

PUBLIC UTILITY CREDIT AND COLLECTION ACTIVITIES

Establishing Standards

and Applying them to Low-Income Utility Programs

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We used to ask this one question on all of our Urban Planning final exams. The question was: which highway is more efficient, Highway 1 (which is a narrow winding two-lane road) or Interstate 80 (a new six lane divided highway)? We'd then flunk everybody when they answered I-80.

You see, Highway 1 runs north-south while Interstate 80 runs east-west. The correct answer was: "it depends* * *I-80 can't be very efficient if it doesn't take me where I want to go."¹¹

¹¹ Dr. Michael F. Sheehan, Fisher, Sheehan & Colton, Public Finance and General Economics (FSC), Scappoose, Oregon.

EXECUTIVE SUMMARY

Background

Public utilities have not sought to test whether the credit and collection activities in which they engage are both effective and cost-effective. As a result, many credit and collection activities are either unnecessary or unproductive in accomplishing their purposes. Many more activities do not contribute to the overall least-cost provision of utility service. A major reason for these failures is the reliance upon supposition and "conventional wisdom" that is not grounded in an empirical reality.

Purpose

This paper develops and presents evaluation mechanisms that permit policymakers, public or private, to consider the relative merits of various responses to residential payment troubles. It examines objective processes by which to measure both the effectiveness and the cost-effectiveness of utility credit and collection activities generally. The report provides insight into whether such programs have a positive impact on the payment problems of low-income consumers.

The purpose of the research below is to examine what might be an appropriate methodology that may be used to ascertain and establish the effectiveness and cost-effectiveness of utility credit and collection techniques. The purpose here is not to apply that methodology to any particular technique to determine the desirability --either in terms of effectiveness or of cost-effectiveness-- of different credit and collection practices undertaken by various utilities. Actual application of the methodology, and generation of supporting empirical data, is left to another day.

Principal Findings

The utility industry, its regulators, and the consumer advocates who work with it, should develop base-line measures of what goals a utility's credit and collection activities hope to accomplish. Is the purpose to minimize arrears? Is the purpose to avoid the disconnection of service? Is the purpose to maintain universal service while at the same time minimizing total revenue requirement?

In addition to articulating specific goals, the utility industry should develop standardized measures of how to assess the need for, and effectiveness of, particular credit and collection activities. In doing so, it is crucial to distinguish between measures of a utility's behavior and measures of a utility's performance.

The utility industry should develop some industry-accepted analytic techniques that would assist in the evaluation of credit and collection activities. Most importantly, utilities should be required to prepare and use the recommended measures of performance.

The utility industry should develop greater standardized data bases to permit the evaluation of both intra- and interstate conditions and performances. No state whatsoever has adequate data by which to evaluate its utilities' credit and collection performance. Without adequate information, attempts to obtain understanding are bound for failure.

Finally, the utility industry should develop a greater understanding of the relationship between credit and collection activities and credit and collection performance. What behaviors have the greatest net back? What behaviors result in the greatest reduction in DSO? What behaviors result in the greater collection of those revenues available for collection?

Conclusions

The time has come for the utility industry to stop operating its credit and collection practices on supposition and myth. There exists a need to raise the level of sophistication in planning and evaluation as to need, effectiveness and cost-effectiveness.

INTRODUCTION

A. Overview

"Where do we want to go?" That's a question not frequently asked in the utility credit and collection area today. And the answer may well dictate fundamental policy decisions. Does a utility want to minimize bad debt through credit and collection? Does a utility want to minimize *total* expenses. . .not the same goal? Does a utility want to maintain universal service, while minimizing nonpayment within that constraint?

This report examines performance measures to help guide policymakers --be they consumer advocates, utility representatives, or regulators-- toward a system of rational decisionmaking regarding utility credit and collection activities. The goal below is not so much to reach conclusions regarding specific credit and collection activities as it is to recommend an evaluation process, the application of which will lead to rational conclusions.

While substantial work has been devoted to evaluating the credit and collection activities of a number of industries, little work has been devoted to any evaluation of the credit and collection activities of public utilities. Given the dollars involved with the accounts receivable of regulated public utilities, it is difficult to imagine why this is the case. New York state utilities, for example, face an average monthly residential arrears of nearly \$164 million. The four largest Massachusetts utilities face an average monthly residential arrears of more than \$70 million. Detroit Edison faces average residential arrears of \$3.3 million per month while Consumers Power Company faces residential arrears of \$5.6 million per month. Nearly half of the 41,000 "hardship" customers of Connecticut Light and Power Company are 60+ days in arrears in any given month, with those annual average arrears in 1991 being \$420.

The work of collecting a utility's residential receivables,¹²¹ of course, is limited by a maintenance-of-service constraint. This constraint is generally imposed as a matter of policy --whether explicitly or otherwise. Home heating and other

¹²¹ The only data discussed in this report involves the residential class. Whether it is arrears or payment plans or service disconnections or anything else, the implicit modifier "residential" should be assumed by the reader.

energy services are too generally recognized as an essential of life for public utilities to systematically deny the continuation of service to those unable to afford it. Consider that the U.S. Supreme Court noted in *Craft v. Memphis Gas, Light and Water Division*¹³¹ that "utility service is a necessity of modern life; indeed, the discontinuance of water or heating for even short periods of time may threaten health or safety."¹⁴¹ Similarly, an Ohio federal district court has stated that "the lack of heat in the winter time has very serious effects upon the physical health of human beings, and can easily be fatal."¹⁵¹

B. Purpose.

The purpose of this report is to develop and present evaluation mechanisms that will permit policymakers, public or private, to consider the relative merits of various responses to payment troubles.¹⁶¹ It will examine objective processes by which to measure the effectiveness, and the cost-effectiveness, of utility credit and collection activities generally. These processes will be drawn from previous research on utility collections as well as from work that has been done on credit and collection activities in other industries. Through this effort, it will be possible to gain insight into whether such programs have a positive impact on the payment problems of low-income consumers. The application of these measures of credit and collection performance will permit an assessment of whether particular programs help address payment problems, help maintain uninterrupted service to low-income households, help reduce overall credit and collection activities, and help generate benefits for all customers.

Frequently, when one questions either the effectiveness or the cost-effectiveness of a utility's credit and collection mechanisms, the question is raised as to whether the "real" purpose is to dismantle collection processes generally. That is certainly *not* the intent of this report. Instead, the purpose of this report is to recommend a sound conceptual framework to evaluate credit and collection activities. The report will further recommend measures to empirically

¹³¹ 436 U.S. 1 (1978).

¹⁴¹ *Id.*, at 18.

¹⁵¹ *Palmer v. Columbia Gas Co. of Ohio*, 342 F.Supp. 241, 244 (N.D. Ohio 1972) (citations omitted).

¹⁶¹ The report is limited to *residential* payment troubles.

evaluate credit and collection activities of a public utility. What the data actually will be, as well as what conclusions might be supportable based upon the data generated using the recommended measures, must be left to a state-specific or utility-specific setting.

C. Outline of the Report.

This report is presented in three sections. *Section 1* establishes the conceptual framework for evaluating utility credit and collection practices. This Section posits that there are two basic concepts that drive any evaluation of utility credit and collection practices:

- o The first concept is that of "effectiveness." Is a given credit and collection practice necessary, as well as productive, in generating payments of outstanding revenue?
- o The second concept is that of "cost-effectiveness." Is a given credit and collection practice efficient, as well as cost-beneficial, resulting in greater revenue collections than expenses? Moreover, is a particular practice the most efficient means of collection *vis a vis* available alternatives?

A particular credit and collection mechanism can pass one of these tests and yet fail the other. Thus, for example, a collection technique may effectively reduce bad debt while at the same time increasing the total cost of service by incurring collection expenses greater than the amount of bad debt reduction.

Underlying the analysis of effectiveness and cost-effectiveness throughout this report is the distinction between utility "behavior" and utility "performance." On the one hand, "behavior measures" look at the credit and collection *actions* of a utility. On the other hand, "performance measures" look at the *results* of those actions. The two often get confused, resulting in confused and misdirected policymaking.¹⁷

Section 2 presents a recommended empirical mechanism through which to evaluate existing credit and collection techniques. While, of necessity, informed and guided by the conceptual discussion above, this Section differs in that it provides specific means of collecting data to determine what credit and collection mechanisms are both effective and cost-effective. The Section is not designed to reach conclusions about particular credit and collection mechanisms. Rather, it will create a mechanism to permit the collection of the data necessary to allow policymakers to reach

¹⁷ For example, the termination of utility service is a behavior on the part of a utility, not a performance measure of any type as it is often treated.

conclusions in light of state-specific or utility-specific information.

In short, this report will allow decisionmakers to test conventional wisdom in light of data developed specifically for the purpose of evaluating credit and collection techniques. For example, "conventional wisdom" has come to accept certain "truisms" about public utility credit and collection activities, with little or no empirical work to justify or support this wisdom. Conventional wisdom, for example, postulates that late fees promote accelerated payments; that winter shutoff moratoria promote winter non-payment; and that service shutoffs are an effective collection device. This report will create a mechanism through which such issues can be empirically explored within a sound conceptual framework. The Section develops specific measures both of "company performance" and of "company behavior" to use in credit and collection evaluations.

Finally, *Section 3* presents conclusions and makes recommendations about specific analytic tools to use in developing rational and empirically-based evaluations of utility credit and collection techniques.

D. Policy Conclusions

The process of evaluating public utility credit and collection activities is, at best, in a primitive state today. Utilities and their credit managers have no idea as to the effectiveness of the particular credit and collection activities which their company has chosen to pursue, or the cost-effectiveness of particular credit and collection activities. No goals have been set toward which to strive. No strategies have been developed to assist in the accomplishment of those goals. No standards have been promulgated by which to measure any progression or digression from those goals. No comprehensive data exists to use in the evaluation of credit and collection activities directed toward payment-troubled households. Utility credit managers seem to have been given approval to operate on supposition and myth and frequently-erroneous "conventional wisdom." One example of a utility which lacked even the most rudimentary data on residential credit and collection (Washington Gas Light Company) is presented in Appendix A to this report.¹⁸¹

A utility's credit and collection activities involve more than the social and economic welfare of low-income payment-

¹⁸¹ The queries included in Appendix A were presented to Washington Gas Light as formal data requests in a litigated rate case before the District of Columbia Public Service Commission.

troubled households. These activities involve tens of millions of dollars in expenses to utilities each year.¹⁹¹ Part of that expense, but only a tiny part, is the cost of uncollectible bad debt. Part of that expense is the cost of the credit and collection activities themselves. Part of the expense is the cost of foregone sales as customers are disconnected from a utility's system. Part of the expense is the lost opportunity cost of misguided priorities and missed opportunities to accelerate or obtain payments.¹¹⁰¹

The time has come for the utility industry to raise the level of sophistication in planning and evaluation as to need, effectiveness and cost-effectiveness. Such an effort will redound to the benefit of the industry, to its residential ratepayers, and to its low-income residential ratepayers all.

I. ESTABLISHING THE FRAMEWORK FOR ANALYSIS.

Before turning to the specific measures to use in evaluating credit and collection practices, a broader framework should be discussed within which to apply those measures. Utility credit and collection practices must be measured against two standards. First, a credit and collection practice must be "effective." Effectiveness incorporates two elements. On the one hand, it must be necessary to obtain payment of billed revenue. On the other hand, it must be productive in generating payments. Second, a credit and collection practice must be "cost-effective." Cost-effectiveness denotes that the practice must contribute to least-cost service. This means not only that the activity generates more revenue than it generates in expenses, but that it generates more net revenue than available alternatives as well. Within this framework, we turn to a more detailed discussion of these concepts.

A. Evaluating the *Effectiveness* of Collection Practices.

¹⁹¹ Pursuant to the FERC Uniform System of Accounts, set forth in the federal *Code of Federal Regulations* (CFR), credit and collection expenses are included in the "900 accounts" of an electric utility. Account 903 includes "customer records and collection expenses." Account 904 includes "uncollectible expenses." Account 908 includes "customer assistance expenses." The dollars in each account for each Fiscal Year are reported in the FERC Form 1, page 320 *et seq.*, at the Table presenting "electric operation and maintenance expenses."

¹¹⁰¹ See generally, Roger Colton, *Identifying Savings Arising from Low-Income Programs* (March 1993); see also, Roger Colton, *Low-Income Programs and their Impact on Reducing Utility Working Capital Allowances* (March 1993).

The first step in seeking to respond to problems involving utility customer nonpayment is to determine precisely *why* households might not pay their bills. By understanding the full range of reasons why households may not pay, utilities and their regulators can adopt a flexible approach to bill collection, involving a full range of techniques addressing specific problems. This flexibility will help maximize the *effectiveness* of credit and collection activities in generating the receipt of unpaid revenue.

A failure to inquire into why customers do not pay has ramifications on the *need* for collection efforts as well as on the *productivity* of collection efforts. On the one hand, utilities often address temporary payment problems through non-temporary collection techniques. On the other hand, some chronic payment problems are addressed through collection means best-suited for temporary inability-to-pay. Either way, the mismatch between collection technique and type of payment problem means that the potential for the technique to be both effective and cost-effective is reduced.

A failure to understand why people do not pay their bills may result in inappropriately severe collection techniques being imposed on nonpaying households. The involuntary disconnection of service, for example, is not a collection technique that addresses temporary inability-to-pay. As a result, shutoffs are particularly inappropriate for households who are facing short-term payment difficulties. Temporarily losing employment, incurring extraordinary medical bills, or experiencing unusually high heating bills, are all types of nonpermanent situations that might cause a household to face payment problems for some short period of time. In these circumstances, the disconnection of service would not serve any collection purpose or protect the utility against the future loss of revenue.

In contrast, failing to inquire into why households do not pay their bills on time may well result in collection techniques being pursued that have no hope for success. A deferred payment agreement, for example, is not a collection technique that addresses chronic inability-to-pay. Payment plans, in other words, are a particularly inappropriate mechanism through which to seek full payment of arrears for households that are chronically poor. If a household could not pay its full current bill in the past because of a lack of money, it lacks good sense to call upon that household to enter into a deferred payment plan in which a promise is made to pay the full current bill *plus* some increment to retire the arrears in the future.

Similarly, late payment charges work for only *some* types of collection problems. Accordingly, determining the validity of

late payment charges is particularly dependent on an evaluation of why people do not pay their bills in the first instance. Late payment fees are often justified as a means to accelerate payments.^{\11\} It might well be a rational collection strategy to impose a late payment fee on a customer that does not make timely payments because she seeks to capture the time value of money while letting arrears develop.^{\12\} If a customer does not pay because she cannot afford to pay, however, seeking to accelerate payments by *increasing* the bill through imposition of a late charge is not only bound to fail as a collection device, but is bound to *exacerbate* rather than to alleviate the payment problems the household is experiencing. As one Michigan State study concluded:

Payment performance tends, moreover, to accord with socio-economic class, with better performance in middle-income and more affluent areas than in low-income areas. . . . Late payment is generally but by no means exclusively concentrated among inner-city and other poor neighborhoods, and among the elderly on fixed incomes. It has been statistically confirmed that the late charge is not effective for those whose problem is not lack of incentive to pay but unemployment and poverty.^{\13\}

In this instance, therefore, both the efficacy and the legitimacy of the collection technique (*i.e.*, imposing a late payment fee) depends upon a proper determination of *why* the household did not pay in the first place.^{\14\} Without looking at the reasons for nonpayment, using a late fee as a collection device not only is ineffective, but is actually counterproductive as well.

^{\11\} Late fees can also be justified as a cost-based charge designed to compensate the utility for the expenses associated with late payment. This justification, however, most often fails on close analysis. See generally, Roger D. Colton, *Determining the Cost-Effectiveness of Utility Credit and Collection Practices*, at 67 - 90 (July 1990).

^{\12\} Several studies indicate that the imposition of a late charge is not effective in accelerating customer payments. See generally, Warren Samuels, "Commentary: Utility Late Payment Charges," 19 *Wayne Law Review* 1151 (July 1973). Samuels notes in particular that late fees have *no* impact on accelerating payments for utilities that have due date 30 days or more from the date on which the bill is rendered. *Id.*, at 1159.

^{\13\} Warren Samuels, "Commentary: Utility Late Payment Charges," 19 *Wayne Law Review* 1151, 1159 - 1160 (July 1973).

^{\14\} See also, the Wisconsin Public Service Corporation study which concluded "Finally, we come to the Group 5 people who have the money to pay but don't. This problem might be handled by a finance charge on the unpaid balance. However, a blanket finance charge might increase the financial burdens of Groups 1, 2 and 3. Some sort of limitation might need to be designed into the finance charge." Michael Kiefer & Ronald Grosse, "Why Utility Customers Don't Pay Their Bills," *Public Utilities Fortnightly*, at 44 (June 21, 1984).

The above discussion certainly should not be construed as endorsing the elimination of service disconnections or payment plans as a credit and collection technique. Instead, the discussion merely points out the often ignored maxim that to be both effective and cost-effective, a collection technique should be matched to, and appropriate for, the particular payment problem that is being experienced in the first instance.

Given the thesis that the rationality of particular utility collection mechanisms depends upon the reason for nonpayment in the first instance, it is surprising that so little information is developed regarding the reasons for customer nonpayment. Any evaluation of the need for, and effectiveness of, particular credit and collection practices should begin with an overview of the reasons for nonpayment with which to begin. Moreover, effectiveness denotes two measures: (1) need; and (2) productivity.

B. Evaluating the *Cost-Effectiveness* of Collection Practices.

Even after determining whether credit and collection practices are both necessary for, and productive in, redressing reasons for nonpayment, a utility should assess the cost-effectiveness of such practices. Cost-effectiveness is measured in terms of whether any particular credit and collection technique results in the least-cost provision of service. The analysis posits that the ultimate goal of *any* utility activity is to provide reasonably adequate service to its ratepayers at least-cost. This goal is enforced through the legal dictates that utility management be "efficient and economical."¹⁵¹

The requirement that utility activity contribute toward the provision of least-cost service pervades every aspect of a utility's business. It governs whether a utility should provide coal, oil or nuclear capacity; whether a utility should pursue new central station capacity, cogeneration or conservation; whether a utility should self-insure or purchase insurance policies; whether a utility should maintain compensating bank balances or pay bank fees; whether a utility should raise debt or equity capital. The requirement of least-cost service, too, should govern utility collection activities. In reviewing these alternatives, expenses devoted to the collection of arrears should be measured by the same least-cost tests as any other utility expense.

¹⁵¹ *Federal Power Commission v. Hope Natural Gas Co.*, 350 U.S. 591, 603 (1944); *Bluefield Water Works v. Public Service Commission of West Virginia*, 262 U.S. 679, 692-93 (1923).

Far too often, utility credit and collection activities have escaped the scrutiny that is applied to other aspects of a utility's business. Consider, for example:¹⁶¹

- o The disconnection of service is assumed to be a rational and economic response to nonpayment of bills. However, the disconnection of service should be viewed as one mechanism, but by no means the exclusive mechanism, to collect a customer's bill. Moreover, given the menu of available collection options, it cannot be assumed that the disconnection of service *a priori* results in the least-cost provision of service. Among the factors to consider in assessing the cost-effectiveness of the disconnect process are the expenses associated with disconnections and the revenue stream which is lost when customers are removed from the system.
- o The collection of security deposits is asserted to reduce bad debt. However, after some level of security is reached, additional security yields no further bad debt reduction and leaves only the costs of deposit maintenance. In undertaking a cost-effectiveness review of security deposits, the purpose of deposits must be used as the benchmark for evaluation. Given the fact that deposits are designed to protect a utility against revenue loss due to bad debt, to be cost-effective, a utility's deposit scheme must be shown to result in savings in uncollectibles at least equal to the expense of obtaining and maintaining the deposits. Just like insurance which provides coverage beyond the value of the insured property, in the event that a utility is "oversecured," *i.e.*, the deposit exceeds the utility's potential loss due to bad debt, the maintenance of the deposit creates only costs and provides no benefits. The cost-effectiveness of deposits depends upon a careful assessment of the risk of loss due to bad debt against which security would be needed.
- o Long-term deferred payment plans are offered without consideration of whether collecting \$80 today may be financially and economically more sensible than *possibly* collecting \$100 over time. Public utilities often offer deferred payment plans as an option through which households in arrears can pay their debt over an extended period of time. With moderate or high arrears, these plans can call for payments over several years. To obtain a stream of payments over time, however, is not the same as receiving full immediate payment. Through deferred payment plans, a utility loses the time value of the stream of payments. The

¹⁶¹

See generally, Roger Colton, *Determining the Cost-Effectiveness of Utility Credit and Collection Practices* (July 1990).

company also faces the risk that the plan will not be completed. It is possible to calculate a discounted immediate lump-sum payment that is the "indubitable equivalent" of a stream of payment plan payments over time. If by discounting the arrears and accepting immediate payment, a utility can receive the equivalent of the payment plan payments, that utility reduces its risk of not eventually receiving full value and should accept the immediate payment.

In general, utilities are required to operate in an economic manner and to take advantage of all reasonable efficiencies in operation. Just like any other utility practices, credit and collection activities that are found to impede or to interfere with the provision of overall least-cost service should be modified or abandoned. In addition to evaluating the effectiveness of credit and collection practices, in other words, the analyst must evaluate the cost-effectiveness as well.

C. Collection Activities vs. Collection Performance.

The final conceptual pillar upon which this credit and collection analysis is constructed is the distinction between activities and performance. In order to assess either the effectiveness of utility credit and collection practices, or the cost-effectiveness of such practices, an evaluator must be able to distinguish between (1) measures of the *activities* of a public utility, and (2) measures of the *results* of those activities. Utility credit and collection managers frequently confuse these two concepts. Nonetheless, prior credit and collection *research* emphasizes the importance of making the distinction.¹⁷

The purpose of the research below is to examine what might be an appropriate methodology that may be used to ascertain and establish the effectiveness and cost-effectiveness of utility credit and collection techniques. The purpose here is not to apply that methodology to any particular technique to determine the desirability --either in terms of effectiveness or of cost-effectiveness-- of different credit and collection practices undertaken by various utilities. Actual application of the methodology, and generation of supporting empirical data, is left to another day.

1. Lessons from Pennsylvania.

¹⁷ The primary empirical research that has been done was performed more than ten years ago by the Bureau of Consumer Services of the Pennsylvania Public Utility Commission (Farrell 1983) and more recently, in 1990, by the Consumer Services Division of the New York State Public Service Commission (Sawyer and Teumim 1990).

The Bureau of Consumer Services of the Pennsylvania Public Utility Commission (BCS) has identified different categories of data that can provide insight into "how collections systems work." Amongst these categories are:

- (1) "Measures of behavior," which show "what companies are doing." The issuance of disconnection notices as well as the actual termination of service are examples of behavior examined by these measures; and
- (2) "Performance measures," which show "how well a company is doing at collecting bills." The amount of dollars in arrears, as well as the company's uncollectible ratio, are examples of performance measures.

BCS developed these measures in response to the "information vacuum" on utility collection practices. "Frequently, the only evidence available in this area has consisted of anecdotes about specific cases or hypothetical examples of how customer services systems abuse or are abused by customers." (Farrell, at 11) Accordingly, the measures developed by BCS are designed to generate data in response to different inquiries. The measures of behavior provide a measure of how companies respond, while the performance measures provide a reflection on the quality of performance of that response.

It is important to identify what measures were *adopted* by BCS as adequate mechanisms for assessing utility credit and collection activities. It is equally important, however, to identify what measures were *rejected* by BCS as adequate mechanisms. For example, examining the number of overdue accounts, as well as the rate of overdue accounts, is the predominant means used to measure credit and collection activity in the utility industry today. However, according to BCS, neither number "is * * the most reliable indicator of problems." BCS observed:

Specifically, the raw number of utility customers and overdue customers tend to change at unequal rates. Also, these numbers change at rates which vary substantially depending on company size and other factors. For example, Equitable Gas and West Penn Power each had about the same increase in overdue customers from 1980 to 1982 (15% vs. 16%). This appears to represent equal growth of problems. However, this is misleading because over the same period, Equitable had .2% more customers while West Penn reported 3% fewer customers. In this light, the relative increase was more serious for West Penn than for Equitable.

(Farrell, at 7 - 8). As a substitute for the raw numbers or rate of overdue customers, BCS recommended use of the overdue customer ratio.^{\18\} This substitute measure indicates "whether payment problems are becoming more or less common over time."

The Pennsylvania BCS contributes to the methodology for evaluating utility credit and collection practices in two ways. Initially, BCS provides standards to use in developing measures. Measures must permit a comparison as between time periods as well as between companies. As a result, raw numbers are of little help. Use should instead be made of rates of change, ratios and percentages. In addition, measures must permit a comparison of utility collection practices in general rather than of the choices of individual credit managers. BCS finally identified specific standard measures to use in a credit and collection evaluation. These measures look at the utility behavior toward collections as well as at utility performance in collections.

2. Lessons from New York.

While the New York research did not place as much effort into developing the analytic framework for its assessment of "gas and power utility uncollectibles and collection activity,"^{\19\} the measures that it relied upon in its assessment of ten of that state's utilities provide insight into what was considered important as an indicator of collection effectiveness. The New York approach is typical of the analysis undertaken by companies and regulators around the country.

The indicator of collections effectiveness used by most utilities (and their regulators), the New York report noted, "is the degree to which unpaid bills are written off as uncollectible." (Sawyer and Teumim 1990, at 1). According to the New York report, however, this indicator is unreliable. One problem with use of uncollectibles, the report notes, is that "the point at which an account is classified as uncollectible is somewhat arbitrary." The ratio, in other words, is dependent upon management decisions. One company may write-off a debt as uncollectible if it is 120 days old, while a different

^{\18\} See, note **Error! Bookmark not defined.**, *infra*.

^{\19\} According to the New York introduction, the purpose of the report was to "analyze[] the condition of utility collections of overdue bills, determine[] the extent to which the Home Energy Fair Practices Act (HEFPA) has affected collection operations, contrast[] collection indices among the ten gas and combined utilities, and discuss[] how utility collection programs can be improved."

utility may not write-off a debt as uncollectible for twelve months (365 days). To compare these two ratios, therefore, provides misleading results.

More importantly, however, is the fact that the purpose of credit and collections is not to minimize bad debt, but to minimize the total cost of service. (Colton [a]).^{120\} The cost of bad debt is but one small part of the cost of service associated with delinquent payment. According to one electric industry publication, "the cost of delinquent cash flow is generally not evaluated as a cost of credit* * *. However, * * *the interest on delinquent cash flow frequently exceeds the write-off cost." (Electrical World). To assert, as the New York report does, that the "basic indicator of collections effectiveness" is the uncollectible ratio concentrates too narrowly on too small a piece of the problem. Uncollectibles are *not* used as a performance measure in this report.

New York, too, makes the same distinction that Pennsylvania made between behavior and performance measures. Behavior variables include the negotiation of deferred payment arrangements (DPAs), the termination of service, and the issuance of "final termination notices." (Sawyer and Teumim, at 8) Other behavioral factors found important in New York included the number of renegotiated DPAs and the number of customers reconnected to the system after a termination of service. (*Ibid.*, at 3 - 5)

Performance measures found important by New York included not only the uncollectible ratio and the extent of total and above-60-day arrears (both measured in cents per dollars of sales), but included the percent that defaulted DPAs represented of total DPAs as well.^{121\}

Finally, New York established a means of judging the relative merits of different utilities *vis a vis* each other. For each behavior variable, New York divided the utilities into three groups: (1) those with the three best performances; (2) those

^{120\} This observation is perhaps best conceptualized within the framework of utility security deposits. In undertaking a cost-effectiveness review of security deposits, the purpose of deposits must be used as the benchmark for evaluation. Given the fact that deposits are designed to protect a utility against revenue loss due to bad debt, to be cost-effective, a utility's deposit scheme must be shown to result in savings in uncollectibles at least equal to the expense of obtaining and maintaining the deposits. Just like insurance which provides coverage beyond the value of the insured property, in the event that a utility is "oversecured," *i.e.*, the deposit exceeds the utility's potential loss due to bad debt, the maintenance of the deposit creates only costs and provides no benefits. In such case, even if the deposit reduces bad debt, *total* expenses to the company increase, and thus the total cost of service goes up, not down, as a result of the deposit.

^{121\} While Pennsylvania viewed the number of service disconnections as a behavior measure, New York viewed the percentage of total customers disconnected for nonpayment as a performance measure. The Pennsylvania approach is the better approach of the two.

with above average performance (other than the three best); and (3) those with below average performance. Within these three groups, New York then correlated the operational and performance variables.

Thus, for example, New York reported that "utilities which had the best uncollectible rates also tended to have the best performance in recovery of revenues through the DPA process and had a strong DPA effort." In contrast,

surprisingly, we found that companies with good [Final Termination Notice] credibility, showing a high level of service termination levels where customers do not respond to their final notice, also tended to have the higher uncollectible rates. In a customer survey, one mid-west utility found service termination to be a useful collection tool for only 12% of its payment-troubled customers. This limited usefulness of service terminations as a collection tool, and the revenue loss resulting from its use, may explain this finding.

D. Summary.

In sum, utility credit and collection practices should meet both of two tests. First, they must be effective. To be effective, a credit and collection practice must be a necessary response to nonpayment and must have a positive impact on curing that nonpayment. Second, however, utility credit and collection practices may not be evaluated simply in terms of their "effectiveness." In addition, they must be cost-effective. To be cost-effective, a utility's credit and collection practices must contribute to the overall provision of least-cost service. These two tests are separate and distinct from each other. A collection technique that is "effective," in other words, can still be objectionable if not also *cost-effective*. Cost-effectiveness is to be determined both on an absolute basis as well as *vis a vis* alternatives.

Research in New York and Pennsylvania finds that an analysis of utility credit and collection practices must look at different aspects of the problems caused by nonpayment of utility bills. The biggest distinction made is between measures of "performance" and measures of "behavior." On the one hand, the behavior of a utility involves utility *activities*, the use of credit and collection practices that are within the discretionary control of the company's management. This might include, for example, the rate of disconnections, the extent that deferred payment arrangements are negotiated, and the like. These activities may be driven by credit and collection considerations, or they may be driven by other factors. They represent choices by a utility to do, or not to do, some activity. On the other hand, the performance of the utility looks at the *results* of utility behavior. This might include the level of arrears as well

as the level of broken payment plans. Specific measures of credit and collection performance are recommended below.

II. MEASURES OF UTILITY CREDIT AND COLLECTION PERFORMANCE.

The purpose of an evaluation of a utility's credit and collection activities is three-fold:

1. To quantify the extent of a company's payment problems;
2. To identify and quantify the collection practices engaged in by the company in response to those problems;¹²²¹ and
3. To determine the relationship --including the extent of the relationship, its form and its strength-- between collection practices and collection performance.

The purpose of the discussion below is to recommend and support empirical data gathering that will allow such an analysis. An actual empirical evaluation of a utility's credit and collection mechanisms should test the relationship between identified measures of utility behavior and identified measures of utility performance. This section differs from Section 1 above in that this Section is data-based. Unlike Section 1, which seeks only to ensure that the analytic framework is rational, this section sets forth factors that can be actually quantified and measured. While there clearly needs to be clarity of concept, and of thinking, as guided by Section 1, in order to perform a reasonable credit and collection evaluation, it is these *quantitative* measures that will serve as the basis for the actual evaluation.

A. Measures of Utility Behavior.

Credit and collection activities are defined to include those activities pursued by a utility to obtain payment from customers who have not paid their current bill by the designated "due date." These activities are subject to management control. As identified by the Pennsylvania Bureau of Consumer Services, measures of behavior show "what companies are doing." The issuance of disconnection notices as well as the actual termination of service are examples of behavior

¹²²¹ Low-income discount rates are defined to be a type of credit and collection practice.

examined by these measures. Two tests of whether a measure is of a "behavior" or a "performance" thus include whether the measure is subject to "management control" and whether it examines a utility "activity."

A person seeking to evaluate utility credit and collection practices must meet and overcome several problems, according to the Pennsylvania BCS. First, the analyst must seek:

to identify patterns of behavior and performance that are similar from one company to the others. Scrutiny focuses on finding patterns that are characteristics of utility collections in general rather than patterns which represent individual manager's choices or unique environmental effects.

(Farrell 1983). Collection activity is often measured using a number of different factors, including the notice ratio (notices divided by overdue customers), the termination ratio (terminations divided by termination notices), the number and rate (per 1,000 households) of shutoffs, the number and rate (per 1,000 households) of active payment arrangements, the number of renegotiated payment arrangements, and the arrears not resolved by disconnect notices. The number of reconnections, also, is a measure of collection activity.

Second, the analyst must seek to develop measures that allow for cross-utility comparisons. Raw numbers, for example, can rarely be compared since raw numbers almost always depend on the size of the company. Using ratios or percentages --the percent of shutoff notices actually followed by a termination of service is one such ratio-- eliminates this problem. Similarly, percent changes from year-to-year should be comparable between companies regardless of size.¹²³¹

¹²³¹ Among the "calculated measures" developed by BCS to permit these inter-company comparisons include the:

- o "Overdue customer ratio," a performance measure as defined above, which calculates the number of overdue customers divided by the total number of customers;
- o "Termination notice ratio," a behavior measure as defined above, which calculates the number of termination notices divided by the number of overdue customers;
- o "Termination ratio," another behavior measure, which calculates the number of service terminations divided by the number of termination notices;
- o "Average overdue bill," a performance measure as defined above, which calculates the total dollars owed in overdue accounts divided by the number of overdue customers; and
- o "Write-off ratio," another performance measure, which calculates the write-off of uncollectible accounts divided by the total revenues.

Inquiries, BCS found, should be performed on absolute terms and in terms relative to other utilities. It is often more informative to know where a company stands relative to all other companies than to know only the data for a particular company. The question of what a utility is doing probably ought to be asked "doing *relative to whom?*"

It is crucial to a rational analysis of utility credit and collection techniques to understand the distinction between the payment problems of a utility's customers and the activities of a utility in response to those problems. Fundamentally erroneous policy decisions can be made if one is looking at data about one measure (e.g., behavior) and reading that data as being informative about the other measure (e.g., payment problems).

Consider utility shutoffs, for example. Assume that there are two utilities identical in all respects except the number of residential disconnections for nonpayment made each year. It would be an error of data interpretation to conclude based on the different levels of shutoffs alone that the customers of the utility with the higher rate of shutoffs were in greater payment trouble. The activity of disconnecting utility service is expressly a permissive activity. Utility disconnections, in most ways, are entirely up to the utility. State public utility commission (PUC) rules governing the disconnection of service merely regulate what is otherwise a permissive business decision by the utility. PUC rules establish reasonable procedures to be followed by utilities that elect to terminate services to customers who fail to pay their bills. Disconnections, however, remain a permissive device for utilities to use in attempting to achieve the objective of collecting revenue.

One factor for a utility to consider in assessing the cost-effectiveness of the disconnect process, for example, involves the economics of disconnections. The economics of the disconnection will turn on a variety of considerations. These might include the extent to which a company incurs a working capital expense,¹²⁴⁾ and the level of that expense as measured by the company's weighted cost of capital; the extent to which a company can negotiate reasonable deferred payment arrangements to bring arrears down to affordable levels; the relationship between a utility's contribution to fixed costs arising from additional customers and the contribution of those customers to net bad debt.¹²⁵⁾

¹²⁴⁾ A working capital expense involves the carrying cost associated with carrying an arrears. In delivering utility services, the utility will incur some expenses before it obtains the dollars from customers to pay those expenses. As a result, the utility must borrow short-term funds to pay the expenses and then pay the interest pending receipt of customer payment to provide revenue for repayment of the short-term borrowing.

¹²⁵⁾ See e.g., M.Sheehan (1994). *On the Brink of Disaster: A State-by-State Analysis of Low-Income Natural Gas Winter Home Heating Bills*, at Appendix A, pp. 180 -

A decision to use the disconnection of service as a collection device, in other words, is just that: a decision. It represents a measure of utility behavior rather than a measure of payment troubles. A utility may choose to react to nonpayment by disconnecting service, or it may choose to react otherwise.

The same analysis would apply to deferred payment arrangements. Clearly, it is up to an individual company to decide when (or whether) to offer deferred payment arrangements. The risk averseness of all utilities in this regard will not necessarily be the same. One company may seek to disconnect service upon one default on a deferred payment arrangement, while another may find it acceptable to allow multiple defaults.

To assess a utility's credit and collection practices --particularly to make comparative assessments as between different companies-- it is important to ask whether particular data measures the payment problems of the company's customers, or whether that data "really" simply measures specific company decisions to do, or not to do, particular collection activities.

B. Measures of Utility Performance.

In contrast to measures of utility behavior are measures of utility performance. Rating public utilities by their credit and collection practices should concentrate on performance measures. A utility's behavior as to its credit and collection practices, in other words, is important only with respect to whether those practices "get us where we want to go." Performance ratings must seek to determine whether particular credit and collection practices for particular utilities enhance the overall collection of revenue at least cost.

Measures of *performance* are instructive as to whether a utility is "doing well" with respect to credit and collection. In contrast, however, measures of *behavior* say little about credit and collection effectiveness, or cost-effectiveness. As discussed in greater detail above, for example, one cannot say *a priori* that a utility with a high level of service disconnections is doing a "bad" job in credit and collection while a utility with a low level of disconnections is doing a "good" job.

(..continued)

191 (Scappoose, Oregon).

A number of standard measures exist to determine the effectiveness, and cost-effectiveness, of collection schemes within consumer credit industries. Unfortunately, however, little work has been done to apply these measures to the public utility industry. One report notes:

In preparation for (this) analysis, a literature search was made to attempt to identify empirically-based research and hypotheses regarding collections. A number of publications --largely business and financial journals-- were examined. The results were disappointing. Although a good amount of appropriate material was discovered, the focus of this material was on specific techniques --examples of letters or other contacts, the accounting treatment of uncollectible accounts, etc.-- rather than on analyses designed to determine how collection systems work.

(Farrell, at 9 - 10). The literature review performed for this research, twenty years after the above-quoted observation, proved equally disappointing.

Moreover, research into utility credit and collection activity must take into account the *differences* that exist between utility credit management and the credit management of other consumer industries. In consumer industries generally, emphasis is placed on credit screening, efforts on the part of the company to avoid making sales to potential payment-troubled customers in the first instance. (Farrell, at 9 - 10). "Collection is seen as a response to unsuccessful or inadequate credit screening." (*Ibid.*) According to Farrell, most of the empirical research that is done for these companies, therefore:

is designed to determine who will default on payment rather than to identify methods for reacting to defaults. In other words, credit screening --which is preemptive-- is preferred to collections --which is reactive-- as a subject for research and analysis.

(*Ibid.*, at 9 - 10)

Credit screening by utilities is less important because utilities are faced with a maintenance of service constraint. As a result, "utility companies historically tend to take the opposite approach and de-emphasize credit screening in favor of

collections." (*Ibid.*, at 9 - 10) The question presented by this approach involves identification of what methods are most effective in curing payment defaults, assuming that defaults cannot be prevented through a rationing of sales.

In light of, and constrained by, these observations, the following recommendations are made as to appropriate measures of utility credit and collection performance.

1. "Net back": The Cost of Collection and Collection Rate.

"Net back" is the preferred measure of the effectiveness and cost-effectiveness of utility credit and collection practices. "Net back" is the ratio of the *net* dollars returned to a company (the total amount collected minus the total expenses involved with the collection technique) to the gross amount of receivables assigned to the collection technique. (Nischwitz). The contribution made by the "net back" analysis is that it forces a creditor to take into account the expense of collection, as well as the effectiveness of collection, in considering the cost-effectiveness of collection practices.

"Net back" is used as a means to determine the most cost-effective credit and collection tool. The calculation of "net back" involves two components:

- o The first component involves calculating the cost of collection. The cost-of-collection figure is arrived at by dividing the total expenses of a particular collection measure by the total amount of money collected through that measure.
- o The second component is the "collection rate." The "collection rate" is the percentage of money collected of the total subject to collection through a particular collection practice.

A melding of these two concepts --the cost of collection on the one hand and the collection rate on the other-- is what goes into the measure of collection efficiency called "net back."

The concept of "net back" arose in a non-utility context. Based on its net back analysis, for example, one manufacturing credit manager recommended that his firm adopt a "minimum account size" for certain collection activities. (Bureau). This

minimum account size was to bring the company's "cost of collection" to an acceptable level.^{126\} According to Bureau, the cost-of-collection "figure was arrived at by dividing our total legal expenses (court costs as well as attorney fees) on these accounts by the total amount of money collected."

Bureau stated that the "collection rate" is also an important measure to track, noting that his collection rate had been nearly 80 percent from outside collectors. The "collection rate" is "the percentage of money collected of the total placed" with the outside collection agency. (*Ibid.*, at 27). Both of these figures, the "cost of collection,"^{127\} as well as the "collection rate," should be available to public utilities.

Calculating the "net back" for particular utility credit and collection practices is relatively easy:

Net back, in its simplest form, can be calculated with the following formula: Net back = Gross Placements x Collection Rate x (1 - Contingency Fee Rate).

Thus, \$1 million in gross placements (accounts receivable assigned for collection) will yield a net back of \$134,000, or 13.4%, if the collection rate (percentage of the gross recovered) is 20% and the contingency fee rate is 33% (.33).

$$\$1,000,000 \times .2 \times (1 - .33) = \$134,000.$$

(Nischwitz). According to Nischwitz, using the "net back" concept will help direct collection efforts. He points out that with collection rates and collection costs below 50 percent, increasing the collection rate has a significantly greater impact on the dollars netted back to the credit grantor than does decreasing the cost of collection. "Paying more" for collection, in other words, can be cost-effective if more than offset by an increase in the rate of collection.^{128\} In the

^{126\} In the case of this industry, that "acceptable level" was considered to be 11.8 percent of outstanding arrears.

^{127\} Using Bureau's methodology, calculating the cost of collection for a utility would involve determining the cost of a particular collection practice divided by the total amount of money collected by that practice.

^{128\} Conversely, paying less for collection is not necessarily "good" if the collection rate is sufficiently adversely affected that the decreased expenses are offset by decreased revenue.

example above, Nischwitz says, increasing the collection rate by three percent (3%), all other things remaining equal, could only be matched by cutting the collection costs by somewhat more than ten percent (10%), again all other things remaining equal.

"Net back" was recently applied in a utility context to assess the efficacy of using a low-income rate as a collection device rather than the traditional disconnect process. (Sheehan 1992). Sheehan sought to determine whether it is more cost-effective to seek to collect revenues through implementation of rate relief to income-eligible households than it is to engage in traditional credit and collection programs. Sheehan found that the total arrears subject to traditional collection practices was \$372,913, of which \$294,546 was collected, yielding a collection rate of 79 percent. The cost of collection was \$41,706.

In applying the "net back" analysis, Sheehan calculated the following two components:

$$\text{Collection rate} = \frac{\$294,546}{\$372,913} = 79\%$$

$$\text{Collection expense} = \$41,706$$

$$\text{Net Back} = \$372,913 \times 0.79 - \$41,706 = \$252,885$$

He concluded: "Using the 'net back' formula* * *we thus know that the 'net back' for each dollar subject to this credit and collection process is calculated as follows: Net back per dollar = Net Back / Amount-to-be-Collected = \$252,885 / \$372,913 = 68¢." (*Ibid.*, at 77).

In contrast, Sheehan found, the net back per dollar for his proposed Maintenance of Effort Rate (MER)^{129\} was 76¢ for

^{129\} The Maintenance of Error Rate (MER) involved an income-based percentage of bill plan for income-eligible households. Calculation of bills for these households involved xxx steps. First, an affordable percentage of income was determined. Assume, for example, that percentage was six percent (6%). With an annual income of \$6000 and a six percent (6%) percentage of income payment, the payment is \$360 per year.

The utility next calculates an estimated annual bill. This estimate is developed using whatever methodology presently exists for doing so. This methodology is likely to be the method used for estimating annual bills for purposes of 12 month Levelized Budget Billing Plans. Let's assume for the purposes of analysis that the estimated annual bill is \$1000.

each dollar of billed revenue.¹³⁰¹ He concluded, that "clearly, as can be seen, the Company is better off using the proposed (rate discount) than it is using the traditional credit and collection process." (*Ibid.*, at 78). The discount rate yielded a net savings of eight cents (\$0.08) for every dollar subject to collection.

In short, "net back" helps a company determine what collection actions yield the highest net return, with the cost of collection being only one of the factors that goes into that calculation. (Wilwerding, Jensen and Keller). In addition to looking at the *cost* of collection, the analyst must examine the *rate* of collection, as well, and meld the two into a net back analysis. The concept of net back is as applicable to public utilities as it is to more traditional commercial creditors.

2. Payment Pattern Analysis

The second type of analysis that provides useful insight into the effectiveness --and cost-effectiveness-- of utility credit and collection practices is payment pattern analysis. Payment pattern analysis looks at the "collection experience" of a business enterprise that sells to its customers on credit ("credit sales"). The originators of the payment pattern analysis define "collection experience" simply as "the rate at which remittances for credit sales are received over time; that is, the chronological pattern according to which the receivables created during a given interval are converted into cash." (Lewellen and Johnson).

Taking a month to be the standard unit of account, Lewellen and Johnson state:

the issue is the liquidation rate for each month's new credit sales. A *constant* collection experience* *
*denotes a situation wherein the fractions of credit sales still uncollected as time passes follow a stable and predictable pattern from month to month. (emphasis in original)

(..continued)

Under the percentage of bill model, the percentage of income payment is finally converted into a percentage of the annual bill. Under the assumptions above, with a payment of \$360 and an annual bill of \$1000, the proportion of the bill owed by the participating household is 36 percent. The utility would, therefore, bill the participant 36 percent of whatever the full bill would otherwise be. If the annual bill is \$1000, the percentage of bill model would bill the customer \$360. If, in contrast, the annual bill is \$1200, the percentage of bill model would bill the customer \$432 ($\$1200 \times .36 = \432). If the annual bill fell to \$800, the percentage of bill model bill would fall to \$288 ($\$800 \times .36 = \288).

¹³⁰¹ The amount subject to collection for the proposed rate was \$1,756,242. The collection rate was 81 percent. The collection cost was \$100,000.

(*Ibid.*, at 102) The concept of collection experience, Lewellen and Johnson conclude, "refers to nothing more than this standard notion of the rate of accounts conversion into cash." Other analysts agree. One refers to a "payment pattern" as "the time distribution of cash flows that arise from credit sales at a point in time." (Stone). Stone states that "a monthly payment pattern can be characterized by the proportion of credit sales in a given month that become cashflows in that month and a series of subsequent months." (*Ibid.*, at 65)^{131\}

A payment pattern analysis creates a receivables status report that follows from this definition of the term "collection experience." Such a report provides:

balances outstanding as a percentage of the respective *original* sales that gave rise to those balance. In this fashion, customer payment rates are automatically traced to their source, and the appraisal of collection success is rendered independent of sales patterns and of the impact of changes in relative account composition. (emphasis in original)

(Lewellen and Johnson, at 105) An illustrative payment pattern analysis is presented in Table II-1 below.

The use of payment pattern analysis allows the credit manager to perform a number of functions that are not possible using other traditional credit and collection measurement techniques. The manager can, for example, distinguish between seasonal payment patterns, and disaggregate the impacts of changes in payment behavior from the seasonal changes in sales. (Stone). Such a distinction can be ascertained merely by comparing the different rates of conversion into cash as betwixt different months of the year. If, in Table II-1, for example, the January "same month" data was 50 percent while the July "same month" data was 86 percent, the credit manager would determine a seasonal variation in payment patterns. Use of payment pattern analysis, Stone says, will allow accurate monitoring of credit policy decisions such as relaxing or tightening credit granting decisions, changing discount terms, or eliminating discounts altogether. In short, Stone asserts:

^{131\} "In effect, there is a receivable balance pattern associated with any payment pattern. The monthly receivable balance pattern can be characterized as the fraction of credit sales in a month that remain outstanding at the end of each subsequent month." *Ibid.*, at 66.

Meaningful measures of the performance of a company's collection effort must be based on measures of behavior that do not depend on factors beyond the control of those responsible for collections, *e.g.*, the sales pattern, the level of interest rates, and the quality of the accounts, the latter being determined by the company's credit granting decisions.

(*Ibid.*, at 79). Underlying basic payment proportions represents such a measure, he concludes.

Pursuing a payment pattern analysis recognizes the reality that charging a rate and collecting a rate are two separate actions. Simply because a utility charges a particular rate does not mean that the utility will ever collect that money from a low-income household. A payment pattern analysis, in other words, reveals the rate at which *billed* revenue is turned into *collected* revenue over time. Payment pattern analysis allows a utility to track how quickly billed revenues are converted into cash for any particular period.

TABLE II-1

STATUS REPORT ON RECEIVABLES OUTSTANDING
AS A PERCENT OF ORIGINAL SALES

	MONTH											
	J	F	M	A	M	J	J	A	S	O	N	D
Percentages outstanding for 1970 from sales of:												
Same month	90%	89%	91%	95%	97%	93%	86%	92%	91%	90%	91%	90%
One month before	60	62	59	68	73	69	59	54	62	63	61	60
Two months before	20	19	18	35	37	33	23	20	17	21	22	20

NOTE

To ascertain the payment figures for one month's original sales, see the numbers in a descending left-to-right diagonal pattern. Thus, the sequence 86%-54%-17%, singled out for July-August-September of 1970, refers to balances originating in July's sales as they remain outstanding as of the end of three consecutive months.

SOURCE:

Wilber Lewellen and Robert Johnson, "Better way to monitor accounts receivable," *Harvard Business Review*, at 101, 107 (May-June 1972).

3. Weighted Arrearages.

One innovation developed by the staff of the Pennsylvania PUC's Bureau of Consumer Services (BCS) to facilitate cross-utility comparisons of collection performance is the "weighted arrearage" or "bills behind" statistic. This measure calculates the average overdue bill divided by the average customer bill.¹³²¹ It thus 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."¹³³¹ Without such a measure, "the interpretations of average arrearages, either over time or in comparison between companies presents some difficulties." BCS said:

arrearages fluctuate seasonally in response to bills. In conjunction with this, both permanent and seasonal changes in bills vary from company to company. Thus, arrearages cannot be easily used as measures for examining collections unless the influence of [the size of] bills is controlled. This can be accomplished by controlling for the effects which bills have on arrearages, that is, by dividing the average monthly arrearage by an average monthly bill for the previous month. The result is a figure --the weighted arrearage-- which shows the number of average bills which are equivalent to an average arrearage.

4. Individualized Days Outstanding.

The fourth measure recommended for assessing the performance of utility credit and collection practices involves

¹³²¹ Environmental factors, such as heating degree days, may affect the size of a bill and thus the size of an arrearage. While an overdue bill in Minnesota might be high, in other words, *all* bills might be high. Moreover, the level of rates will affect the level of bills (and thus the level of arrearages). Hence, while arrears in nuclear-intensive Illinois might be high, *all* bills might be high.

¹³³¹ "Since bills cannot be treated as arrearages until one billing period has elapsed, the value of the bill for the immediate past month (the lagged value) is used when calculating monthly weighted arrearage statistics. When annual figures are calculated, no lags are used in the billing data." Farrell, at 20 - 21.

individualized days outstanding. This measure recognizes that the collectability of debt decreases with time. Gross reports in a non-utility setting that: "If you allow a customer to go beyond 60 days past due, there is a 62 percent probability that it will occur again. If a customer goes beyond 60 days past due a second time, there is a 95 percent probability that the account will always pay beyond 60 days past due." While for utilities, the numbers may change, the message remains the same: chronic late payment engenders chronic late payment. Accordingly, there is a line demarcating the days of delinquency for individual accounts over which a company should seek to prevent as many accounts as possible from going.

Days outstanding has an impact not only on the timing of collection, but on ultimate collectability as well. A value must be assigned, according to Mallardi, to "the consideration of collectability that everyone acknowledges erodes with passing time." According to Post and Hochberg, "studies have shown that accounts more than 60 days past due lose approximately 50% of their value if no payment activity occurs within the next 30 days. For each additional 30 days that pass, the collectible value halves once again." (Post and Hochberg).¹³⁴⁾ Again, while these studies involve non-utility data, the conclusion, that collectability erodes over time and such erosion must be considered in targeting collection efforts, holds true for residential utility bills as well.

One measure of collection efficacy, therefore, is the relationship between average days outstanding and the probability of collecting an outstanding debt. For the printing industry, Table II-2 below shows both the present value and the probability of collecting a receivable. Mallardi notes that "when we multiply these two factors, it is readily apparent when trouble begins--long before the average days outstanding of 58 days."

According to Mallardi, "the crossover time from certainty to risk in the printing business is at 41 days--and it is downhill after that. As risk of uncollectability eats into the receivables, so also does certain forfeiture of the time value of that receivable." According to this Table for the printing industry, for example, the probability of collection is cut in half after two months and then further cut to one-third after three months.

¹³⁴⁾

Different data is used by another commentator, but the message is the same. "According to a recent report from the Commercial Law League of America, collectability of debt drops dramatically as time goes by. Of debts owed for one month, 94% are collected in full; after six months, only 74% are collected; and only 27% of debts overdue by a year get collected. At two years, the success rate drops to a low of 14%." (Black). Again, while the numbers for utilities would clearly differ, the underlying lesson is valid.

An individualized days outstanding performance measure allows an evaluator to assess whether a utility is properly targeting its collection activities. Attention to the early slow payers will decrease the probability that those accounts will ultimately become problem accounts. Accounts that are problems in one month have an increased chance of being problems again in a future month. Accounts that are problems for more than one month have an increased probability of being continuously problematic. A utility constructing an analysis akin to that set forth in Table II-2 will be able to evaluate the ultimate collectability of residential arrears.

5. DSO: Days Sales Outstanding.

While having shortcomings discussed in more detail below, perhaps the most basic measure of credit and collection success in consumer industries is DSO (Days Sales Outstanding). This measure is also often referred to as "days in accounts receivables." DSO is expressed as the average days that a dollar in sales is maintained in a company's receivables. (Sitterly). One health care industry publication notes that:

prompt payment of receivables by customers is desirable in any business.* * *Average days in accounts receivables was used to measure this important dimension of financial performance.

(Cleverly and Harvey). Several aspects of this measure of accounts receivable are important. Knowing an industry's mean, as well as an industry's trends, are both such aspects.

- o Clearly, knowing an industry's mean DSO is important. One industry that follows DSO closely is the hospital industry. The average DSO for hospitals is tracked on a quarterly basis. (Nemes).
- o Trends are important as well. In the hospital industry, for example, the continuing deterioration of DSO¹³⁵¹ has given rise to concern. Industry research, for example, reports that the 11.3 day increase (from 60.9 days in July 1980 to 72.2 days in 1989) was disturbing for the hospital industry. (Mowl). When the hospital industry's average DSO reached 75 days in 1992, one industry publication suggested that "targets need to be defined and performance should be monitored carefully." A "target" DSO equal to the "lowest quartile value" for the industry was recommended. (Cleverly and Harvey).

¹³⁵¹

A "deterioration" of DSO means that the ratio rises. This indicates that the sales are outstanding for longer periods of time.

TABLE II-2

DECLINING VALUE OF A RECEIVABLE OVER TIME

MONTH	PRESENT VALUE OF CASH^a	COLLECTABILITY^b	VALUE TO THE CREDITOR
0	1.00	36.8%	36.8%
1	.985	36.8%	36.3
2	.971	18.4%	17.9
3	.956	6.1%	5.8
4	.942	1.5%	1.4
5	.928	0.3%	0.3
6	.915	0.1%	0.2
7	.901	NS	0.0

Source: Vincent Mallardi, "Bad Debts," *American Printer*, vol. 202, iss. 5 (Feb. 1989), p.45.

Notes:

- a. Based on a 1.5 percent per month discount rate.
- b. Based on printing industry average collections applied to a Poisson approximation, a statistical estimating technique.

Reducing DSO has an obvious impact on a firm's financial position. The larger the DSO, the larger the cost of capital associated with carrying the underlying debt for an electric or natural gas utility. And, of course, this is true for industries other than electricity and natural gas. One printing industry publication noted that "accounts receivable represent 1/6th of an average printer's annual sales, and the cost to finance these is about one percent of a firm's value added (sales less outside purchases)." (Mallardi). If the printer could "reduce average-days-outstanding from the industry average of 58 days to one-half this time," Mallardi said, "the cash flow improvement would be eight percent of sales."^{136\}

The use of DSO also helps guide efficient commitments of collection resources. One analyst recommends that companies concentrate their collection activities on slow payers rather than on customers that demonstrate long-term payment problems. (Kirschbaum). Collections should be primarily directed at customers in the 31 to 60 day range, according to Kirschbaum.

This is the critical time when your cash flow maintains momentum or breaks down. Most people in this category are not ultimately collection problems --merely 'slow payers.' By concentrating your collection efforts here* * *you can accelerate the payment process and enhance positive cash flow.

"Many customers simply do not have enough cash to pay all of their suppliers on time," Kirschbaum notes. "They must choose whom they will pay promptly and whom they will pay in 60 days or 90 days." He concludes that the biggest potential for reducing total company DSO is by accelerating the payment of slow payers in this 31 to 60 day range, rather than by chasing problem debts.

This observation is confirmed by another recommendation that businesses should spend their "time and efforts to keep good accounts good." (Gross). "Credit employees," Gross states, "are continually pressured by their superiors to collect those 'old' receivables.* * *This results in a pattern of collection that is a total reversal of how it should be handled."

Changing from "conventional methods of collection" to the "preventative approach" will "dramatically increase the efficiency" of collection efforts, Gross says. Accounts under 60 days past due represent 75 to 80 percent of a modern company's total revenue, while accounts over 60 days past due represent 15 to 20 percent. By concentrating efforts on

^{136\} From a revenue perspective, reducing DSO by half would represent an effective increase in sales of eight percent, without selling one more unit of production.

the 30 to 60 day delinquent accounts, Gross states, "there would be an 85 percent reduction in accounts becoming 60 to 90 days past due."¹³⁷¹

Moreover, Gross says, the redirection of collection efforts changes the economics of the expenditure of labor.

Under the conventional approach, the time involved in the actual collection and negotiation of accounts amounts to only ten percent of the total time spent by the collection department. Administration and documentation accounts for 20 percent of their time, and 70 percent of time is involved in pursuit, research, letters, and attempts to locate and contact the debtor. Under the preventative approach, the time involved in the actual collections and negotiations of accounts will rise to 50 percent, a five-fold increase.

Gross notes that concentrating collection efforts on the 30 to 60 day delinquent accounts will reduce time spent on pursuit, research, attempts to locate and contact the debtor, and the like, to only 20 percent. "As you can see, when it comes to account receivables, time is of the essence for success. Work your receivables at the right time and relinquish them when you should." (Gross at 27; see *also*, Burau, at 28).

In sum, DSO counsels that utilities concentrate their attention on consumer debt that is 30 to 60 days past due, rather than concentrating their efforts on the substantially past due. It is this early set of "slow payers" which provides the best opportunity to obtain wholesale reductions in overall company DSO. Due to the sheer magnitude of debt in this category, accelerating slow payments by a few days will yield a larger reduction in total company DSO than will the reduction or elimination of the long-term problem accounts.

6. "Percent Available for Collection" as Alternative to DSO.

Some analysts do not believe that DSO presents the most accurate picture of collection effectiveness, and thus should not be used, or at least not be used in isolation from other effectiveness measures. One primary concern with the use of DSO is that the measure does not adequately reflect "sales-induced changes in the composition of accounts receivable."

¹³⁷¹ While the numbers would change for the public utility industry, the point remains valid. Concentrating efforts on the 30 to 60 day overdue accounts would reduce the number of 60 to 90 day overdue accounts.

(Sitterly). Sitterly concludes that "there is "currently is no method available that allows * * *a multi-month DSO calculation* * *to be completely isolated from the impact of sales changes." Increases in sales, in other words, will yield an increase in DSO even if the *rate* of payment on a per customer, or per unit of sales, basis remains constant. According to Sitterly, there is a need for additional measures of performance, since "few credit professionals would want their efforts evaluated primarily on the basis of how well or poorly the firm's products are sold."

One proffered alternative to DSO is the measure termed "percentage of uncollected monies available to be collected." (Gordon). Gordon states flatly that "DSO in itself cannot be an absolute measure of credit department efficiency." The alternative formula works as follows: "total accounts receivable* * *minus (aged arrears), minus current [bills], equals the uncollected dollar amount." (*Ibid.*, at 33) The figure is calculated for the end of the current period. The percentage of uncollected monies addresses several problems not addressed by DSO. First, the vicissitudes of sales will not affect the measure. Moreover, the credit terms granted do not affect the measure. "Out of that which is available for collection, [the measure] calculate[s] how much we didn't get." (*Ibid.*)

The distinction made by Gordon has direct application within the public utility industry. Thus, for example, the dollars of "shortfall" between a fully-embedded bill and a discounted low-income bill would not be considered within the Gordon calculus, since those dollars are not "available to be collected." Similarly, the dollars in a deferred payment arrangement would not be included, again since those dollars are not "available to be collected." For a deferred payment plan, only the dollars of arrears due for payment in a particular month would be considered "available for collection" in that month. Again, this measure of performance inserts a "reality check" into a utility's credit and collection practices. Rather than concentrating attention on billed revenue, it instead looks at that revenue "available for collection." While it does not insert the "cost of collection" factor considered by a "net back" analysis, it does appropriately consider the "rate of collection."

C. Lessons for the Utility Industry.

Based on the examination of other industries above, the following are some of the lessons to be learned regarding the proper standards to apply in judging the performance of public utility credit and collection activities:

1. No single measure of performance alone is adequate by which to measure the effectiveness, as well as the cost-effectiveness, of utility credit and collection practices. Each measure has its strengths and weaknesses.
2. The best measure of performance should consider both the cost of collection and the collection rate in evaluating the effectiveness and cost-effectiveness of collection practices. In other industries, credit management refers to this analysis as a "net back" analysis. The utility industry should adopt the use of "net back" analysis for its credit and collection activities.
3. Payment pattern analysis is a second preferred method of evaluating the effectiveness, and cost-effectiveness, of utility credit and collection practices. Payment pattern analysis recognizes that there is a difference between *billing* revenue and *collecting* that revenue. Payment pattern analysis looks at "the time distribution of cash flows that arise from credit sales at a point in time." Use of payment pattern analysis will allow accurate monitoring of the impacts of credit policy decisions such as the grant of discounts or the imposition of late payment charges.
4. Use of a weighted arrears (or "bills behind") 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 companies presents some difficulties.
5. While having limitations, DSO (Days Sales Outstanding) is a common measure of credit and collection performance in consumer industries. Use of DSO for public utilities would be helpful as well. It allows consideration of the impact of arrears on cash flow. It is superior, at least in this regard, to a primary consideration of either uncollectibles or of service terminations as a measure of collection adequacy. DSO allows a quantification of the impact of credit and collection practices on carrying costs in particular.
6. In addition to examining DSO, credit managers should consider the impact that days sales outstanding has on the collectability of individual debts. Collectability deteriorates over time. An individualized days sales outstanding must be considered to account for such deterioration. This use of an individualized days sales

outstanding would counsel attention to "early late payers" (30 - 60 days), which, while less late, represent greater amounts of total dollars, rather than the chronically late payers which generally represent relatively small amounts of total dollars.

7. Measuring the proportion of actual collections of those funds "available to be collected" is a final credit and collection assessment tool that should be used. The use of actual collections as a percentage of monies available to be collected factors out the impact which sales volume changes have on company arrears. It also factors out dollars of billed revenue that are not "available for collection."

III. CONCLUSIONS AND RECOMMENDATIONS

In response to the failure of the utility industry to develop a means of assessing its credit and collection practices in any meaningful procedural, planning and substantive sense, several recommendations are offered below to help remedy the situation:

First: the utility industry, its regulators, and the consumer advocates who work with it, should develop base-line measures of what goals a utility's credit and collection activities hope to accomplish. Is the purpose to minimize arrears? Is the purpose to avoid the disconnection of service? Is the purpose to maintain universal service while at the same time minimizing total revenue requirement? If the purpose of a credit manager, for example, is to reduce total company costs, should that manager target company resources on chasing low-income households who are six months in arrears, or is it more effective *vis a vis* that goal to target measures on moving "good paying customers" from paying at Day 21 to paying at Day 18 instead?

Second: the utility industry, its regulators, and the consumer advocates who work with it, should develop standardized measures of how to assess the need for, and effectiveness of, particular credit and collection activities. In doing so, it is crucial to distinguish between measures of a utility's behavior and measures of a utility's performance.

Third: the utility industry, its regulators, and the consumer advocates who work with it, should develop some

industry-accepted analytic techniques that would assist in the evaluation of credit and collection activities. Most importantly, utilities should be required to prepare and use the measures of performance recommended in the preceding Section.

Fourth: the utility industry, its regulators, and the consumer advocates who work with it, should develop greater standardized data bases to permit the evaluation of both intra- and interstate conditions and performances. No state whatsoever has adequate data by which to evaluate its utilities' credit and collection performance. The number of disconnections and reconnections of service are often maintained, though no effort is made to interrelate the two. Little data is kept about arrears, and even those states which do keep information about the aging of arrears have no notion as to the data by which the necessary payment pattern analysis could be developed. Virtually no data is maintained on deferred payment arrangements. No data on collection rates is kept, by *anyone*. No systemized data on collection costs is maintained, by anyone. Without adequate information, attempts to obtain understanding are bound for failure.

Fifth: the utility industry, its regulators, and the consumer advocates who work with it, should develop a greater understanding of the relationship between behavior and performance. What behaviors have the greatest net back? What behaviors result in the greatest reduction in DSO? What behaviors result in the greater collection of those revenues available for collection?

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APPENDIX A
Washington Gas Light Company
April 1994

1. The Company was asked for the cost of disconnecting service, which the Company could not provide.
2. The Company was asked for the average cost of telephone contacts and premise visits, which the Company could not provide.
3. The Company was asked for the average cost of reminder notices, which the Company could not provide.
4. The Company was asked for the average cost of shutoff notices, which the Company could not provide.
5. The Company was asked for the average cost of each step of the collection process before final billing, which the Company could not provide.
6. The Company was asked for the costs of negotiating and administrating deferred payment plans, which the Company could not provide.
7. The Company was asked for the number of involuntary disconnections of service for nonpayment, which the Company could not provide either for the residential class generally or for RES Tariff customers in particular.
8. The Company was asked for the number of reconnections of service for nonpayment, which the Company could not provide either for the residential class generally or for RES Tariff customers in particular.
9. The Company was asked for the number of disconnect notices, which the Company could not provide either for the residential class generally or for RES Tariff customers in particular.
10. The Company was asked for the number of reminder notices, which the Company could not provide either for the

residential class generally or for RES Tariff customers in particular.

11. The Company was asked for the number of personal payment related contacts by telephone, which the Company could not provide either for the residential class generally or for RES Tariff customers in particular.
12. The Company was asked for the number of personal payment related contacts by premise visit, which the Company could not provide either for the residential class generally or for RES Tariff customers in particular.
13. The Company was asked for the average arrears at the time of the disconnection of service, which the Company could not provide either for the residential class generally or for RES Tariff customers in particular.
14. The Company was asked for the average arrears at the time of the reconnection of service after a disconnection, which the Company could not provide either for the residential class generally or for RES Tariff customers in particular.
15. The Company was asked for the number of accounts by vintage of arrears, which the Company could not provide either for the residential class generally or for RES Tariff customers in particular.
16. The Company was asked for the number of dollars by vintage of arrears, which the Company could not provide either for the residential class generally or for RES Tariff customers in particular.
17. The Company was asked for the average arrears by vintage of arrears at the time of the disconnection of service, which the Company could not provide either for the residential class generally or for RES Tariff customers in particular.
18. The Company was asked for the percentage of nonpaid revenues for residential bills over and under (respectively) 150 therms of usage, which the Company could not provide either for the residential class generally or for RES Tariff customers in particular.

19. The Company was asked for the monthly usage of customers on the low-income discount tariff, which the Company could not provide.
20. The Company was asked for the monthly billing of customers on the low-income discount tariff, which the Company could not provide.
21. The Company was asked for the average monthly usage of households who had been disconnected for nonpayment, which the Company could not provide.
22. The Company was asked for the average monthly billing of households who had been disconnected for nonpayment, which the Company could not provide.
23. The Company was asked for the average aggregate winter billing (and usage) of households who had been disconnected for nonpayment, which the Company could not provide.
24. The Company was asked for the average aggregate summer billing (and usage) of households who had been disconnected for nonpayment, which the Company could not provide.
25. The Company was asked for the average arrears as of (a) April 1st; and (b) November 1st, for households who had been disconnected for nonpayment, which the Company could not provide.
26. The Company was asked for the dollars of uncollectible revenue, which the Company could not provide either for the residential class generally or for customers on the low-income discount in particular.
27. The Company was asked for the time a household remains off the system after being disconnected, which the Company could not provide either for the residential class generally or for customers on the low-income discount in particular.
28. The Company was asked for the average time a household remains on a deferred payment plan, which the Company could not provide either for the residential class generally or for customers on the low-income discount

in particular.

29. The Company was asked for the average delinquent balance made subject to deferred payment plans, which the Company could not provide either for the residential class generally or for customers on the low-income discount in particular.
30. The Company was asked for the number of households who successfully complete their deferred payment plans, which the Company could not provide either for the residential class generally or for customers on the low-income discount in particular.
31. The Company was asked for the number of households who, after completing one payment plan, must later enter into a subsequent "new" payment plan, which the Company could not provide either for the residential class generally or for customers on the low-income discount in particular.
32. The Company was asked for the costs of negotiating and administrating deferred payment plans, which the Company could not provide.
33. The Company was asked for all information regarding the connection between usage and payment troubles, which the Company could not provide.