BEFORE THE STATE OF NEW JERSEY
BOARD OF PUBLIC UTILITIES

IN THE MATTER OF THE RATE UNBUNDLING	**)**	**BPU Docket Nos.**
FILINGS BY GAS PUBLIC UTILITIES	**)**	**GX99030121**
PURSUANT TO SECTION 10, SUBSECTION A	**)**	**GO99030122**
OF THE ELECTRIC DISCOUNT AND	**)**	**GO99030123**
ENERGY COMPETITION ACT OF 1999	**)**	**GO99030124**
	)	**GO99030125**
ELIZABETHTOWN GAS COMPANY	**)**	
NEW JERSEY NATURAL GAS COMPANY	**)**	
PUBLIC SERVICE ELECTRIC & GAS COMPANY	**)**	
SOUTH JERSEY GAS COMPANY	**)**	

DIRECT TESTIMONY OF

ROGER COLTON

ON

UNIVERSAL SERVICE AND LOW-INCOME AGGREGATION

Filed on Behalf of

THE NEW JERSEY DIVISION OF THE RATEPAYER ADVOCATE

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Q. PLEASE STATE YOUR NAME AND ADDRESS.

A. My name is Roger Colton. My address is 34 Warwick Road, Belmont, MA 02478.

Q. FOR WHOM DO YOU WORK AND IN WHAT CAPACITY?

A. I am a principal in the firm of Fisher, Sheehan & Colton, Public Finance and General Economics (FSC). I provide technical assistance to a variety of public utilities, state agencies and consumer organizations on rate and customer service issues involving telephone, water/sewer, natural gas and electric utilities.

Q. PLEASE DESCRIBE YOUR INVOLVEMENT WITH THE DEBATES CONCERNING RESTRUCTURING THE NATURAL GAS AND ELECTRIC INDUSTRIES.

A. I have been involved with electric and natural gas restructuring throughout the nation. My work has been with state and local governments, with the federal government, and with a variety of community-based organizations. For example, I recently completed a study for the Colorado state legislature on the impacts of electric restructuring on low-income consumers. I am currently working for the Pennsylvania Office of Consumer Advocate in reviewing the Columbia Gas natural gas restructuring proposal and for the Maryland Office of Peoples Counsel (OPC) on that state's natural gas restructuring deliberations. In addition to providing consulting services for administrative proceedings, I assist states in the actual design and implementation of low-income programs. I am working for the New Hampshire Governor's Office of Energy and Community Services to help them implement their low-income rate

affordability program, with the Colorado Energy Assistance Foundation and Public Service Company of Colorado to help them implement a rate affordability pilot in Colorado, with Entergy Services Company in Little Rock, Arkansas to help it design a rate affordability assistance program, and for the Maryland OPC to help the Maryland Energy Assistance Program design and implement that state's electric restructuring universal service fund. During this past year, I also worked for the Iowa Department of Human Rights during this past year both to design the low-income electric universal service program approved by that state's collaborative process and to write the implementation plan for that program. Finally, I am currently the consultant charged with the three year task of developing the low-income service components for Vermont Energy Futures, an all-fuels consumer cooperative serving Vermont. A summary of my involvement with electric and natural gas restructuring issues is attached as Exhibit RDC-1.

Q. HAVE YOU TESTIFIED BEFORE THIS COMMISSION BEFORE?

A. Yes. I have appeared as a witness for the New Jersey Division of Ratepayer Advocate ("Ratepayer Advocate") in a variety of proceedings with respect to low-income energy issues.

Q. PLEASE DESCRIBE THE PURPOSE OF YOUR TESTIMONY TODAY.

A. The purpose of my testimony is to discuss the Societal Benefits Charge ("SBC"), uncollectables and review the basis for, overall design of, and the costs of a low-income natural gas universal service program for New Jersey. More specifically, after an introduction, my testimony is divided into the following parts:

- *Part 1* examines the impacts that moving to a retail choice natural gas industry can be expected to have on low-income consumers in New Jersey.
- *Part 2* describes the Societal Benefits Charge component of New Jersey's natural gas retail choice legislation, and the New Jersey natural gas utilities response to that legislation.
- *Part 3* develops an estimate of the cost of providing service to low-income customers in New Jersey and recommends adoption of a universal service funding mechanism.
- *Part 4* proposes an assistance in aggregation project to help overcome the barriers to small user aggregation in New Jersey.
- *Part 5* proposes information tracking systems to measure the performance of a natural gas retail choice industry relative to low-income consumers generally and relative to universal service in particular.

Q. CAN YOU SUMMARIZE THE RECOMMENDATIONS YOU MAKE FOR THE IMPLEMENTATION OF THE BOARD'S FINAL REPORT ON UNIVERSAL SERVICE ISSUES?

A. Yes. I make the following recommendations:

1. The creation of a universal service fund, consisting of three parts: (1) basic affordable rate assistance; (2) emergency crisis intervention assistance; and (3) energy efficiency assistance. This fund should be financed through imposition of a percentage of revenue surcharge. The affordable rate assistance made available through this universal service fund should be portable amongst all competitive service providers.

2. The creation of an Assistance in Aggregation Project (AAIP), to provide training on techniques of packaging energy projects; provide seminars, and help identify specific aggregation opportunities; assist in the development of small user aggregation entities; and help aggregators navigate the regulatory and contractual environment.

3. The establishment of a reporting mechanism to track the impacts of natural gas retail competition on low-income consumers generally.

4. The establishment of a reporting mechanism to track the impacts of natural gas retail competition on universal service in particular.

Introduction

Q. PLEASE EXPLAIN THE OVERALL CONTEXT OF YOUR TESTIMONY TODAY.

A. One of the fundamental goals of a move to retail choice in the natural gas industry is to provide benefits to *all* consumers in the state. New Jersey is not well served if discrete sets of consumers are disadvantaged while other consumers gain the benefits of lower competitive rates.

In making sure that all customers benefit, the future well-being of low-income consumers cannot be left exclusively to "the market." That does not mean that New Jersey should not move to retail choice. It does mean, however, that each component of restructuring should be reviewed to see whether it, indeed, generates benefits for all customers as claimed, or whether it needs to be implemented with a specific view toward assuring that the benefits of competition will arise, also, to low-income customers. My testimony considers the implementation of various components of natural gas retail choice in New Jersey and assesses

what role, if any, there is for the state to play in ensuring that all customer classes, including low-income customers, benefit from competition.

PART 1:
THE IMPACTS OF COMPETITION ON LOW-INCOME CONSUMERS.

Q. CAN NEW JERSEY EXPECT THE BENEFITS OF COMPETITION TO BE EVENLY DISTRIBUTED TO SMALL USERS?

A. While the general message decision makers often hear today is that a move from a regulated to a competitive market will deliver economic advantages to consumers, such conclusions are generally couched in terms of "aggregate" or "average" consumers. A 1998 report by the Consumer Energy Council of America Research Foundation ("CECA") perhaps stated it best, in finding:

> While there is a growing body of evidence that shows all customer classes can ultimately benefit from competitive markets, it is important to remember that there will always be winners and losers, at least in the short-term, due to any major economic and societal transformation. This is particularly true for those consumer classes that are most vulnerable --residential and small business consumers. More specifically, special vigilance must be paid to mitigate any negative impacts of the transition to competition on low-income consumers, rural consumers and those small consumers who currently reside in low-cost states.[/1/]

CECA cited research by the National Regulatory Research Institute (NRRI), for example, finding that "retail gas consumers cumulatively saved as much as $100 billion" as a result of natural gas deregulation in the mid-1980s. NRRI continued on to note, however, that the

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/1/ Ellen Berman, *et al.* (March 1998). ***Restructuring the Electric Utility Industry: A Consumer Perspective***, at 89, Consumer Energy Council of America Research Foundation: Washington D.C.

benefits of natural gas deregulation have not been spread evenly over all customer classes. "[T]here is a legitimate concern that small retail customers, relative to other gas customers, may have received too few benefits from the recent reforms in the natural gas industry."[/2/]

Q. PLEASE REVIEW THE SMALL USER EXPERIENCE TO DATE WITH ELECTRIC AND NATURAL GAS RETAIL CHOICE.

A. The New Jersey Board of Public Utilities (the "Board" or "BPU"), itself, spoke of the potential problems which small users may face in a retail choice environment when it wrote its report on electric competition. The BPU said:

> . . .there may well be a tendency for certain suppliers to focus their marketing efforts on the most lucrative customers, which may well include industrial and large commercial customers, and perhaps a subset of larger, more affluent residential customers. As a result, while all market segments are simultaneously and proportionately provided the *opportunity* to shop, there is a concern that in *actuality* certain customer groups will have few options available.[/3/]

Experience seems to be bearing these BPU concerns out. Setting aside places like Massachusetts and California where low standard offer prices are impeding the introduction of competition into the electric industry, the experience in Pennsylvania's move to electric competition can be instructive. As of December 1998, virtually no-one was competing for small users in Pennsylvania. According to industry reports, while over 80 electric suppliers have registered to provide electricity in Pennsylvania, only about a half dozen are competing

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/2/ Kenneth Costello and Daniel Duann (July 1996). "Turning Up the Heat in the Natural Gas Industry," ***Regulation***, at 3.

/3/ New Jersey Board of Public Utilities (April 1997). ***Restructuring the Electric Power Industry in New Jersey: Findings and Recommendations***, at 71.

for residential customers outside the high cost PECO service territory (Philadelphia).[4] This result does not appear to be attributable to conditions unique to Pennsylvania. In January, 1999, the largest competitor for small users in the nation --Enron-- announced that it was abandoning its quest for residential customers. The decision was one of sheer economics.

> Enron, Inc., the largest trader of electricity and natural gas in the nation, says it is shelving plans to sell electricity to residential customers in states that offer customer choice. It says the profit margins are too low. Instead, the company will market only to business customers, which provide higher returns and also buy other services, such as energy-use management.[5]

Finally, recent reports from Rhode Island state that fewer than 1,900 of the state's 456,000 residential electric customers switched providers in the first 12 months of competition.

Q. IS THE EXPERIENCE WITH NATURAL GAS RETAIL CHOICE COMPARABLE?

A. The natural gas experience to date is consistent with the electrical experience. Reports continue to be published about how competition has come to millions of Americans. A December 1998 report by the U.S. General Accounting Office (GAO), however, presents a somewhat different perspective. According to the GAO, as of July 1998, 34 gas utilities had natural gas retail access pilots with 15 million residential customers eligible to participate. Of those 15 million customers, however, only 553,000 (4%) had *actually* selected a gas marketer as a new supplier of gas.[6] Even that number is somewhat overstated, since four Pennsylvania programs account for one-third of all those participants.

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[4] ***475,000 Consumers Estimated to Switch***, 3 ***LEAP Letter***, at 6:19 (Nov./Dec. 1998).

[5] SnoPUD's ***Watt's in the News*** (Jan. 25, 1999).

[6] U.S. General Accounting Office (Dec. 1998). ***Energy Deregulation: Status of Natural Gas Customer Choice Programs***, GAO/RCED-99-30, U.S. General Printing Office: Washington D.C.

Q. WHY DO THESE PROBLEMS EXIST?

A. The NRRI recently considered the factors influencing consumer participation in natural gas retail choice programs. One important factor, NRRI found, involves "the willingness of third parties to enter a new market and provide services previously supplied by an incumbent utility."[/7/] This willingness, NRRI said, "in accordance with economic theory, depends on the firm's expected future profits." NRRI noted that "the profit margin for serving small retail customers is small." (Costello 1999: 19). It observed:

> A recent industry survey calculated that the cost of pursuing and signing one residential gas customer by a marketer is around $200, while the margin for that customer would average only $25 per year. This translates into an eight year payback period, which would discourage most marketers from entering the residential market.

(Costello 1999: 16).[/8/] Even if one accepts an acquisition cost of half this reported figure ($100), a $25 per year margin would provide an unreasonable payback period of four years.

Q. DOES THE PROBLEM ARISE SIMPLY FROM THE PERSPECTIVE OF THE SUPPLIER OF NATURAL GAS (OR ELECTRICITY)?

A. No. The failure of competition to protect the interests of small users, including low-income consumers, does not exclusively involve the economics of the industry. Consumer-side characteristics impede the realization of gains from competition as well. One California study

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/7/ Kenneth Costello (January 1999). ***Household Participation in Gas Customer Choice Programs: Some Facts, Explanations, and Lessons Learned***, at 16, National Regulatory Research Institute: Columbus, OH.

/8/ *Citing*, "Appeal of Residential Market Uneven as Suppliers Seek New Opportunities," ***Gas Utility Report***, at 9 (February 27, 1998).

identified "three distinct reasons" why consumers may not participate in a competitive market.[/9/]

- First, some consumers are simply not interested in making market decisions. This customer behavior involves routinized decisions, often based on habit purchases.

- Second, some customers do not seek to maximize their economic benefits. Instead, these consumers engage in what is called "satisficing." These customers engage in a process that "after considering to some degree the potential exchange, they conclude that the status quo is good enough, albeit not necessarily the best possible deal that they could get." This process of "satisficing" is particularly prevalent amongst small users, where maximizing benefits would nonetheless still yield small gains. (Stutz: 3-24).

- Third, market barriers exist that impede customer participation in the competitive market. These barriers include high information and transaction costs, the uncertainties involved with making assessments, and the efforts needed to be expended to switch providers. (Stutz: 3-25).

In addition to this California work, the highly variable participation rates in natural gas customer choice programs led the NRRI to consider *why* residential customers were not exercising their "right to choose" when choices were provided to them. In its January 1999 study, NRRI concluded:

- ". . .small customers such as households may find it more difficult and less beneficial than large customers to switch from their incumbent supplier." (Costello 1999: 4).

- ". . .customers [are] more likely to participate in a customer choice program when they expect to receive higher net benefits. Net benefits are inversely related to the price of third-party service relative to the utility's price, the cost of switching from the incumbent to another supplier, and the lower service quality anticipated by customers when switching to a third party." (Costello 1999: 16).

If small consumers are to be expected to participate in a competitive market --particularly low-income consumers with smaller benefits and higher risks-- a state will need to adopt

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[/9/] John Stutz, *et al.* (1996). ***Can We Get There from Here? The Challenge of Restructuring the Electric Industry so that We All Can Benefit***, Utility Consumers' Action Network: San Diego (CA).

specific policies to both enable and encourage such participation. It is not likely that small user participation will arise spontaneously as a market phenomenon, even if consumers are given the opportunity to choose.

Q. WHY IS THIS INFORMATION IMPORTANT IN CONSIDERING APPROPRIATE LOW-INCOME PROTECTIONS IN A COMPETITIVE NATURAL GAS INDUSTRY?

A. Basic economic theory tells us that when a firm faces two markets, one of which is competitive and one of which is not, the firm will tend to load costs on to the non-competitive market participants to maximize its revenue. Throughout the country today, this process is happening in telecommunications; it is happening in electricity; and it is happening in natural gas. Given the inability to pay of low-income consumers, this failure to evenly distribute price benefits further supports the need for a low-income programs supported through the New Jersey Societal Benefits Charge.

Q. IS THERE ANY EVIDENCE THAT A COMPETITIVE NATURAL GAS MARKET WILL FAIL TO DISTRIBUTE BENEFITS EVENLY AMONGST ALL NEW JERSEY CONSUMERS?

A. Exhibit RDC-2 presents information from New Jersey. As you can see in this Exhibit, while the ratio of residential-to-industrial rates was 1.4:1 in 1985, by 1996, that ratio had increased to 1.9:1. The increase was not caused by the fact that there was a fly-up in residential rates. In fact, there was not. ***Residential natural gas prices decreased by 4.4% from 1985 to***

1996; industrial prices, however, decreased by 30.7% in that time period. As can be seen, the small user market did not receive the benefits of lower gas costs that the large industrial users did.

PART 2:
THE SOCIETAL BENEFITS CHARGE COMPONENT OF NEW JERSEY'S NATURAL GAS RETAIL CHOICE LEGISLATION

A. The New Jersey Natural Gas Legislation.

Q. PLEASE DESCRIBE THE UNIVERSAL SERVICE FUND CONTEMPLATED BY NEW JERSEY'S NATURAL GAS RETAIL CHOICE LEGISLATION.

A. New Jersey's retail choice legislation provides for the creation of a Universal Service Fund (Section 12(b)). The legislation provides that the Board shall determine:

- the level of funding;
- the appropriate administration;
- the purposes and programs to be funded with monies from the fund;
- which programs should be provided as part of the provision of regulated services which provide a public benefit;
- whether certain designated funds should be deposited in the fund; and
- whether new charges should be imposed to fund new or expanded social programs.

The legislation mandates the creation of the fund. The Universal Service Fund is "established," not merely authorized. The Fund is made "nonlapsing." Furthermore, the Board's tasks are stated as mandatory obligations (*i.e.*, "the Board *shall* determine").

Q. PLEASE EXPLAIN THE LEGISLATION'S TREATMENT OF COLLECTION EXPENSES AND UNCOLLECTIBLE ACCOUNTS.

A. Section 12 of the New Jersey legislation provides that the cost of "social programs" may be collected through a Societal Benefits Charge imposed as a nonbypassable charged imposed on all electric and natural gas public utility customers, as appropriate. Section 3 of the legislation defines "social program" to include, but not be limited to, winter moratorium practices, practices concerning "bad debt" customers, deferred payment plans, and late payment and deposit practices.

B. The New Jersey Utility Response to the SBC Legislation.

Q. PLEASE CHARACTERIZE THE RESPONSE OF NEW JERSEY'S UTILITIES TO THE SOCIETAL BENEFIT CHARGE COMPONENT OF THE NEW JERSEY NATURAL GAS RETAIL CHOICE LEGISLATION.

A. None of the New Jersey natural gas utilities have performed the analysis necessary to allow a separate treatment of bad debt expenses, or of the expenses associated with late or partial payment of low-income residential bills.

South Jersey Gas has done nothing to develop low-income programs for consideration as part of the Universal Service Fund. The company has stated in response to data requests:

- It has developed "no formal plan. . .to date" to address the needs of low-income customers. (RAR-S-UN-098).
- No cost estimates have been developed for the Societal Benefits Charge, including the Universal Service Fund (RAR-S-UN-085).
- The company does not track low-income expenses for credit and collection, customer service, or establishing credit (RAR-S-UN-091), nor does it track uncollectibles for

low-income customers of have a "credible methodology" for estimating the low-income portion of uncollectibles. (RAR-S-UN-092).

- The company does not track arrears specifically for low-income customers. (RAR-S-UN-094).

New Jersey Natural Gas has not estimated SBC costs, including any Universal Service Fund programs, other than to estimate its share of a $30 million statewide consumer education program to be between $1.0 and $1.5 million. (RAR-N-UN-019; RAR-N-UN-044). New Jersey Natural Gas does assume that there *will* be "new USF and consumer education programs." (RAR-N-UN-023). The company has stated its support for low-income assistance programs. (RAR-N-UN-048). New Jersey Natural Gas has no plans to aggregate low-income customers. (RAR-N-UN-065). New Jersey Natural Gas does not:

- identify or track its low-income customers other than Low Income Home Energy Assistance Program (“LIHEAP”) recipients (RAR-N-UN-071).
- maintain the ability to attribute any particular portion of its uncollectible accounts to low-income consumers (RAR-N-UN-072).
- maintain the ability to attribute any particular portion of its arrears to low-income consumers (RAR-N-UN-074).
- In response to data requests, Elizabethtown has stated that: “The Company has no plans for a Universal Service Fund program.” (RAR-E-UN-083; RAR-E-UN-113).

- While it has no plans to institute an aggregation program, (RAR-E-UN-070), the company "is willing to explore a low-income aggregation program with the parties in this proceeding." (RAR-E-UN-083).
- It has not identified social programs other than its demand side management activities. (RAR-E-UN-074).
- The company does not track its low-income customers. (RAR-E-UN-076). Accordingly, it cannot attribute any portion of its uncollectibles to low-income consumers. (RAR-E-UN-077; RAR-E-UN-112). Nor can it attribute any portion of its arrears specifically to low-income consumers. (RAR-E-UN-079). It cannot attribute any portion of its collection costs to low-income consumers. (RAR-E-UN-111).
- The company has performed no evaluation of any means of improving the efficiency or effectiveness of its programs to assist low-income customers. (RAR-E-UN-120).

Public Service Electric and Gas (PSEG) refused to provide any estimates of any costs which should be included in any Universal Service Fund (RAR-P-UN-011). According to PSEG, the Board did not identify the content of and level to be included in the current SBC as issues to be addressed in this proceeding. (RAR-P-UN-046). It refused to provide information on any social programs which it currently offers. (RAR-P-UN-100). PSEG claims, however, that not withstanding its identification of LIHEAP customers, it:

- Does not classify customers by income and thus could not provide information on credit and collection costs, customer service, or establishing credit for its low-income consumers. (RAR-P-UN-102).

- Ë Cannot provide information on residential write-offs for its low-income consumers. (RAR-P-UN-103).
- Ë Cannot provide information on low-income arrears. (RAR-P-UN-105).

In sum, New Jersey's natural gas utilities have not provided affirmative proposals in response to either the provision that certain embedded costs be unbundled into a Societal Benefits Charge or the provision that the Board "shall establish" a Universal Service Fund and determine its funding.

Part 3:
The Cost of Providing a Universal Service Program to Low-Income New Jersey Natural Gas Customers.

A. Program Components.

Q. WHAT COMPONENTS SHOULD COMPRISE A UNIVERSAL SERVICE PROGRAM SERVING LOW-INCOME CUSTOMERS IN NEW JERSEY?

A. Serving low-income customers in New Jersey should include the following three substantive components: (1) affordable rate assistance; (2) crisis intervention assistance; and (3) energy efficiency assistance. In addition, of course, there will need to be some provision for the costs of administering the program.

Q. WHAT WOULD BE THE COST OF OPERATING AN AFFORDABLE RATE PROGRAM IN NEW JERSEY?

A. The costs of an affordable rate program in New Jersey are presented in Exhibit RDC-3. As can be seen, the costs of reaching 50 percent of all eligible customers would reach roughly $21.0 million. Based on my experience with the design and implementation of low-income programs, a fifty percent participation rate is a reasonable estimate of the actual participation that will occur. Not all consumers who are eligible will participate in an assistance program. Because of this, no state that has adopted a low-income assistance program has assumed a 100% participation rate.

Q. WHAT TYPE OF RATE AFFORDABILITY PROGRAM HAVE YOU ASSUMED FOR PURPOSES OF YOUR COST CALCULATIONS IN NEW JERSEY?

A. In calculating the costs presented above, I have assumed that there is a tiered discount program based in large part on the natural gas discount program adopted by the D.C. Public Service Commission for Washington Gas Light Company. This tiered rate discount involves an income-based straight rate discount for low-income consumers. Through such a program, New Jersey's distribution gas utilities would offer a discounted rate to income-eligible households. The rate would vary depending upon the participant's federal Poverty Level. A customer living at 50 percent of the federal Poverty Level, in other words, would pay a smaller percentage of a monthly bill than a customer living at 100 percent of the Poverty Level. A tiered rate discount is not the only rate model available. I recommend that the Board's decision at this point in time be limited to committing the state to implementing a rate affordability program, with the budget I recommend above, by a date certain. Actual program

design and implementation based on that budget can be based on any number of models used throughout the country, subject to future Board approval.

Q. WHAT IS THE COST OF A CRISIS INTERVENTION COMPONENT?

A. The federal LIHEAP statute provides that states are to reserve "a reasonable amount" of their total LIHEAP funds for emergency crisis intervention. In complying with that statute, the State of New Jersey earmarks six percent of its overall heating assistance for those purposes. Deferring to the institutional expertise of the state LIHEAP agency in planning for crisis intervention needs, I recommend crisis intervention funding of $1.3 million (6% of the $21.0 million rate affordability component).

Q. HOW WOULD THESE FUNDS RELATE TO THE NEW JERSEY SHARES PROGRAM?

A. New Jersey SHARES is a statewide fuel assistance fund designed to offer financial help to individuals and families living in the state who are in need of temporary aid in paying their energy bills. New Jersey SHARES grants are targeted to non-welfare residential customers who have short-term financial difficulties, have exhausted all other available resources, and who cannot pay their energy bills. According to the program announcement, while 151,000 New Jersey households in 1997 lost their energy service because of past-due energy bills, existing energy funds in New Jersey can serve only about 4,000 families per year. New Jersey SHARES is funded principally by a $1.0 million start-up grant from PSE&G. It would be reasonable to administer additional crisis funding generated by my recommendation above

through New Jersey SHARES and to credit existing contributions by New Jersey's incumbent utilities (adjusted for fuel type) against any future payment obligation.

Q. WHY SHOULD A TOTAL COST FIGURE FOR SERVING LOW-INCOME CUSTOMERS INCLUDE AN ENERGY EFFICIENCY COMPONENT TO IT?

A. In addition to the need for affordable rate assistance, a significant number of low-income households in New Jersey are in need of energy efficiency improvements. Assuming that the number of low-income natural gas heating customers in New Jersey reflects the population overall in the state, roughly 60 percent (216,000) of the state's low-income customers will be natural gas heating customers.

The regulated monopoly distribution companies will be the provider of last resort in New Jersey. This provider of last resort will serve low-income customers who have lost energy service from a competitive service provider for any reason (including nonpayment). Experience in other states has demonstrated that an appropriately developed energy efficiency program can help control the costs of operating that provider of last resort for low-income customers. Appendix A is a chapter out of a book I wrote on designing and funding low-income energy efficiency programs. This chapter summarizes the then-existing research on the non-energy benefits from low-income energy efficiency.

Low-income energy efficiency programs, in other words, result in substantial non-energy savings to utilities. These non-energy savings include reductions in working capital expense, uncollectible accounts, credit and collection expenses, and the like. The results of one of the most recent studies are summarized in Exhibit RDC-4. This Exhibit shows the results of the

Pennsylvania Low-Income Usage Reduction Program (LIURP) for all Pennsylvania utilities. The Exhibit presents pre-treatment and post-treatment payment patterns for the low-income households to whom energy efficiency was delivered. A payment of less than 100 percent means that the low-income household was not even paying the current month's utility bill. In contrast, a payment *exceeding* 100 percent means that the low-income household was not only paying the current bill, but was paying off its arrears as well.

As Exhibit RDC-4 shows, for every Pennsylvania utility but one, the delivery of energy efficiency substantially improves the payment patterns of the treated low-income households. Indeed, the general impact of the delivery of energy efficiency was a *substantial* increase in the payment coverage of the household energy bill. In most cases the low-income household moved from a situation where that customer was falling further and further behind by failing to pay the current bill to a situation where the household was paying the entire current bill and beginning to retire the arrears.

Q. WHY NOT RELY ON THE FEDERAL WEATHERIZATION PROGRAM TO TREAT THESE LOW-INCOME HOUSEHOLDS WITH ENERGY EFFICIENCY MEASURES?

A. There are roughly 360,000 low-income households in New Jersey. Since 1989, I estimate that roughly 70,000 of those households have received non-utility-funded weatherization treatment through the state's weatherization program, leaving 290,000 households yet to be treated. Assuming an average number of 5,000 households treated each year through the

weatherization program, it becomes clear that the state's low-income weatherization program is inadequate to treat the state's low-income consumers.

Q. WHAT IS THE APPROPRIATE COST TO BE ASSIGNED TO THE ENERGY EFFICIENCY COMPONENT OF SERVING LOW-INCOME CONSUMERS?

A. A commitment of 0.2% of revenue in New Jersey would generate roughly $5.7 million a year to be used statewide for low-income energy efficiency.[/10/] That figure is a reasonable figure.

Q. WHAT IS THE TOTAL COST OF A NATURAL GAS UNIVERSAL SERVICE PROGRAM?

A. The total statewide cost is $28.0 million, before administrative costs. The $28.0 million includes the following components:

Program Component	Cost
Rate affordability:	$21.0 million
Crisis Intervention:	$1.3 million
Energy Efficiency	$5.7 million
Total Program Costs:	$28.0 million

/10/ Total 1995 natural gas revenues in New Jersey reached $2.838 billion, as follows: residential: $1,413.5 million; commercial: $800.4 million; industrial: $623.9 million. 1995 data is the most recent data available. U.S. Energy Information Administration (August 1998). ***State Energy Price and Expenditure Report: 1995***, at Table 192 - Table 194, pages 202 - 204, U.S. Department of Energy: Washington D.C.

Q. WHAT ADMINISTRATIVE COST SHOULD BE INCLUDED IN THE UNIVERSAL SERVICE FUND?

A. An administrative cost not to exceed 10% of the total program costs is a reasonable expense. Given a total program expense of $28.0 million, the administrative expense would thus be $2.8 million.

Q. WHAT DO YOU RECOMMEND?

A. I recommend that the Board create a natural gas Universal Service Fund. The total statewide budget for such a fund should be $30.8 million. This should be comprised of four components: (1) $21.0 million for affordable rate assistance; (2) $1.3 million for crisis intervention assistance; (3) $5.7 million for energy efficiency assistance; and (4) $2.8 million for administrative expenses.

The affordable rate assistance provided through such a fund should be structured so that the benefits made available to low-income customers are portable between competitive service providers. This ability for customers to carry their affordable rate assistance with them is necessary to promote a healthy competitive market for low-income consumers. Indeed, one advantage of the mechanism I have used to calculate the costs of low-income consumers in my testimony is its ease in being converted to a "fixed credit" that can be applied against a bill, irrespective of who the service provider might be.

Q. WHAT LEVEL OF SURCHARGE WOULD BE NECESSARY TO GENERATE THIS UNIVERSAL SERVICE FUND?

A. Total 1995 statewide natural gas retail revenue in New Jersey in 1995 (the most recent year for which I have data) was $2.838 billion.[/11/] The total low-income universal service program would thus represent 1.1% of retail revenues. This places a New Jersey natural gas universal service program in the middle of the range of universal service Societal Benefits Charges around the nation.

B. The Consumers Benefitting from the Universal Service Program.

Q. PLEASE DESCRIBE THE NEW JERSEY POPULATION THAT WOULD BENEFIT FROM YOUR RECOMMENDED UNIVERSAL SERVICE PROGRAM.

A. New Jersey has a substantial, and concentrated, population of low-income consumers, many of whom live at the lowest subsistence levels of income. New Jersey has nearly 1.0 million persons (15% of all New Jersey residents) living at or below 150 percent of the federal Poverty Level. Of these persons, roughly 30% live below 50% of the federal Poverty Level, while another 30% live between 50% and 100% of the federal Poverty Level. The 1999 federal Poverty Level by household size is set out in Exhibit RDC-5. The distribution of households by Poverty Level in New Jersey is presented in Exhibit RDC-6.

/11/ U.S. Energy Information Administration (August 1998). ***State Energy Price and Expenditure Report: 1995***, at Table 192 - Table 194, pages 202 - 204, U.S. Department of Energy: Washington D.C.

Q. IS THERE A GENERALLY ACCEPTED MECHANISM TO USE IN MEASURING THE DIFFICULTY THAT LOW-INCOME CONSUMERS HAVE IN PAYING THEIR HOME ENERGY BILLS?

A. The generally accepted measure of inability-to-pay involves "energy burden." A household's energy burden is the household energy bill divided by the household income. Energy burden is used as the measure of inability-to-pay at both the state and federal levels. The federal LIHEAP, for example, is statutorily directed to target the highest level of benefits to households with the lowest incomes and the highest energy burdens. In addition, virtually every state adopting a low-income rate affordability program uses energy burden as the mechanism to target benefits.

Q. PLEASE CHARACTERIZE THE OVERALL ENERGY BURDEN THAT NEW JERSEY'S LOW-INCOME CONSUMERS FACE.

A. New Jersey's low-income consumers currently bear non-sustainable energy burdens. Because of these burdens, low-income consumers can be expected to experience arrears, be subject to credit and collection efforts, have their service disconnected, be forced to make unreasonable budget decisions between competing household necessities (*e.g.*, heat or eat), and be forced to engage in a wide variety of dangerous and/or unhealthy activities in an effort to keep paying their utility bills./12/ In addition, these energy burdens have been found to represent an impediment to low-income consumers taking constructive actions to address

/12/ *See*, Roger Colton (June 1999). ***Measuring LIHEAP's Results: Responding to Home Energy Unaffordability***, Fisher, Sheehan and Colton, Public Finance and General Economics: Belmont, MA.

their inability-to-pay. In a recent (June 1999) study I did of low-income responses to an inability-to-pay home energy bills, I found:

> Low-income customers, however, frequently have little incentive, and even fewer choices, to pursue one of these constructive responses to bill unaffordability. Enrolling in an energy efficiency program to reduce high bills on a going-forward basis, for example, does not help pay the existing arrears unless coupled with a reasonable long-term deferred payment plan. Conversely, agreeing to a deferred payment arrangement does not address affordability on a going-forward basis unless some adjustment can be made in either the level of the bill or the level of household resources available to pay for the bill.
>
> All too frequently, the customer is faced with an immediate need (*i.e.*, bill payment by a date certain) with the available constructive responses to an inability-to-pay unable to deliver assistance either in the form, the time period, or the magnitude necessary to meet that need. Given the immediate consequences of failing to address the short-term nonpayment crisis, the customer is pushed into the negative actions identified in this research. (Colton 1999: 12 - 13)

Q. HAVE YOU QUANTIFIED THE ENERGY BURDEN FACING NEW JERSEY'S LOW-INCOME CONSUMERS?

A. Exhibit RDC-7 shows natural gas burdens for New Jersey's LIHEAP recipients for the years 1987 through 1995. Data for 1995 is the most recent LIHEAP data available. As can be seen, natural gas burdens have remained high and relatively steady for the LIHEAP population in the ten year study period.

Use of an average burden in this analysis, however, masks the problems which those lowest income households experience. The 1995 energy burdens experienced by households at various income ranges in New Jersey are set forth in Exhibit RDC-8. This Exhibit shows, as well, that substantial numbers of consumers live in those lower income brackets. As can be

seen, nearly 110,000 of New Jersey's 165,000 total LIHEAP recipients in 1995 had natural gas burdens of 10% or higher.

Q. PLEASE EXPLAIN WHY YOU CONCLUDE THAT THESE ENERGY BURDENS ARE NON-SUSTAINABLE.

A. According to the U.S. Department of Housing and Urban Development (HUD), a household experiencing total shelter costs in excess of 30 percent of income is likely to be over-extended. Total shelter costs include housing (rent or mortgage) plus the cost of all utilities except telephones. A consumer who pays 10 or 20 percent or more of his or her income for utility costs is not going to experience *total* shelter costs of 30 percent or less. Note again, also, that the energy burden I discuss here is exclusively the natural gas burden. In fact, low-income electric non-heating consumption represents roughly 60 - 65 percent of total low-income bills. A household with a natural gas burden of 15% will thus have a *total* home energy burden (including electricity) that is much higher.

Q. WHAT DO YOU CONCLUDE?

A. The need for universal service assistance is great in New Jersey, both in terms of dollars and in terms of the number of households in need. With many of these households, the need for assistance cannot be alleviated through reduced bills generated by improvements in energy efficiency. Given the income of these households, virtually *any* energy bill will impose unaffordable burdens. Moreover, the energy problems of these households are not household budgeting problems. There is, instead, an absolute mismatch between household resources

and expenses. Given the energy burdens facing low-income households, there will be an inevitable need for a crisis intervention fund to prevent the loss of service due to inability-to-pay.

Part 4: The Need to Encourage and Facilitate Low-Income Aggregation.

Q. PLEASE EXPLAIN THE ROLE OF AGGREGATION IN BRINGING THE BENEFITS OF A COMPETITIVE NATURAL GAS INDUSTRY TO LOW-INCOME CONSUMERS.

A. Aggregation will be necessary to ensure that the full benefits of competition are brought to low-income consumers. Aggregation, however, will not just happen. Instead, specific steps must be taken so that aggregation will occur. In addition, Universal Service Programs will be necessary.

Q. WHAT IS YOUR EXPERIENCE WITH THE AGGREGATION OF LOW-INCOME CONSUMERS?

A. I have been an active supporter of low-income aggregation around the country. I am, for example, a member of the Technical Development Team charged with helping to create a Consumerco in the State of Vermont (my particular role is to design the low-income aspects of Consumerco.) I co-authored a report on aggregation for LIHEAP sub-grantees in Minnesota. I am part of the advisory board for a statewide low-income aggregation project in New York. I authored a report on the parallels between state health care purchasing pools and electric aggregation.

Q. WHAT ARE OTHER STATES DOING TO PROMOTE AGGREGATION?

A. Vermont is one of the leading states in promoting the aggregation of low-income consumers. In November, 1997, the State of Vermont received a "REACH" grant from the U.S. Department of Health and Human Services (HHS) to fund the development of a Consumerco. According to the grant proposal, "the VT/REACH project will recruit and serve LIHEAP recipients as charter members of a "Consumerco" -- a not-for-profit buyers' cooperative offering comprehensive energy services at competitive prices to all consumers regardless of income. The project will help build and launch the Consumerco as a self-sustaining competitive enterprise. . ." In addition, the Vermont effort set forth as specific objectives to:

1. Create and demonstrate the viability of a consumer-owned competitor providing least-cost energy services to low-income consumers by aggregating electricity and fuel demand and by optimizing energy choice and energy efficiency.

2. Develop and demonstrate the effectiveness and economies of integrating comprehensive energy supply aggregation with fuel, weatherization, and efficiency programs and a consolidated affordable payment plan provided through the "Consumerco".

3. Maximize membership of Vermont's 11,500 LIHEAP recipients in Consumerco with the objective of recruiting 75% of LIHEAP recipients by year three, in part by offering enhanced, customized services to 1,000 low-income consumers with the heaviest energy burden.

The Vermont Agency of Human Services (AHS), through the Fuel Assistance Office and the State Office of Economic Opportunity, is directing the Vermont REACH project.

The State of Ohio has been active in its promotion of low-income natural gas aggregation. The Ohio PUC Order No. 98-593-GA-COL (6/18/98) which evaluates the unbundling programs in effect for the three of its state’s natural gas utilities include a section on the PIPP

Customer Aggregation requirements. PIPP customers are low income households with yearly household income at or below 150% of the federal poverty level. *See*, PIPP term sheet attached. According to the Order, the LDCs are to issue a request for proposals from marketers to provide gas commodity to PIPP customers on an aggregated basis. The PUC staff must be provided with all information necessary to evaluate the PIPP supplier bidding processes undertaken by each LDC. The Order also requires the LDCs to design RFPs to reflect alternative forms of bidding for the PIPP load other than a straight percentage discount from the EGC/GCR (Expected Gas Costs/Gas Cost Recovery). The percentage of income payment plan (PIPP) customers of Columbia Gas, for example, were pooled together and bid out to competing suppliers. Columbia purchased the gas for its PIPP customers and retained the meter reading and billing functions. It also continued to provide and charge for transportation services. Arrearages went on Columbia's books, not the supplier's. The winning bid for the Columbia Gas PIPP customers was 12 percent below Columbia's Expected Gas Cost. In a report on the initial eight months of the pilot, Columbia said that PIPP customers saved an average of 7.1 percent off the bill they otherwise would have received. (The total savings is less than 12 percent since the 12% is off the Expected Gas Cost portion of the bill, not off of the total bill.) According to state LIHEAP officials, the aggregation project works "seamlessly" with LIHEAP and PIPP. While PIPP customers still pay their required percentage of income, the lower gas price means the LIHEAP benefit goes further and more households can be served.[/13/]

/13/ LIHEAP is paid to help offset the difference between the customer's percentage of income payment and the "full" bill. If the full bill is lower, fewer LIHEAP dollars are necessary to help offset that shortfall.

Similarly, Columbia Gas Company has implemented an aggregation project for its low-income consumers in Pennsylvania. Columbia Gas issued an RFP for competitive service providers to provide natural gas to consumers participating in its Customer Assistance Program (CAP). CAP is the Columbia Gas discount utility rate for low-income payment-troubled consumers. Competitive bids were required to be below the company's bundled cost of gas. The company received the competitive bids for its CAP participants and made the selection of the gas supplier. Consumer research done for the company indicated that customers would prefer to obtain the savings rather than to have the power to select their own competitive service provider. The aggregation benefitted consumers not only through the reduction in price of natural gas, but because consumers did not pay state taxes on the gas supplies procured in such a fashion.

In its electric restructuring legislation, Connecticut enacted a state power pool purchasing requirement to benefit its low-income consumers. The Connecticut electric restructuring legislation provides that when the State buys electricity for state facilities, it will allow any household with at least one member receiving a means-tested public assistance benefit to buy electricity at that same price. The state purchasing pool concept offers the same advantages as does a municipal aggregation pool. It allows for the dilution of credit risks; a mix of load factors; greater bargaining power due to size; the spreading of fixed administrative costs over larger numbers of customers; and a specific focus on low-income needs.

Finally, this state purchasing pool concept is similar in nature to the aggregation pilot pursued by National Fuel Gas in New York. In the National Fuel Gas pilot (called Public Assistance Cooperative for Energy--PACE), Chautauqua and Erie Counties aggregated approximately

8,000 vouchered public assistance recipients.[14] The counties purchased the natural gas from the marketer and passed along savings to the public assistance recipients. The counties coupled the low-income demand with other municipal load. The counties were given access to cheaper transportation gas through a special tariff. The utilities continued to handle the billing. According to officials, participants received savings of about $120 per year, or about 10% of the average participant's annual gas bill.

Q. IS THERE A COMMON THREAD RUNNING THROUGH SUCCESSFUL AGGREGATION PROJECTS?

A. Yes. The common thread is active state support and involvement in the aggregation effort. This thread is not surprising. As I found in research in Minnesota, low-income consumers will have extreme difficulty in implementation of a successful aggregation initiative without state help. In Minnesota, the Energy Cents Coalition, a statewide low-income advocacy coalition based in Minneapolis, received a contract to develop an aggregation project for LIHEAP subgrantees. In turn, the Energy Cents Coalition asked me to help them work through the aggregation process. As part of the Minnesota project, we developed a list of the tasks involved with an aggregation project for LIHEAP sub-grantees. That list is attached as Exhibit RDC-9. It became clear that aggregating for electric purchases is no simple endeavor. Several layers of expertise are required, including: (1) an expertise to determine load characteristics for proposal solicitation; (2) a technical expertise to help review RFP

[14] "Vouchered" customers are entitled to a monthly energy allowance from the state. Because they are "vouchered," however, their natural gas bill is paid as billed each month by the respective county Department of Social Services. Their energy allowance is then deducted from their monthly public assistance grant.

responses; (3) an expertise (and experience) in contract negotiation; and (4) a legal expertise in developing and reviewing contract documents. It became abundantly evident that not only did the LIHEAP sub-grantees not have the in-house expertise to engage in aggregation, they did not have the financial resources to *procure* the necessary expertise to successfully "aggregate."

Q. BASED ON THIS DISCUSSION, WHAT DO YOU PROPOSE?

A. I recommend two natural gas aggregation initiatives in New Jersey. First, I recommend that the Board of Public Utilities require each New Jersey natural gas utility to develop a low-income aggregation pilot project. The pilot project can take any one of several forms: (1) it can involve the competitive procurement of gas supplies for LIHEAP or universal service fund recipients in particular, as per the Columbia Gas--Pennsylvania pilot project; (2) it can involve the competitive procurement of natural gas for low-income consumers matched with the procurement of gas for public sector agencies (ranging from the state of New Jersey to school districts or local governments) as per the Connecticut or National Fuel Gas models; or (3) it can involve some original pilot design of the company's determination. My recommendation is not to require a specific design, but rather to require each company to file in the rebuttal testimony, a pilot natural gas aggregation proposal with the low-income component to the aggregation proposal explicitly spelled out. The pilot need not involve exclusively low-income consumers. Indeed, a growing body of opinion is that aggregation should *not* involve exclusively low-income consumers. It should, however, have a low-income component to it.

Second, it is evident that other states have found that to encourage aggregation, there must be a commitment of legal and technical expertise to assist low-income efforts. In order to address the market problems identified above, and in order to encourage aggregation, I recommend that an Assistance in Aggregation Project ("AAIP") be created to provide training on techniques of packaging energy projects; provide seminars, and help identify specific aggregation opportunities; assist in the development of small user aggregation entities; and help aggregators navigate the regulatory and contractual environment. The AAIP can work in conjunction with the Ratepayer Advocate to assist the aggregation of small users (including residential consumers generally, low-income residential consumers, and small business). The AAIP may include members of Community Action Organizations or other consumer organizations with staff members that are familiar with the needs of the the low income or depressed areas in the State.

Q. WHAT COST DO YOU ATTRIBUTE TO SUCH AN AGGREGATION ASSISTANCE PROJECT?

A. I recommend that the Board issue an order that the program should meet a hurdle rate of 30%.[/15/] Let us assume, for application to New Jersey, an acquisition cost of $100 per residential natural customer. Amortized over three years, that represents an acquisition cost

[/15/] This represents a cost/benefit ratio of 1.3:1, meaning that each $1 of expenditure returns $1.30 in benefit.

of $33 per year.[16] Let us finally assume that the roughly 110,000 participants in the universal service fund will be aggregated. This yields a total AAIP budget of:

(110,000 x $33) / 1.3 = $2.8 million

Q. IS THERE ANY PRECEDENT FOR PROVIDING SUCH ASSISTANCE?

A. The services provided by an assistance in aggregation program are just like the services provided by many state housing agencies. Those agencies provide legal, technical and administrative support to negotiate housing tax credits, work through bonding requirements, and the like. Similarly, the Ratepayer Advocate can lend its expertise to the AAIP to assist in the drafting of model RFPs, analyzing responses, and developing of model contract terms. State housing agencies frequently: (1) provide training to local and regional housing service providers on techniques for packaging of housing projects; (2) assist local communities in the development of affordable housing by coordinating local housing seminars that bring together local government agencies, housing providers, developers, realtors, and private lenders to identify specific actions that communities can take to produce affordable housing; and (3) provide information and strategies to assist private and public housing developers successfully navigate the local and federal regulatory environment to complete housing development in a more timely manner. An AAIP with the Ratepayer Advocate would provide similar services, albeit in the field of procuring affordable energy rather than in the field of developing affordable housing. It would provide training on techniques of packaging energy projects; provide seminars and help to identify specific aggregation opportunities; assist in the

[16] A 30% annual churn rate for low-income residential customers would yield a three year amortization period.

development of small user aggregation entities; provide program-specific training; and help aggregators navigate the regulatory and contractual environment.

Part 5:
Tracking the Impacts of Natural Gas Retail Choice.

Q. PLEASE EXPLAIN WHY THE BOARD OF PUBLIC UTILITIES SHOULD IMPLEMENT A PERFORMANCE TRACKING PROGRAM.

A. Much research predicts that low-income consumers will be *adversely* affected by natural gas restructuring. As I testify above, that analysis suggests that low-income consumers will be excluded from the market or limited in their participation by means of exclusionary credit policies or limitations on the nature and the extent of the service available to them. Moreover, this research warns that low-income consumers face the risk that cost-shifting and lack of market power will result in rates increasing to captive customers.

Irrespective of what predictions analysts make, however, they remain nonetheless just predictions. Accordingly, I propose two sets of indicators, the first of which measures the impacts of natural gas restructuring on low-income consumers generally, and the second of which measures the impacts of natural gas restructuring on the attainment and maintenance of universal service in particular. This proposal imposes minimal costs for reporting and no immediate requirement for legislative or regulatory action. It is a reporting requirement which allows policymakers (and others) to stay informed on the impacts which restructuring has on vulnerable classes. I describe each of the sets of metrics below.

Q. WHY SHOULD SUCH A SERIES OF MEASUREMENTS BEGIN IMMEDIATELY?

A. The measurements are useful when used to determine the change in performance over time. The measures are not designed to measure performance in some absolute sense (as by comparing them to some industry average, or to some industry benchmark). The purpose of the metrics is to establish a baseline of data at the start of retail choice and to monitor performance relative to that baseline as retail choice develops.

Q. ARE THE PERFORMANCE MEASUREMENTS ADEQUATE, STANDING ALONE, TO ADDRESS UNIVERSAL SERVICE CONCERNS, WITHOUT ADOPTION OF THE UNIVERSAL SERVICE PROGRAMS THAT YOU RECOMMEND?

A. No. The universal service programs I recommend above are designed to address specifically identified problems. In contrast, the data collection only allows New Jersey regulators to track performance. It should not be used as a reason to avoid immediately implementing necessary low-income protections.

A. Tracking the Impacts on Low-Income Customers.

Q. PLEASE DESCRIBE THE FIRST REPORTING MECHANISM THAT YOU RECOMMEND THE BOARD ADOPT.

A. During the period of January 1999 through May 1999, I conducted a research project for the U.S. Department of Health and Human Services, Administration for Children and Families (HHS/ACF). HHS/ACF is the office that administers the federal Low-Income Home Energy Assistance Program (LIHEAP) at the federal level. LIHEAP is the federal fuel assistance

program. As part of this research, I engaged in extensive conversations with a range of state fuel assistance administrators, local community action agencies (which administer both LIHEAP and weatherization), community-based advocates, consultants, state regulators (and their staffs), and others involved with low-income energy issues (*e.g.*, U.S. Department of Energy). The individuals with whom I conversed were familiar with electric restructuring issues. While my research was limited to electric restructuring, the lessons learned from the process are equally applicable to natural gas competition. A copy of my final report to HHS/ACF is attached as Appendix B to this testimony.

Because the full report is attached, I will merely summarize the three impacts which I identified: (1) the impacts on the accessibility of low-income consumers to service; (2) the impacts on customer service; and (3) the impacts on rates.

Q. PLEASE EXPLAIN THE IMPACTS OF NATURAL GAS COMPETITION ON LOW-INCOME ACCESS TO SERVICE.

A. In my report for HHS/ACF, I concluded that from a low-income perspective, access to service involves the opportunity to obtain electric service reasonably free from the risk of involuntary service loss. In addition, a low-income consumer should have the opportunity to take levels of service comparable to the non-low-income population. A low-income person should, also, have an opportunity to participate in the competitive market equal to that of the non-low-income consumers. The indicators I developed to measure "access" as it is defined here included the following:

Indicator #1: **<u>Involuntary termination of service for nonpayment</u>:** This indicator measures a failure in connection to the electric system, considered by many to be a key indicator of affordability. The indicator examines disconnection from the system; contract terminations are considered elsewhere.

Indicator #2: **<u>Service entering the winter heating season</u>:** This indicator measures access at a time when consumers are particularly vulnerable.

Indicator #3: **<u>Type of service provided</u>:** This indicator measures whether consumers are being provided access to the same types of service. Offering restricted types of service such as prepayment meters and service limiter adapters is deemed to be unequal access to service.

Indicator #4: **<u>Participation in the competitive market</u>:** This indicator measures both the opportunity to participate in a retail choice industry and the actual exercise of retail choice. Providing the opportunity to choose does not necessarily lead to the actual exercise of choice. Moreover, for purposes here, non-participation is *defined* to include the cancellation of contracts, even if the consumer does not go entirely without service as a result.[/17/]

As I explained in more detail in the full report, the rationale for the four performance indicators proposed above lies with three low-income concerns. First, low-income service providers frequently express concern that a move to a competitive electric industry will have adverse impacts on universal service. The second concern that low-income service providers express is that low-income customers will not, or will not be able to, freely participate in the competitive market, either individually or through aggregation. Finally, concern has been expressed that low-income consumers will be moved into a lower tier of service by those companies providing service. This service will be marked by quasi-collection devices such as prepayment meters,[/18/] as well as by lesser quality service such as service limiter adapters.[/19/]

/17/ For example, the consumer could be defaulted to a provider of last resort.

/18/ A prepayment meter consists of a meter which operates using a "credit card" inserted by a utility consumer. The consumer purchases might occur at the utility company, or a local drug store, at any other utility pay station, or by mail. Existing prepayment meters provide for the purchase of electricity in blocks of dollars. A consumer, in other (continued...)

Each of the concerns expressed by those with whom I worked to develop the HHS/ACF report are potential problems in a natural gas retail choice environment.

Q. PLEASE EXPLAIN THE IMPACTS OF NATURAL GAS COMPETITION ON THE QUALITY OF CUSTOMER SERVICE.

A. In my report for HHS/ACF, I concluded that reasonably adequate service includes a full range of supportive customer services in addition to merely the supply of energy. Low-income-specific services such as crisis fuel funds, low-income energy efficiency programs, and rate discounts are examples. Services also include offerings such as shutoff protections during extreme (*e.g.*, hot, cold) weather as well as the provision of personal contact through customer service representatives.

I proposed six indicators to track the impacts of electric competition on the provision of reasonably adequate service. Again, these indicators are equally applicable to natural gas restructuring:[/20/]

[/18/](...continued)
words, might purchase $50 of natural gas rather than purchasing blocks of energy (*e.g.*, purchasing 500 kWh which happens to cost $x). A prepayment meter operates through use of a plastic card. The consumer purchases a designated amount of energy from a local vendor which amount is then encoded on a magnetic strip on this card. The card is then inserted into the home electric meter which will operate until the purchased amount of energy is exhausted. At that time, all energy through the meter is blocked. Prepayment meters do not address inability-to-pay problems of low-income consumers. Rather than addressing inability-to-pay, the cards tend to "hide" service disconnections.

[/19/] A service limiter adapter is a device attached to a consumer's meter which limits the maximum amount of energy used by the consumer at any point in time. Service limiter adapters are seen by low-income advocates as a degraded tier of service, often imposed with no corresponding discount provided to reflect the lesser quality. Moreover, service limiters are often viewed as inappropriate for low-income consumers who do not have the ability to control the inefficiencies of their homes and/or appliances.

[/20/] Traditional reliability quality of service measures are not included because they do not meet this test. While of as much concern to low-income consumers as they are to all consumers, they are not of *particular* or specialized (continued...)

Indicator #5: **<u>Crisis fuel funds</u>:** This indicator measures the provision of crisis assistance funding as a means to prevent the disconnection of service due to nonpayment.

Indicator #6: **<u>Low-income rate discount</u>:** This indicator measures the provision of bill affordability assistance in the form of discount rates or bills.

Indicator #7: **<u>Low-income energy efficiency</u>:** This indicator measures the provision of bill affordability assistance in the form of energy efficiency investments.

Indicator #8: **<u>Extreme weather shutoff protections</u>:** This indicator measures the provision of shutoff protections at times during which consumers exhibit particular vulnerability to harms resulting from the loss of service.

Indicator #9: **<u>Customer service contacts</u>:** This indicator measures the provision of individual contact with a company in a manner reasonably designed to resolve payment and other customer service problems in a timely fashion.

Indicator #10: **<u>Basic background data</u>:** This indicator measures certain background information providing insights into the basic ongoing operation of retail choice within a state.

As I explained in more detail in the body of my report, the most salient features of low-income "service" that can be directly measured involve the participation of service providers in explicit low-income protections. Four service offerings are measured in these performance indicators, including crisis funding through fuel funds; low-income rate or bill discounts; low-income energy efficiency; and extreme weather shutoff protections.

In addition, aside from basic affordability service issues, low-income service providers have expressed concern about access to basic *supportive* services such as company offices where

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/20/(...continued)

concern to low-income consumers. *See generally*, Barbara Alexander (April 1996). "How to Construct a Service Quality Index in Performance-Based Ratemaking," ***The Electricity Journal*** 46, 48 - 49.

personal contact can be made with customer service representatives, community offices where low-income customers without checking accounts can make cash payments, and adequate telephone customer service representatives to ensure prompt and appropriate responses to telephone service inquiries. In considering quality of service, it is important to realize that low-income service concerns are not simply that restructuring may threaten the *existence* of supplemental customer services. It is rather that the quality of the service or the time required to obtain the service may degrade as well. Each of the concerns expressed by those with whom I worked to develop the HHS/ACF report are potential problems in a natural gas retail choice environment.

Q. PLEASE EXPLAIN THE IMPACTS OF NATURAL GAS COMPETITION ON THE RATES PAID BY LOW-INCOME CONSUMERS.

A. In my report for HHS/ACF, I concluded that the pricing of service depends on more than the price per unit of energy charged by a service provider. In addition to the unit price of energy, least-cost service pricing implicates all of the various fees that might go into a consumer's total bill. These would include, for example, the supplemental customer service fees a service provider might charge. Least-cost service pricing is affected, as well, by the proportion of the total bill that a customer is capable of controlling. Accordingly, the proportion of the total bill that is collected through fixed charges that do not vary based on consumption (*e.g.*, a fixed customer charge, a fixed minimum bill) is an important aspect of service pricing.[/21/]

[/21/] In this respect, "fixed monthly bills" refer to charges for current usage, not to some fixed minimum payment on arrears that are frequently included in deferred payment arrangements.

I proposed three indicators to track the impacts of electric competition on least-cost service pricing:

Indicator #11: **<u>Per Unit Prices</u>:** This indicator measures the bill experienced by a consumer based solely upon the per unit price of energy. Pricing is normalized for consumption levels.

Indicator #12: **<u>Fixed monthly charge</u>:** This indicator measures the extent to which consumers may reduce their home energy bill by reducing consumption.

Indicator #13: **<u>Supplemental customer service fees</u>:** This indicator measures the risk of consumers experiencing a total bill consisting of a per unit price supplemented by a variety of unbundled service fees.

As I explained in more detail in the body of my report, the rationale for the indicators regarding a low-income consumer's service pricing are reasonably straightforward. The indicators measure bills based on uniform consumption amounts as a means to determine whether unit prices are increasing, decreasing, or remaining constant. In addition, the indicators recognize that the total bill is not simply the per unit of energy charge, but includes a fixed monthly customer charge (or a minimum bill) as well as any fees for supplemental customer services.[/22/]

The fixed monthly charge is important in that it represents an irreducible minimum. There is both an incentive and an opportunity for competitive industries to generate as

[/22/] The imposition of service fees by a competitive industry is perhaps best exemplified by the competitive banking industry. The Federal Reserve Board submits an annual report to Congress tracking the imposition of fees by competitive banks. Overall, the number of supplemental bank fees which the Federal Reserve specifically tracks is now up to 39. The report evaluates information on the size, number and incidence of fees. The size of the fee refers to the dollar value of the fee. The number of fees refers to the number of separately identified fees imposed. The incidence of fees refers to the number of banks charging any particular fee. Board of Governors of the Federal Reserve System, ***Annual Report to the Congress on Retail Fees and Services of Depository Institutions***, at 2 (June 1998).

high a proportion of their revenue as possible through charges that cannot be avoided through reduced consumption.[/23/] To the extent that the proportion of total bill collected through fixed charges increases, the role of energy efficiency as a device to increase low-income bill affordability is reduced. Each of the concerns expressed by those with whom I worked to develop the HHS/ACF report are potential problems in a natural gas retail choice environment.

B. Tracking the Impacts on Universal Service.

Q. PLEASE EXPLAIN THE BASIS OF YOUR PROPOSED UNIVERSAL SERVICE PERFORMANCE MEASUREMENT MECHANISM?

A. This proposal describes how an outcome-based criterion regarding universal service might be designed and implemented. The purpose here is not to create a benchmark through which a company's performance is measured *vis a vis* the industry generally. Instead, this indicator is to allow a performance review of whether universal service performance for a particular company is improving or degrading *vis-a-vis* previous performance. Such a review will allow state regulators to determine whether performance is being sustained in the retail choice environment.

Q. HOW WOULD THIS MECHANISM OPERATE?

/23/ *See*, William Marcus (1999). ***A New Trend: Utilities are Raising Small Customers' Regulated Distribution Rates After Deregulation***, at 1, JBS Energy: Sacramento (CA) (some utilities raising customer charges "often to levels thought to be extreme a few years ago").

A. An explanation of the overall operation of the mechanism is set forth in Exhibit RDC-10. The composite universal service measurement of a utility is then calculated by adding the various component scores as set forth in Exhibit RDC-11. I propose a benchmark year of 1998 using a three-year average. I propose further that the measurements use a three year rolling average. The key to constructing an effective moving average is to select an averaging period that is long enough to smooth out unwanted distortions but not so long that real trends are hidden.

Q. ARE YOU PROPOSING A FINANCIAL PENALTY OR REWARD TO BE IMPOSED FOR EXPERIENCING AN IMPROVEMENT OR DECLINE IN UNIVERSAL SERVICE?

A. Not at this time. The purpose of the universal service indicator at this point is not to create financial rewards and penalties. Instead, the purpose is to create the information system to allow New Jersey regulators, and others, to track the impact which the move to a retail choice environment will have on universal service.

SUMMARY OF RECOMMENDATIONS

Q. CAN YOU SUMMARIZE THE RECOMMENDATIONS YOU MAKE FOR THE IMPLEMENTATION OF THE BOARD'S FINAL REPORT ON UNIVERSAL SERVICE ISSUES?

A. I make the following recommendations:

1. The creation of a universal service fund, consisting of three parts: (1) basic affordable rate assistance; (2) emergency crisis intervention assistance; and (3) energy efficiency assistance. This fund should be financed through imposition of a percentage of revenue surcharge. The affordable rate assistance made available through this universal service fund should be portable amongst all competitive service providers.
2. The creation of an Assistance in Aggregation Project (AAIP), to provide training on techniques of packaging energy projects; provide seminars, and help identify specific aggregation opportunities; assist in the development of small user aggregation entities; and help aggregators navigate the regulatory and contractual environment.
3. The establishment of a reporting mechanism to track the impacts of natural gas retail competition on low-income consumers generally.
4. The establishment of a reporting mechanism to track the impacts of natural gas retail competition on universal service in particular.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes it does.

Exhibit RDC-1

Roger Colton is a partner in the firm Fisher, Sheehan and Colton, Public Finance and General Economics (FSC) of Belmont, Massachusetts. Roger is an attorney and an economist. He has done substantial work both in the area of electric and natural gas industry restructuring. A summary of his activities is presented below:

State	Nature of Client	Nature of Issue Addressed	Nature of Proceeding/Work Product
New Hampshire	State community action association	Funding level for electric SBC	Regulatory technical support.
	Governor's office	Design and implementation of universal service program	Technical support not related to particular proceeding.
Vermont	State legislative committee	Consumer education	Legislative technical support.
	State aggregation program	Design and implementation of low-income program components	Technical support not related to particular proceeding.
Massachusetts	None	Low-income energy efficiency program design	Testimony before regulatory agency
New York	State aggregation program	Technical support of state aggregation initiative	Technical support not related to particular proceeding.
New Jersey	State consumer advocate	Low-income impact of merger	Testimony before regulatory agency
	State consumer advocate	Electric universal service program funding and program components	Testimony before regulatory agency
	State consumer advocate	Natural gas universal service program funding and program components	Testimony before regulatory agency
Pennsylvania	Various community-based organizations	Universal service funding and program design	Testimony before regulatory agency
	State consumer advocate	Natural gas universal service design and implementation	Technical support not related to particular proceeding.
	State consumer advocate	Natural gas universal service design and implementation for particular company	Testimony before regulatory agency
Maryland	State consumer advocate	Low-income impact of merger	Testimony before regulatory agency
	State consumer advocate	Electric universal service funding	Technical support not related to particular proceeding.
	State consumer advocate	Electric restructuring low-income programs	Technical support not related to particular proceeding.
	State consumer advocate	Electric restructuring low-income programs	Testimony before regulatory agency
	State consumer advocate	Natural gas universal service funding	Technical support not related to particular proceeding.
	State consumer advocate	Electric restructuring program implementation	Technical support not related to particular proceeding.
Virginia	Community-based organization	Electric universal service funding and low-income programs	Testimony before regulatory agency
	State community action association	Electric universal service funding and low-income programs	Recommended legislative language

West Virginia	State community action association	Electric universal service funding	Report for regulatory proceeding
Georgia	None	Electric universal service program design	Testimony at regulatory "workshop"
Ohio	Community-based organization	Electric universal service funding	Testimony before legislative "workshop"
	None	Electric universal service funding and program design	Testimony at regulatory "workshop"
Indiana	Community-based organization	Electric universal service funding	Testimony at regulatory "workshop"
Wisconsin	State community action association	Natural gas universal service programs	Testimony before regulatory agency
	National Conference of State Legislatures	Electric restructuring impacts on low-income consumers	Testimony before legislative committee
Minnesota	State LIHEAP agency	Low-income aggregation	Written report not associated with particular proceeding.
	Community-based organization	Low-income impact of merger	Testimony before regulatory agency
Iowa	State LIHEAP agency	Electric universal service funding	Technical support not related to particular proceeding.
	State LIHEAP agency	Natural gas universal service funding	Technical support not related to particular proceeding.
	State community action association	Electric universal service program design	Technical support not related to particular proceeding.
	State community action association	Electric restructuring impacts on low-income consumers	Series of 15 written "articles"
	State community action association	Low-income impact of merger	Testimony before regulatory agency
Missouri	State energy office	Electric universal service funding	Written report not associated with particular proceeding.
	Community-based organization	Design of low-income consumer education campaign	Written report not associated with particular proceeding.
Arkansas	Electric utility	Design and implementation of low-income program	Technical support not related to particular proceeding.
	State weatherization office	Low-income energy efficiency	Testimony before regulatory agency
Colorado	State legislature	Electric restructuring impacts on low-income consumers	Written report not associated with particular proceeding.
	Community-based organization	Low-income impact of merger	Testimony before regulatory agency
	Community-based organization	Electric universal service funding and program design	Technical support not related to particular proceeding.
	Community-based organization	Natural gas universal service funding and program design	Technical support not related to particular proceeding.
	Electric utility	Design and implementation of rate affordability program	Technical support not related to particular proceeding.
Oregon	Community-based organization	Electric universal service funding and program design	Report for regulatory agency
National	NARUC	Impacts of electric restructuring on small users	Written report not associated with particular proceeding.
	US Department of Energy, Oak Ridge National Laboratory	"Obligation to serve" in restructured electric industry	Written report not associated with particular proceeding.

	US Department of Energy, Oak Ridge National Laboratory	10th Amendment implications of federal restructuring legislative proposals	Written report not associated with particular proceeding (not released as of 7-99).
	U.S. Department of Health and Human Services, Administration for Children and Families	Performance metrics for measuring impacts of electric restructuring on low-income consumers	Written report not associated with particular proceeding.

Natural Gas Prices by Customer Class: 1985 - 1996
(New Jersey)

	Residential	Industrial
1985	$7.49	$5.51
1986	$7.35	$4.38
1987	$6.60	$4.08
1988	$6.32	$3.87
1989	$6.51	$3.98
1990	$6.60	$3.95
1991	$6.73	$3.65
1992	$6.94	$3.42
1993	$6.99	$3.70
1994	$7.11	$3.64
1995	$7.27	$3.11
1996	$7.16	$3.82

SOURCE:

Energy Information Administration, ***Historical Natural Gas Annual: 1930 - 1996*** (October 1997).

Exhibit RDC-3

Estimated Cost of Natural Gas Rate Discount
(50% participation rate)

Poverty Range	1 Total	2 Natural Gas Heating	3 50% Participation	4 Low-Income Bill	5 Discount Percent	6 Per Customer Discount	7 Aggregate Discount
0 - 49%	110,000	66,000	33,000	$714	40%	$286	$9,438,000
50 - 99%	110,000	66,000	33,000	$714	30%	$214	$7,062,000
100 - 149%	140,000	84,000	42,000	$714	15%	$107	$4,494,000
Total Cost							$20,994,000

NOTES:

Column 1: 355,000 low-income customers distributed in proportion to poverty percent for State.
Column 2: Percent of total customers who use piped natural gas for heating.
Column 3: Assumption based on experience with other states and programs
Column 4: 1996 residential natural gas price for New Jersey (Energy Information Administration, ***Historical Natural Gas Annual: 1930 - 1996***, at Table 35, page 338, October 1997) escalated to 1999 by dividing March 1999 CPI-U (110.6) (CPI Detailed Report, Table 4, April 1999) by 1996 CPI-U (115.0), (CPI Detailed Report, Table 25, January 1997).
Column 5: Explained in text.
Column 6: Column 4 x Column 5.
Column 7: Column 6 x Column 3.

Bill Payment Impact for Customers with Arrearages: LIURP: Pennsylvania

1992 LIURP	Heating Jobs		Water Heating Jobs		Baseload Jobs	
	Percent of Bill Paid Pre-Period	Percent of Bill Paid Post-Period	Percent of Bill Paid Pre-Period	Percent of Bill Paid Post-Period	Percent of Bill Paid Pre-Period	Percent of Bill Paid Post-Period
Duquesne	Not Applicable		91%	100%	78%	106%
Met Ed	78%	107%	79%	107%		
Pennelec	92%	95%	96%	99%		
Penn Power	Not Applicable		95%	93%		
PP&L	51%	95%	55%	105%		
PECO Electric	74%	118%	78%	109%		
UGI Electric	95%	105%	Not Applicable			
West Penn	126%	102%	129%	106%		
Columbia Gas	69%	133%				
Equitable	Not Applicable					
NFG	96%	125%				
PECO Gas	68%	133%				
PG&W	96%	106%				
Peoples	99%	106%				
T.W. Phillips	Not Available					
UGI Gas	89%	115%				

SOURCE: Pennsylvania PUC Evaluation of 1992 LIURP Program Results (1995).

1999 Poverty Levels						
	Number of Household Members					
	1	2	3	4	5	6
100% Poverty	$8,240	$11,060	$13,880	$16,700	$19,520	$22,340

NOTES:

/a/ Each additional person: add $2,820.

Exhibit RDC-6

Distribution of Persons by Poverty Range (New Jersey)	
Below 50%	286,059
51 - 74%	129,466
75 - 99%	157,267
100 - 124%	184,210
125 - 149%	186,274
SOURCE: 1990 U.S. Census, STF3A CD-ROM.	

Average LIHEAP Recipient Natural Gas Burden: 1986 - 1995
(New Jersey)

	Gas Burden
1986	12%
1987	11%
1988	10%
1989	11%
1990	12%
1991	9%
1992	10%
1993	10%
1994	11%
1995	10%

SOURCE:

Gas bills: Energy Information Administration, ***Historical Natural Gas Annual: 1930 - 1996*** (October 1997).
Average income: Calculated from state-specific data provided in LIHEAP Annual Report to Congress for each respective year.
Gas burden: Natural gas bills divided by average LIHEAP participant income.

Exhibit RDC-8

	Gas bill	$0-2000	$2-4000	$4-6000	$6-8000	$8-10000	$10-12000	$12-15000	$15000+
1995	$665	67%	22%	13%	10%	7%	6%	5%	4%

SOURCES:

Gas bill: Energy Information Administration, ***Historical Natural Gas Annual: 1930 - 1996*** (October 1997).
Energy burden: Gas bill divided by mid-point of income range used in Annual LIHEAP Report to Congress.

Activities of Low-Income Aggregators

1. **Identify alternative sellers:** An aggregator for low-income consumers must identify alternative sellers. The first step in assuring a competitive market is to promote a multiplicity of sellers. This should involve a proactive effort (seeking out sellers) rather than a reactive effort (responding to sellers that approach the low-income community).

2. **Collect information from sellers:** Collecting information from sellers is a critical role for low-income aggregators. This information will involve a variety of components including but not limited to price. The customer services offered (*e.g.*, what energy efficiency services are offered, are there local business offices), the consumer protections offered (*e.g.*, what are service termination policies), and the service attributes (*e.g.*, how "green" is the power, how reliable is it) are three major attributes in addition to price.

3. **Identify service needs of buyers:** The aggregator must also identify the service needs of the buyers. If the buyers tend to pay by cash rather than checks, local business offices or community pay stations are important (rather than relying exclusively on the mail). If a substantial proportion of buyers run arrears, information on policies regarding service terminations, deferred payment plans and late fees is important. If the buyers have frequent personal contact with their electricity provider, then information on access policies (*e.g.*, is there an 800 number; are customer telephone centers open reasonable hours) is important to obtain. In this regard, aggregators not only socialize the cost of information collection, but facilitate the articulation of needs as well. While it may be difficult for any individual customer to say to a competitive service provider "I often don't pay my bill and I frequently need to contact you to ask for help," it would be easier for an aggregator to say "some portion of my constituency is payment-troubled and I want to know what your policies are."

4. **Balance price and service offerings of sellers:** After complete information collection, the aggregator must balance the price and service offerings of the sellers. If lowest price is the sole determining factor, the balancing may be easier. If price is *not* the exclusive factor, the question becomes how to trade off a higher price for "greener" power? for easier credit terms? for greater investments in energy efficiency?

5. **Process price information:** A final step in "shopping" involves processing the price information collected. Prices will not likely be provided on a flat cents per kilowatthour (kWh) basis. Instead, price will likely have a base rate component along with a fuel charge. It will likely vary by season and may vary by time-of-day. It is likely to vary based on consumption blocks (with the charge for kWh 0 - 500 that differs from the charge for kWh 501 - 800 that differs from the charge for kWh 801+). This price information must be processed in light of known information about buyer usage characteristics to determine the "best deal."

6. **Act to minimize adverse cost attributes:** An aggregated group can take specific affirmative steps to mitigate high cost characteristics of the group. One high cost characteristic of residential customers, for example, involves their high summer peak demand. On an individual basis, this peaking tendency would be difficult to address. Given an aggregated load, however, one role for the aggregator might be to seek partnerships who have offsetting (known as "balancing") load characteristics. In these circumstances, a power solicitation combining the LIHEAP load with the balancing load would present a level load that could be served less expensively than either customer group could be served independently.

7. **Minimize transaction costs:** An aggregator should be prepared to address how it will help a competitive service provider reduce the transaction costs of serving its constituency. One major cost of providing competitive electric power is the cost of acquiring the customer. This cost includes marketing, along with the physical act of enrolling the customer as a customer. Competitive service providers often complain that the acquisition cost for residential customers is too high to make serving such customers economic. The aggregator, therefore, should address how its participation will either help reduce reaching customers in bulk or will help reduce the cost of enrolling customers.

GENERAL DESCRIPTION:

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

FORMULA AND DATA SOURCE:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Exhibit RDC-11

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

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

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EXHIBITS