

**PERFORMANCE-BASED EVALUATION OF
MAINTAINING UNIVERSAL SERVICE
IN A COMPETITIVE UTILITY INDUSTRY**

January 1998

Pennsylvania Public Utilities Commission
Docket No. L-0970130

*Rulemaking Re. Reporting Requirements for Universal Service
and Energy Conservation Programs, 52 Pa. Code, Chapter 54*

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ABSTRACT

"Universal service" and "affordable service" are not synonymous concepts in the utility industry. Given the expressed public policy commitment to maintain universal service in the Telecommunications Act of 1996, as well as the ongoing state universal service commitments in various electric restructuring decisions, it will become increasingly important to be able to measure the results of universal service programs. Management frameworks such as that established by the federal Government Performance and Results Act (GPRA) make clear that it is the results of a program, not the outputs of a program, which are most important. The five separate but unrelated measurements proposed below will allow public and private policymakers to assess the performance over time of universal service policies in the telecommunications, electric and natural gas industries. A retrospective application of these performance measurements to Pennsylvania utilities reveals that they are reasonable indicators of universal service performance.

1 INTRODUCTION

Increasing attention is being paid to attaining and maintaining "universal service" in the various utility industries today.^{/1/} The Telecommunications Act of 1996 specifically includes the maintenance of affordable service "including for low-income [consumers]" as an explicit statutory goal.^{/2/} In addition, virtually every electric restructuring piece of legislation and regulatory decision to date has included a universal service provision in it. Given an increasing move toward performance-based management both in the utility industry^{/3/} and elsewhere,^{/4/} this discussion proposes a method for measuring "universal service" and applies the methodology to existing data for a set of Pennsylvania electric and natural gas utilities to illustrate the impacts of using such a performance measurement.

The discussion addresses three problems that often arise in universal service programs. First, while setting a goal of "universal service" is easy to do in principle, it is much more difficult to implement in practice. Second, the concepts of "universal service" and "affordability" are easy to confuse. While the terms are inextricably tied together, they are not synonymous. Promoting "universal" service is an end. Promoting

^{/1/} For purposes here, "utilities" include electric, natural gas, water/sewer and telecommunications.

^{/2/} Telecommunications Act of 1996, Section 254(b)(3).

^{/3/} *See generally*, Peter Navarro, "The Simple Analytics of Performance-Based Ratemaking: A Guide for the PBR Regulator," 13 *Yale Journal on Regulation* 105 (1996).

^{/4/} *See generally*, Government Performance and Results Act of 1993 (GPRA); *see also*, General Accounting Office, *Managing for Results: State Experiences Provide Insights for Federal Management Reforms* (GAO/GGD-95-22) (December 21, 1994); General Accounting Office, *Managing for Results: Experiences Abroad Suggest Insights for Federal Management Reform* (GAO/GGD-95-120) (May 2, 1995); General Accounting Office, *Performance Budgeting: Past Initiatives Offer Insights for GPRA Implementation* (GAO/AIMD-97-46) (March 27, 1997).

"affordable" service is the means to that end.^{5/} Third, while universal service programs are being established, no infrastructure is being established (intellectual, data collection, or evaluation) to assess whether such programs are or will be effective. State electric restructuring regulatory decisions and legislation such as those adopted in California,^{6/} New Hampshire^{7/} and Massachusetts^{8/} (amongst others)^{9/} have established programs to promote and maintain universal service without establishing any mechanism to measure whether the programs are being effective.

Given this lack, five years from now, it will not be possible to answer the question: "are we better off today because of these programs?" What is needed from a reporting perspective is a set of data that allows policymakers to review not that "x" amount of money has been spent, or that "y" numbers of low-income customers have been reached, but that certain performance goals have been accomplished

In sum, based on the discussion that follows, the decision rule for designing and funding universal service programs should be that affordable rate and energy efficiency programs^{10/} should be sufficiently available so as to positively affect a company's attainment and maintenance of universal service as measured by the indicators below.^{11/}

^{5/} The division, of course, is not this clear-cut. As the Federal Communications Commission (FCC) found in its 1997 universal service order, "affordability" includes both an "absolute" ("to have enough or the means for") and a "relative" ("to bear the cost of without serious detriment") component. According to the FCC, both the absolute and relative components must be considered in making the affordability determination required under the statute. *I/M/O Federal-State Joint Board on Universal Service*, Docket No. 96-45, Report and Order, at ¶110 (May 8, 1997). As this order recognizes, service cannot be said to be "universal" if customers who are succeeding in paying for that service nonetheless cannot pay for it "without serious detriment."

^{6/} West's Ann. Cal. Pub. Util. Code, §382 (1997).

^{7/} N.H. St. §374-F:3(VI) (1996).

^{8/} 1997 Massachusetts HB 5117, §19 (enacted November 25, 1997).

^{9/} See generally, Roger Colton (1997). *Status of State Electric Restructuring Activities on Low-Income Assistance*, at Table 4, Fisher, Sheehan and Colton, Public Finance and General Economics: Belmont, MA.

^{10/} The telecommunications industry may have similar initiatives, which might include, for example, affordable rate programs and toll limiters.

^{11/} These affordable rate and energy efficiency programs will be offered along with an appropriate mix of credit and collection initiatives.

2 UNIVERSAL SERVICE PERFORMANCE ASSESSMENT

The concept of performance measurement is increasingly being applied to both public and private programs today. Perhaps best known is the Government Performance and Results Act of 1993 (GPRA). GPRA was designed to address the same conceptual issues a competitive utility must address for its universal service programs: "to grapple() with how to best improve effectiveness and service quality while limiting costs."^{/12/} GPRA was enacted in response to:

the need to shift the focus of government decisionmaking and accountability away from a preoccupation with the activities that are undertaken. . . to a focus on the results of those activities. . . The key concepts of this performance-based management are the need to define clear agency missions, set results-oriented goals, measure progress toward achievement of those goals, and use performance information to help make decisions and strengthen accountability.^{/13/}

The transformation to performance-based management is not easy under GPRA. But the substantial difficulties which federal agencies will face are much the same that competitive utilities will face with their universal service programs. As the U.S. General Accounting Office (GAO) has observed, one goal of the statute for the federal government is to:

ensur(e) that agencies are managing to achieve results rather than just focusing on activities or processes. Many agencies have a difficult time moving from measuring program activities to establishing results-oriented goals and performance measures. The fundamental reason that this is so difficult is that, to manage on the basis of results, agencies must move beyond what they control--that is, their activities--to focus on what they merely influence--their results.^{/14/}

In this observation, one could replace the word "agencies" with the word "utilities" (or even more specifically, "universal service programs")

^{/12/} James Hinchman (Acting Comptroller General). (June 24, 1997). *Managing for Results: The Statutory Framework for Improving Federal Management and Effectiveness*, at 1, Testimony before U.S. Senate Committee on Appropriations and Committee on Governmental Affairs (GAO/T-GGD/AIMD-97-144).

^{/13/} *Id.*

^{/14/} *Id.*, at 8.

and the fundamental truth of the statement would still attend.

Federal agencies have been provided substantial guidance on the aspects of GPRA that relate to the issue of definition of adequate and appropriate performance measures. The *Executive Guide: Effectively Implementing the Government Performance and Results Act*^{/15/} states that its review of private, as well as state and foreign government agencies "that were successful in measuring their performance" had developed performance measures that were based on four characteristics:

- o They were tied to program goals and demonstrated the degree to which the desired results were achieved;
- o They were limited to a vital few that were considered essential for producing data for decisionmaking. "These vital few measures should cover the key performance dimensions that will enable an organization to assess accomplishments, make decisions, realign processes, and assign accountability."^{/16/}
- o They were responsive to multiple priorities, forcing managers and policymakers to take "competing interests into account and create incentives for managers to strike the difficult balance among competing demands."^{/17/} and
- o They were responsibility-linked to establish accountability for results. "A clear connection between performance measures and program offices helps to reinforce accountability and ensure that, in their day-to-day activities, managers keep in mind the outcomes their organization is trying to achieve."^{/18/}

In addition, the *Executive Guide* states, managers using a performance-based system "must balance their ideal performance measurement systems against real-world considerations, such as the cost and effort involved in gathering and analyzing data." Accordingly, the data to be

^{/15/} Comptroller General of the United States, U.S. General Accounting Office, GAO/GGD-96-118 (June 1996).

^{/16/} *Id.*, at 25.

^{/17/} *Id.*, at 25.

^{/18/} *Id.*

used in the performance measures must be "sufficiently complete, accurate, and consistent to be useful in decisionmaking."^{19/}

The goal of the proposed performance-based measurement system proposed below is not to establish a comprehensive strategic planning process. Instead, this system is set forth within the limited context identified: how can one measure universal service performance? Nonetheless, as implementation of GPRA has made clear:

Even the best performance information is of limited value if it is not used to identify performance gaps, set improvement goals, and improve results. . . [S]uccessful organizations recognize that it is not enough just to measure outcomes. Instead, they must also assess the main processes that produce the products and services that lead to outcomes. Such organizations typically assess which steps or activities of a process are the most costly, consume the most labor resources, and take the most time to complete. By analyzing the gap between where they are and where they need to be to achieve desired outcomes, management can target those processes that are in most need of improvement, set realistic improvement goals, and select and appropriate process improvement technique.^{20/}

One might conclude that rather than simply setting universal service performance measurements for public utilities, a necessary incident of such performance measurements is the required preparation and submission of a strategic plan incorporating such measurements. While not discussed below, a crucial element of performance management is establishing and reporting the desired goals (outcomes) so that gaps in performance can be identified and rectified.

^{19/} *Id.*, at 24.

^{20/} Johnny C. Finch (Assistant Comptroller General) and Christopher Hoenig (Director, Information Resource Management/Policies and Issues). (June 20, 1995). *Managing for Results: Critical Actions for Measuring Performance*, at 9, testimony before the U.S. House Subcommittee on Government Management, Information and Technology, Committee on Government Reform and Oversight.

3 AN OVERALL APPROACH TO MEASURING UNIVERSAL SERVICE PERFORMANCE

Whether in the telecommunications, natural gas or electric industry, the utility itself is the institution that is ultimately responsible for whether or not it is ensuring universal service in its service territory. While programs such as customer assistance programs (CAPs), energy efficiency programs, arrearage forgiveness, and the like, can help a company attain that goal, it should be the company who bears the ultimate responsibility for precisely which mix of programs should be implemented.^{/21/} The electric industry has (or should have) the knowledge, the marketing capability, and the technical capability to provide universal service for all of its customers. What the industry needs is both the incentive to make such service available and the tools to determine whether the goal is being achieved.

If one adopts this philosophy, regulators who adopt performance-based criteria upon which to base electric rates generally^{/22/} should incorporate outcome-based criteria into the review of an electric company's universal service efforts specifically.^{/23/} More specifically, these outcome-based criteria should recognize that affordable electric service does *not* exist for many low-income households, but that utilities can take affirmative steps toward achieving that goal. The company should then be judged not on what steps it took to achieve its goal of providing universal service, but on what actual progress it has made toward that goal. Conversely, if increased credit and collection efforts are all that is needed, the impacts of such efforts should be reflected in improved universal service performance.

Outside the basic programs of affordable rates and targeted energy efficiency programs, which a company will be *required* to implement, the utility should then be free to implement whatever programs it deems reasonably necessary to achieve the goal of universal service. Finally, in

^{/21/} It would be appropriate, however, to articulate a "floor" below which program implementation cannot fall.

^{/22/} While this discussion focuses on electric rates, it is equally applicable to natural gas and telecommunications companies.

^{/23/} The National Regulatory Research Institute (NRRI) recently recommended a performance-based criterion involving the avoidance of service disconnections. See, Robert Burns, *et al.*, *Alternatives to Utility Service Disconnection*, at 122 - 124, National Regulatory Research Institute: Columbus, OH (May 1995).

In addition, a similar issue was addressed in the *Universal Service Questionnaire Results of the Universal Service Project of the Staff Subcommittee on Communications of NARUC*, presented at the NARUC annual meeting in New York on November 14, 1993. Question 12(a) of that questionnaire asked "In the future, should penalties be considered by regulators for companies who are remiss in the provision of universal service?" Regulators approved of penalties by an 88 percent yes/12 percent no margin.

the same manner as proposed for other objectives in a performance-based ratemaking system, a utility should then be penalized for falling short of the outcome-based criteria and rewarded for exceeding them.

4 A UNIVERSAL SERVICE INDICATOR

This section describes how an outcome-based criterion regarding universal service might be designed and implemented. The purpose here is not to create a benchmark through which a company's performance is measured *vis a vis* the industry generally. Instead, this indicator is to allow a performance review of whether universal service performance for a particular company is improving or degrading *vis a vis* previous performance. Such a review will allow policymakers to determine whether performance is being sustained in a variety of circumstances: *e.g.*, in a post-restructuring environment, in a post-merger environment, and the like. In addition, the performance review will allow policymakers (both inside and outside the company) to determine whether the implementation of a particular universal service program is having a positive impact on the attainment and maintenance of universal service.

A universal service performance review indicator for these purposes should involve the following components:

4.1 Termination of Service

Every residential customer who experiences an involuntary termination of service for nonpayment^{/24/} represents the ultimate failure of a company to adequately address universal service problems. In addition, the disconnection of service represents not only a social problem for those households disconnected, but represents a business problem for the company as well. The company must spend money on the physical act of disconnecting service. Moreover, the disconnection of service represents a loss of a future revenue stream to help offset fixed company costs. Accordingly, the rate of service disconnections should be used in the determination of a utility's universal service performance.

The performance of the company is to be measured by the "termination rate." Termination rate is calculated by dividing the number of residential service terminations by the number of residential customers. Termination rate enables a comparison of termination practices among companies without regard to differences in company size. As a result, the figure represents an absolute comparison of performance.

The first component compares the performance of a specific company to the termination rate for that company in a base period. If the utility is

^{/24/} All future references in this discussion to "shutoffs" or "disconnections" refer to involuntary service terminations due to nonpayment.

at the base period level, it will receive a score of 5. For every .10% divergence from the base period, it will receive a plus or minus rating of 1 respectively up to a score of +/-10.

4.2 *Payment Agreements*

The success rate of deferred payment agreements is another measure of company performance. Unsuccessful payment plans not only impose a social cost on the household, but impose a business cost of either requiring the company to negotiate a new payment agreement or to pursue other credit and collection measures against the household.

A successful completion of a deferred payment agreement involves a customer that retires his or her arrears without need for renegotiation of the agreement and without need for the disconnection of service. Given the general mandate that utilities enter into only "reasonable" deferred payment agreements, virtually all deferred payment agreements presumably should be successfully completed.

The second component compares the performance of the company in a specified time period to the deferred payment plan success rate in a base period. If the utility is at the base period level, it will receive a score of 5. For every four percent divergence up or down from the base period, it will receive a plus or minus rating of 1 respectively up to a score of +/-10.

4.3 *Money at Risk*

The money at risk to a utility provides insight into the total financial exposure that the company experiences due to nonpayment of current bills. Collectability rates of 95 percent and more should be expected for current bills, while collectability rates for arrears of older than 60-days drop sharply. The rate at which money is placed at risk is calculated by summing the total dollars in arrears along with the total dollars subject to deferred payment arrangements. The summed dollar figure for the study year is then indexed to a base period. If the base period sum is \$100, for example, and the study period amount is \$150, the index is 1.5.

The third component compares the annual performance of a specific company to the "money at risk" for a base period. If the company is at the base period level, it will receive a score of 5. For every 0.2 divergence up or down from the base period index, it will receive a plus or minus rating of 1 respectively up to a score of +/-10.

4.4 Customers in Arrears

To the extent that customers *do* develop past due bills, a utility should be willing and able either to collect those bills immediately or to place those customers in reasonable deferred payment agreements. The existence of households in arrears represents a failure in both of these processes.

Households that are in arrears, but that have not entered into a deferred payment agreement, represent a serious risk of loss to a utility. Moreover, by entering into a deferred payment plan, the risk that the customer will ultimately lose its utility service is lessened. One aspect of universal service involves both getting --and keeping-- late-paying customers on deferred payment arrangements.

The rate at which customer service is placed at risk due to nonpayment is calculated by summing the total customers who are in arrears but who have not entered into a deferred payment agreement. This figure is then divided by the total number of residential customers for the company. The fourth component compares the annual performance of a specific company to the "customers in arrears" rate for a base period. If the company is at the base period level, it will receive a score of 5. For every two percent divergence up or down from the base period, it will receive a plus or minus rating of 1 respectively up to a score of +/-10.

4.5 Weighted Arrears

In addition to the number of accounts in arrears, the amount of money in arrears is an indicator of the extent to which customers have their service in jeopardy because of non-payment. Comparisons of arrears between companies (as well as between time periods), however, can be misleading because of differences in bill sizes. For this reason, a weighted statistic is calculated so that the effect of different average bills is taken into consideration. More specifically, the score used in this performance indicator is a weighted arrears for all customers who are not in deferred payment agreements. It is calculated by dividing the total monthly arrears not subject to deferred payment agreements by the average monthly customer bill.^{/25/} Weighted arrears that exceed the base period level point to a practice of allowing household arrears to persist

^{/25/} This is sometimes known as a "bills behind" statistic. This statistic calculates the number of average bills contained in an average arrearage. Hence, if one customer has an arrears of \$400 and an average monthly bill of \$200, that customer has a weighted arrears of 2.0 "bills behind." If a different customer has an arrears of \$400 and an average monthly bill of \$140, that customer has a weighted arrears of 2.86 bills behind. The second customer, and thus the utility serving that customer, is in more serious payment trouble.

As BCS observes, use of a weighted arrears measure "permits comparisons to be drawn between companies by eliminating the effects of different customer bills on arrearages." Without such a measure, "the interpretations of average arrearages, either over time or in comparison between

without placing such households on to deferred payment agreements.

This component thus compares the performance of a utility to the "weighted arrears" rate for a base period. If the company is at the base period level, it will receive a score of 5. For every two-tenths (0.20) "bill behind" divergence up or down from the base period, it will receive a plus or minus rating of 1 respectively up to a score of +/-10.^{/26/}

5 NEED FOR EACH COMPONENT

All five components are necessary to reach the desired results of universal service performance measurement without creating perverse incentives to pursue counter-productive collection strategies. Consider:

- o To create rewards for reducing arrears without creating penalties for increasing shutoffs would lead a utility to refuse to negotiate reasonable payment plans with those least able to pay. The utility would then follow with the termination of service. The end sought, however, is not simply the reduction of arrears, but rather the pursuit of universal service.
- o Similarly, to create an incentive for increasing the number of payment plans without penalizing high proportions of unaffordable plans would lead a utility to place customers on deferred payment arrangements without regard to the chance of those plans to succeed. There is not only a need to get payment-troubled customers on deferred payment arrangements, but to get them on *affordable* plans with a reasonable opportunity for success.
- o To create an incentive for maximizing the percent of customers on deferred payment arrangements, without creating an incentive to minimize total customers in debt at the same time, may well divert resources from the overall goal of full and timely payment. The first step, of course, is to minimize overall levels of debt. To the extent there is debt, that debt should be made subject to a deferred payment arrangement.

(. . continued)

companies presents some difficulties." Bureau of Consumer Services, *Utility Payment Problems: The Measurement and Evaluation of Responses to Customer Nonpayment*, Pennsylvania Public Utility Commission:Harrisburg, PA (October 1983).

^{/26/}

Thus, if the prior period average Bills Behind statistic is 2.2, a company having a Bills Behind of 2.2 would receive a score of 5 while a company having a Bills Behind of 2.5 would receive a score of 4. If the average Bills Behind is 2.2, to receive a score of 0, a utility would need to have a Bills Behind statistic of 3.45 (2.2 + (5 * .25)).

5.1 Calculation of Final Score

The composite universal service measurement of a utility is calculated by adding the various component scores.

Line	Measure	Score
1	Termination Rate	
2	Money at Risk Index	
3	Deferred Payment Plan Success Rate	
4	Weighted Arrears	
5	Percent Customers in Debt	
6	Total Score	Sum lines 1 - 5

6 APPLICATION TO PENNSYLVANIA UTILITIES

6.1 The Data

The universal service indicator recommended above has been applied to Pennsylvania's 14 electric and natural gas investor-owned utilities to determine how those companies have performed within the past eight years.^{/27/} The base period chosen for the Pennsylvania utilities was the

^{/27/} Information on deferred payment plan success is not publicly available. Accordingly, the indicator has been limited to the four remaining performance measurements.

three year period 1986 through 1988.^{/28/} The average performance measurement for that three year period was compared to a three year rolling average for each succeeding year to obtain the annual score. In each case, therefore, the base period is the three year period 1986 - 1988. In each case, the annual figure is a three year rolling average ending with the year in question.^{/29/} The key to constructing an effective moving average is to select an averaging period that is long enough to smooth out unwanted distortions but not so long that real trends are hidden. A three period average is common in the analysis of accounting transactions.

The results are presented in Appendix B. Table 1 presents the underlying data. Table 2 presents the scores for the individual utilities.

6.2 The Results

Company-Specific Observations

Pennsylvania utilities can be divided into three basic universal service regimes. On the one hand, there is a set of utilities that have either remained constant or improved their universal service performance. With a score of 20 indicating no change in the overall universal service performance, the scores of these three utilities range from 20 (Penelec) to 25 (Equitable Gas). A second tier of companies saw moderate problems in maintaining their universal service score. These five companies saw a decline in their scores to a level ranging from 13 to 16. The bottom tier of companies experienced substantial problems in the maintenance of their universal service performance. These utilities saw universal service scores of from 5 to 12.

Pennsylvania's gas utilities were consistently better at maintaining their universal service standards than were the state's electric companies. Of the eight electric companies, five fell into the bottom tier, while only one of the six natural gas companies did. None of the eight electric companies improved its universal service performance (although Penelec scored a 20), while two of the six gas companies did.

Equitable Gas and National Fuel Gas were the only two companies that showed steady improvement from year-to-year. Equitable began with a 1990 score of 19 and built its score to 25 by 1995. Similarly, National Fuel Gas sank to a 14 in 1991, but steadily improved its score for the

^{/28/} Use of a three year average yields six scores based on the eight years of data.

^{/29/} Thus, the 1990 figure is the three year average of 1988, 1989 and 1990. The 1991 figure is the three year average of 1989, 1990 and 1991. And so forth.

next three years before moderating in 1995.

West Penn Power and Metropolitan Edison maintained a high universal service score for the three years 1990 through 1992. Both companies, however, experienced a substantial drop in 1993 from which they had not recovered by 1995. Indeed, each company saw a continuing decline in their scores beginning in 1993, indicating that the decline in universal service performance was not simply a one year phenomenon.

Metropolitan Edison presents an interesting analysis. In 1990 and 1991, it had high scores across-the-board. In 1992, it experienced a significant drop in component 1. In 1993, the drop showed up in components 1 and 4; and by 1995, it was evident in components 1, 2 and 4. In contrast, West Penn Power simply saw a continuing decline in components 2 and 4, offsetting its continuing high level of performance in components 1 and 5.

Statewide Observations

Overall, two observations become evident from the Pennsylvania data. First, it is much more difficult to improve universal service performance than it is to allow it to degrade. Given 14 utilities and six years of data, there are 84 potential points where performance can be measured. Of those 84 instances, 47 (56%) involved overall universal service degradation in Pennsylvania while only 18 (21%) involved improvements (with the remainder showing no change). While it is not possible based on this data to conclude why this is so, it is possible to speculate that improvement is more likely to require an affirmative change of procedures by a utility. Degradation occurs when existing procedures don't work or are inappropriate for the circumstances. "Doing nothing" allows for degradation; improvement needs proactive effort.

The second general observation is that there is little volatility in universal service performance. None of the 14 Pennsylvania utilities experienced wide variability in universal service performance year-to-year. Given the period of time for which data has been collected (8 years), if such volatility were to exist, it would likely have become evident. One conclusion from this might be that total universal service performance is not particularly sensitive to variables that might change from year to year, such as weather and overall economic conditions.

Limitations on the Use of the Scores

It is important to note two things about the reported scores. First, the scores do not allow an absolute judgment between companies. A company with a 1995 score of 20 is not necessarily doing a "better job" at maintaining universal service than a company with a score of 12. The score shows where the company is *vis a vis* where it began. A score of 20 may be for a company that began with a poor universal service record that has simply not further degraded.

Second, the scores are most effective at showing the *direction* of universal service performance rather than the level of performance. The scores above do not allow a determination of whether universal service in Pennsylvania is good or bad. What it does allow is a determination that, whatever the performance, that performance is much worse today than it was in 1989.

7 SUMMARY

The five components discussed immediately above should comprise an additional performance indicator to be included in any proposal for performance-based ratemaking for public utilities.^{/30/} Moreover, regulators, planners and company administrators should be interested in measuring universal service over time. Implementation of such a system is appropriate for telecommunications, natural gas, and electric companies interested in universal service in a competitive environment. Specific language setting forth this performance factor is set out in Appendix A below.

^{/30/} These might include electric, natural gas, telecommunications, and water/sewer utilities.

APPENDIX A
UNIVERSAL SERVICE PERFORMANCE INDICATOR

GENERAL DESCRIPTION:

The Universal Service Indicator measures a utility's total performance in recognizing and addressing payment troubles. The Indicator further measures the company's total success in keeping customers on deferred payment agreements once negotiated and in avoiding the need to disconnect service.

FORMULA AND DATA SOURCE:

The Universal Service Indicator will involve the composite score of five different factors as follows:

APPENDIX A
UNIVERSAL SERVICE PERFORMANCE INDICATOR

1. **TERMINATION RATE:** Termination rate is calculated by dividing the number of residential service terminations by the number of residential customers. The termination rate enables a comparison of termination practices among companies without regard to differences in company size. The termination rate compares the performance from a specified period to the termination rate for a base period. If the company is at the base period level, it will receive a score of 5. For every .10% divergence from the base period, it will receive a plus or minus rating of 1 respectively. Using a ten point scale, the score would be calculated as follows (with "0" representing no change from the base period):

(0.6+)	10
(0.5)	9
(0.4)	8
(0.3)	7
(0.2)	6
0 - (0.1)	5
0 - 0.1	5
0.2	4
0.3	3
0.4	2
0.5	1
0.6	0

2. **MONEY AT RISK INDEX:** The money at risk index is calculated by indexing the sum of all money in arrears not in payment plans and all money subject to payment plans in a study period to the sum of all arrears not in payment plans and all money subject to payment plans in a base year. If the two sums are the same, the index is 1.0.

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If the company is at the level of the base year, it will receive a score of 5. If the base year is 100 and the study year is 110, for example, the index is 1.10.

For every 0.2 divergence from the base year index, the company will receive a plus or minus rating of 1 respectively. Using a ten point scale, the score would be calculated as follows (with "0" representing no change from the base period):

(1.1+)	10
(0.9) - (1.0)	9
(0.7) - (0.8)	8
(0.5) - (0.6)	7
(0.3) - (0.4)	6
0 - (0.2)	5
0 - 0.2	5
0.3 - 0.4	4
0.5 - 0.6	3
0.7 - 0.8	2
0.9 - 1.0	1
1.1+	0

3. **DEFERRED PAYMENT AGREEMENT SUCCESS:** The deferred payment agreement success rate is calculated by dividing the number of deferred payment plans that are completed without renegotiation and without service disconnections by the number of deferred payment plans that a company enters into in a given time period.

APPENDIX A
UNIVERSAL SERVICE PERFORMANCE INDICATOR

The percent of customers who successfully complete deferred payment agreements is an indication of the extent that the company adequately addresses customer's payment problems. A successful completion of a deferred payment agreement involves a household which retires its arrears without need for renegotiation of the agreement and without need of the disconnection of service. Given the mandate to enter into only "reasonable" deferred payment agreements, virtually all of the company's deferred payment agreements should be successfully completed.

The deferred payment agreement success rate compares the performance from a specified period to the success rate in a base period. If the company is at the base period level, it will receive a score of 5. For every four percent (4%) divergence from the base period, it will receive a plus or minus rating of 1 respectively. Using a ten point scale, the score would be calculated as follows (with "0" representing no change from the base period):

**APPENDIX A
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(21) - (24)	10
(17) - (20)	9
(13) - (16)	8
(9) - (12)	7
(5) - (8)	6
0 - (4)	5
0 - 4	5
5 - 8	4
9 - 12	3
13 - 16	2
17 - 20	1
21 - 24	0

4. **WEIGHTED ARREARS:** The weighted arrears score is calculated by dividing the total residential monthly arrears not subject to deferred payment agreements by the average residential monthly customer bill. The score, also known as a Bills Behind statistic, is a weighted arrears for all households who are not in deferred payment agreements.

Households that are in arrears to the company, but which have not entered into a deferred payment agreement, represent a risk of loss to the company. Moreover, by entering into a deferred payment plan, the risk that the household will ultimately lose its utility service is lessened. Comparisons of arrears between companies, however, can be misleading because of the difference in bills. For this reason, a weighted arrears statistic is calculated so that the effect of different average bills is taken into consideration.

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The weighted arrears factor compares the performance of the company to the average "weighted arrears" rate for a specified period to the average rate for a base period. If the company is at the average, it will receive a score of 5. For every two-tenths (0.2) bill divergence from the average, it will receive a plus or minus rating of 1 respectively. Using a ten point scale, the score would be calculated as follows (with "0" representing no change from the base period):

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(1.1+)	10
(0.9) - (1.0)	9
(0.7) - (0.8)	8
(0.5) - (0.6)	7
(0.3) - (0.4)	6
(0.1) - (0.2)	5
0 - 0.1	5
0.2 - 0.3	4
0.4 - 0.5	3
0.6 - 0.7	2
0.8 - 0.9	1
1.0+	0

5. **PERCENT CUSTOMER IN DEBT:** To the extent that customers *do* develop past due bills, a utility should be willing and able either to collect those bills immediately, or to place those customers in reasonable deferred payment agreements. The existence of households in arrears represents a failure in both of these processes. Households that are in arrears, but that have not entered into a deferred payment agreement, represent a serious risk of loss to a utility. One aspect of universal service involves both getting --and keeping-- late-paying customers on deferred payment arrangements.

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The percent of customers in debt score is calculated by dividing the total number of residential customers in arrears (but not subject to payment plans) by the total number of residential customers. This component compares the annual performance of a specific company to the average "customers in arrears" rate for a base period. If the company is at the base period level, it will receive a score of 5. For every two percent divergence up or down from the average, it will receive a plus or minus rating of 1 respectively. Using a ten point scale, the score would be calculated as follows (with "0" representing no change from the base period):

(11+)	10
(9) - (10)	9
(7) - (8)	8
(5) - (6)	7
(3) - (4)	6
(0) - (2)	5
0 - 2	5
3 - 4	4
5 - 6	3
7 - 8	2
9 - 10	1
11+	0

6. **COMPOSITE SCORE:** The sum of these scale points will determine the overall score attained for the universal service Indicator. All calculations will be to the nearest whole scale point.

APPENDIX B

APPLICATION OF UNIVERSAL SERVICE PERFORMANCE INDICATOR

Table 1: Indicator 1: Termination Rate Universal Service Measurements 3 Year Averages Pennsylvania Gas and Electric Utilities							
	1989	1990	1991	1992	1993	1994	1995
Duquesne	0.4%	0.5%	0.6%	1.1%	1.4%	1.7%	1.6%
Met Ed	0.2%	0.2%	0.3%	0.5%	0.6%	0.6%	0.6%
Penelec	0.8%	0.8	0.8%	0.8%	0.9%	0.8%	0.7%
Penn Power	0.8%	0.8	0.8%	0.9%	1.0%	1.0%	0.9%
PP&L	0.2%	0.3	0.5%	0.5%	0.7%	0.6%	0.7%
PECO	1.2%	1.4%	1.4%	1.5%	2.8%	3.1%	3.1%
UGI	1.4%	1.2	1.2%	1.1%	1.4%	1.2%	1.1%
West Penn	1.1%	1.0	0.9%	0.8%	0.8%	0.9%	0.9%
Columbia	0.7%	0.7%	0.7%	0.8%	1.0%	1.2%	1.3%
Equitable	1.1%	1.4%	1.8%	1.8%	1.2%	0.9%	0.8%
NFG	1.6%	1.6%	2.0%	2.0%	1.9%	1.6%	1.6%
PG&W	1.1%	1.1%	1.2%	1.3%	1.6%	1.7%	1.8%
Peoples	1.4%	1.3%	1.3%	1.3%	1.6%	1.6%	1.5%
UGI Gas	2.2%	2.1%	2.2%	2.2%	2.3%	2.0%	1.9%

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Table 1: Indicator 2: Money at Risk Index Universal Service Measurements 3 Year Averages Pennsylvania Gas and Electric Utilities							
Money at Risk	1989	1990	1991	1992	1993	1994	1995
Duquesne	1.0	1.2	1.5	1.8	2.0	2.1	2.1
Met Ed	1.0	1.1	1.1	1.2	1.3	1.6	1.7
Penelec	1.0	0.9	0.9	0.9	0.9	1.0	1.1
Penn Power	1.0	1.3	1.7	2.2	2.6	2.9	3.1
PP&L	1.0	1.2	1.3	1.3	1.4	1.4	1.5
PECO	1.0	1.1	1.2	1.4	1.4	1.4	1.3
UGI	1.0	1.0	1.1	1.2	1.4	1.6	1.8
West Penn	1.0	1.1	1.4	1.6	1.9	2.2	2.5
Columbia	1.0	1.3	1.7	2.3	2.2	2.8	3.5
Equitable	1.0	1.0	1.1	1.1	1.2	1.3	1.3
NFG	1.0	1.2	1.3	1.2	1.0	1.3	1.6
PG&W	1.0	0.9	0.8	0.7	0.6	0.7	0.7
Peoples	1.0	1.2	1.1	1.1	0.9	1.0	1.1
UGI Gas	1.0	1.1	1.1	1.2	1.3	1.7	2.0

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Table 1: Indicator 4: Weighted Arrears Universal Service Measurements 3 Year Averages Pennsylvania Gas and Electric Utilities							
	1989	1990	1991	1992	1993	1994	1995
Duquesne	4.3	4.8	5.1	5.9	6.8	7.8	8.6
Met Ed	2.8	2.7	2.7	2.9	3.4	3.8	3.9
Penelec	3.2	3.0	3.0	3.0	3.1	3.2	3.5
Penn Power	0.5	1.1	1.6	1.8	2.0	2.2	2.4
PP&L	3.5	3.9	3.9	3.7	3.5	3.6	3.8
PECO	3.5	3.8	4.0	4.5	4.5	4.5	4.2
UGI	1.9	2.0	2.0	2.2	2.4	2.6	2.8
West Penn	2.0	2.2	2.4	2.6	2.7	2.8	2.9
Columbia	3.4	3.9	4.8	4.6	4.5	4.7	5.3
Equitable	8.9	8.5	7.8	7.5	7.3	7.2	7.3
NFG	2.9	3.0	3.3	3.2	2.9	2.9	3.4
PG&W	3.9	3.6	3.2	3.0	2.6	2.5	2.5
Peoples	3.7	3.9	3.9	3.8	3.5	3.9	4.4
UGI Gas	2.4	2.5	2.6	2.6	2.6	2.9	3.2

APPLICATION OF UNIVERSAL SERVICE PERFORMANCE INDICATOR

Table 1: Indicator 5: Percent Customers in Arrears Universal Service Measurements 3 Year Averages Pennsylvania Gas and Electric Utilities							
	1989	1990	1991	1992	1993	1994	1995
Duquesne	18%	19%	19%	20%	18%	17%	15%
Met Ed	16%	15%	14%	13%	14%	15%	14%
Penelec	20%	19%	17%	16%	16%	17%	16%
Penn Power	17%	19%	21%	23%	24%	24%	25%
PP&L	16%	16%	17%	18%	18%	18%	17%
PECO	30%	29%	28%	28%	29%	28%	26%
UGI	13%	13%	13%	13%	14%	14%	14%
West Penn	18%	18%	19%	20%	22%	22%	22%
Columbia	13%	13%	13%	12%	11%	12%	14%
Equitable	19%	19%	20%	21%	22%	22%	22%
NFG	17%	18%	17%	16%	16%	17%	17%
PG&W	16%	16%	16%	16%	15%	16%	16%
Peoples	14%	15%	15%	14%	14%	15%	15%
UGI Gas	14%	14%	14%	14%	14%	15%	16%

APPLICATION OF UNIVERSAL SERVICE PERFORMANCE INDICATOR

Table 2: Overall Universal Service Scores Pennsylvania Gas and Electric Utilities 1990 - 1995							
	1989	1990	1991	1992	1993	1994	1995
Duquesne	20	18	12	7	5	5	8
Met Ed	20	21	20	19	12	11	10
Penelec	20	21	21	21	21	21	20
Penn Power	20	16	11	8	6	6	6
PP&L	20	18	14	15	15	15	13
PECO	20	19	16	11	9	9	12
UGI	20	22	22	22	17	17	16
West Penn	20	20	19	18	15	12	11
Columbia	20	17	12	9	8	5	5
Equitable	20	19	19	20	23	24	25
NFG	20	19	14	15	17	19	16
PG&W	20	21	22	23	22	21	21
Peoples	20	19	20	21	19	18	16
UGI Gas	20	20	19	19	17	16	14