three to six years) provides an EDC with flexibility in implementing a PBR plan.

Identify appropriate performance standards.

- Performance standards denote benchmarks against which an EDC's performance would be compared to assess rewards or penalties. Benchmarks may be historical, inter-utility or a hybrid of the two.
- Performance standards should be determined at the outset of an actual PBR plan and in concert with a general rate case or complete financial and operational review.
- SAIFI and either SAIDI or CAIDI are appropriate performance measures for reliability.
- Customer surveys and finite functions such as billing accuracy, field service responsiveness (appointments kept) and call center responsiveness (average speed of answer) are appropriate performance measures for quality of service.
- Rates are an appropriate performance measure.

Determine whether PBR would better meet the goal of reducing costs to all customer classes.

- In theory, PBR provides better incentives for an EDC to reduce costs; in practice, it is difficult to establish a direct, causal link between the institution of PBR and cost savings.
- The ability of PBR and ROR regulation to reduce costs can vary according to a variety of circumstances. In some circumstances, ROR regulation may prove more effective at reducing costs, and vice versa.
- Under its present PBR plan, UI has reduced costs to all customer classes using a bill surcredit. UI anticipates additional cost reductions during the remaining term of its PBR rate plan.

- The cost savings achieved during the term of UI's PBR plan should not be attributed to PBR. In the Decision authorizing the PBR plan, the Department anticipated that absent any changes to current rates UI would be likely to earn more than its required ROE. Consequently, the Department permitted UI to institute an ROE collar and sharing mechanism.

**DOCKET NO. 99-06-21 DPUC INVESTIGATION INTO PERFORMANCE-BASED
REGULATION FOR ELECTRIC DISTRIBUTION
COMPANIES**

This Decision is adopted by the following Commissioners:

Glenn Arthur

Donald W. Downes

John W. Betkoski, III

CERTIFICATE OF SERVICE

The foregoing is a true and correct copy of the Decision issued by the Department of Public Utility Control, State of Connecticut, and was forwarded by Certified Mail to all parties of record in this proceeding on the date indicated.

Louise E. Rickard
Acting Executive Secretary
Department of Public Utility Control

February 2,
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Date