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STATE OF ALASKA

THE REGULATORY COMMISSION OF ALASKA

Before Commissioners: Robert M. Pickett, Chair  
Kate Giard  
Paul F. Lisankie  
T.W. Patch  
Janis W. Wilson

In the Matter of the Revenue Requirement )  
Designated as TA177-4 Filed by ENSTAR ) U-09-69  
NATURAL GAS COMPANY, A DIVISION OF )  
SEMCO ENERGY, INC. )  
\_\_\_\_\_ )

In the Matter of the Rate Design Revision ) U-09-70  
Designated as TA177-4 Filed by ENSTAR )  
NATURAL GAS COMPANY, A DIVISION OF )  
SEMCO ENERGY, INC. )  
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**PREFILED TESTIMONY OF J. RICHARD HORNBY**

**I. INTRODUCTION**

1. Q. Please state your name, position and business address.
- A. My name is James Richard Hornby. I am a Senior Consultant at Synapse Energy Economics, Inc., 22 Pearl Street, Cambridge, MA 02139.
2. Q. Please describe Synapse Energy Economics.
- A. Synapse Energy Economics (“Synapse”) is a research and consulting firm specializing in energy and environmental issues. Its primary focus is on

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utility resource planning and regulation including computer modeling, service reliability, financial and economic risks, energy efficiency and ratemaking. Synapse works for a wide range of clients including attorneys general, offices of consumer advocates, public utility commissions, environmental groups, foundations, the U.S. Environmental Protection Agency, Department of Energy, Department of Justice, Federal Trade Commission and the National Association of Regulatory Utility Commissioners. Synapse has a professional staff of twenty-two with extensive experience in the electricity and natural gas industries.

**3. Q. Mr. Hornby, please summarize your educational background.**

A. I have a Bachelor of Industrial Engineering from the Technical University of Nova Scotia, now the School of Engineering at Dalhousie University and a Master of Science in Energy Technology and Policy from the Massachusetts Institute of Technology (MIT).

**4. Q. Please summarize your professional experience.**

A. I have worked in the energy industry since 1976 as a project engineer, a senior civil servant and a regulatory consultant. As a project engineer I was responsible for identifying and pursuing opportunities to reduce energy use in a factory in Nova Scotia. Subsequently, after my graduate

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program at MIT, I spent several years as a senior civil servant with the government in Nova Scotia where I helped prepare the province's first comprehensive energy plan and served on a federal-provincial board responsible for regulating exploration and development of offshore oil and gas reserves. I have been a regulatory consultant since 1986. During that time I have analyzed a range of issues in the gas and electric industries, including planning, fuel procurement, cost allocation and rate design. During the past several years I have managed various projects to estimate the avoided costs of electricity and natural gas, reviewed the economics of demand response and smart grid proposals and testified regarding the alignment of utility financial incentives and rates with the pursuit of energy efficiency. I have provided expert testimony and litigation support on these issues in over 100 proceedings on behalf of utility regulators, consumer advocates, environmental groups, energy marketers, gas producers, and utilities.

**5. Q. Have you prepared an Appendix summarizing your regulatory experience?**

A. Yes. An appendix of qualifications summarizing my regulatory experience is attached as Exhibit JRH-1.

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**6. Q. On whose behalf are you appearing?**

A. I am appearing on behalf of the Alaska Attorney General (“AG”).

**7. Q. Have you previously testified before the Regulatory Commission of Alaska?**

A. No.

**8. Q. What is the purpose of your testimony?**

A. My testimony addresses the rate design proposed by ENSTAR Natural Gas Company (“ENSTAR” or “Company”) for its proposed General Service 1 (G1) customer class, which consists primarily of customers in its current Residential and Small Commercial customer classes.

**9. Q. How is your testimony organized?**

A. My testimony is outlined as follows:

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**10. Q. What data sources did you rely upon to prepare your testimony?**

A. I relied primarily on the Direct Testimony submitted by ENSTAR on December 23, 2009 (ENSTAR’s filing or the filing). Specifically I reviewed the testimonies of ENSTAR witnesses Schreiber, Olson, Fairchild, Dieckgraeff, Warsinske, and Raab as well as their exhibits and workpapers. I also relied upon the Company’s responses to various data requests.

**11. Q. Have you prepared any exhibits to be filed with your testimony?**

A. Yes. Exhibit JRH-1 presents my qualifications. Exhibits JRH-2 through JRH-8 present the results of analyses that I reference in my testimony. Exhibit JRH-9 presents ENSTAR’s responses to AG discovery. The contents of the Exhibits are as follows:

- JRH-1: Appendix of Qualifications;
- JRH-2: Impacts of Single Fixed Charges on Total Monthly Bills – Proposed G1 Class;
- JRH-3: Variation in Annual Gas Use per Customer - Proposed G1 Class;
- JRH-4: Impacts of Single Fixed Charges on G1 Class Annual Bills;
- JRH-5: Alternative Customer Charges in Two-Part Rates, G1 Class;
- JRH-6: Impacts of Alternative Customer Charges on Total Monthly Bills – Proposed G1 Class;

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JRH-7: Impacts of Alternative Two-Part Rates on G1 Class Annual Bills;  
JRH-8: Alternative Customer Charges at RAPA Billing Determinants and Revenue Requirements.  
JRH-9: ENSTAR’s responses to AG data requests.

**II. CONCLUSIONS AND RECOMMENDATIONS**

**12. Q. Please summarize ENSTAR’s proposed changes in customer classes.**

A. ENSTAR is proposing to replace its existing Residential, Small Commercial and Large Commercial customer classes with four new customer classes, titled General Service 1 (G1) through General Service 4 (G4). Customers in the three existing customer classes would be assigned to the new customer classes according to the size of their meter. Most customers now in the residential class would be assigned to the new G1 class.

**13. Q. Please summarize your conclusion and recommendation regarding ENSTAR’s proposed changes in customer classes.**

A. My conclusion is that the Company’s proposal to assign residential customers to the new customer classes according to their meter size is reasonable. According to ratemaking principles, customers with homogeneous characteristics should be placed in the same customer class.

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The Company's proposal reflects the size and shape of customer load, which are two key characteristics that have a significant impact on the Company's cost of providing service. Therefore, I recommend that the Commission approve this change.

**14. Q. Please describe ENSTAR's current charges for service to residential customers.**

A. ENSTAR currently has three charges for service to residential customers. It recovers its costs of transmission and distribution service through a fixed monthly charge, referred to as a customer charge, of \$9.00 plus a charge per unit of gas used, referred to as a base rate, equal to \$0.11054 per ccf. ENSTAR recovers its cost of gas supply service through a second charge per unit of gas used, which is adjusted via the gas cost adjustment (GCA) mechanism. The GCA changes annually to reflect changes in the Company's average cost of gas supply. In the 2008 test year that charge was \$0.68709 per ccf. In 2009 it increased to \$0.87457 per ccf and since January 1, 2010 it has been \$0.69943 per ccf.

**15. Q. Please summarize ENSTAR's proposal to implement revenue decoupling through the implementation of single fixed charges.**

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A. ENSTAR has proposed a major change in rate design in order to “decouple” its collection of distribution service revenues from the quantity of gas its customers use. ENSTAR has proposed “single fixed charges” for the two proposed customer classes, G1 and G2.

For residential customers, most of whom will be in the G1 class, immediate implementation of the proposed single fixed charges would mean that the Company would reduce the volumetric base rate to zero and increase the fixed monthly customer charge by \$19.47 per month, over 200 percent, from the present \$9/month to a proposed \$28.66 per month as part of its proposed Step 1 increase.<sup>1</sup> ENSTAR is not proposing any change in the design of the gas cost rate adjustment.

**16. Q. Please summarize your conclusion and recommendation regarding ENSTAR’s proposal to implement decoupling through the implementation of single fixed charges.**

A. It may be reasonable to consider some form of special rate mechanism to improve the Company’s revenue stability and better align its financial incentives with efficient use of natural gas. However, the Company’s proposal to achieve those goals through the implementation of single fixed charges is not reasonable from a ratemaking and energy policy

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<sup>1</sup> ENSTAR indicates that it would agree to phase-in the implementation of “single fixed charges” over several years.



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perspective. First, single fixed charges will weaken the financial incentive of customers to use their natural gas efficiently. Second, they will produce an inequitable cross subsidy of higher than average use customers by lower than average use customers within the G1 class. Mr. Jimmy Jackson raised similar concerns in the comments he filed rate design Docket U-09-70 February 19, 2010 and erratum filed February 24, 2010 (collectively, the “Jackson comments”). Finally, single fixed charges may cause rate shock to the lowest usage customers in that class.

**17. Q. If ENSTAR could justify some form of decoupling, is a single fixed charge the best alternative?**

A. No, a single fixed charge is the worst alternative for addressing decoupling. Other preferable alternatives should be used instead. If the Company can justify some form of decoupling, it would be best to implement it through a revenue-per-customer decoupling mechanism via a volumetric rider. I discuss this alternative approach later in my testimony.

**18. Q. Please summarize ENSTAR’s proposed alternative two-part rate design.**

A. As an alternative to single fixed charges ENSTAR is proposing what it characterizes as a traditional two-part rate design. Under that approach it

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would set the customer charge to recover all costs that it considers to be “caused” by the number of customers in each rate class. Under this approach the Company would increase the customer charge for residential customers by \$6 per month, approximately 67 percent, to \$15/month and would decrease the volumetric base rate by less than one-half percent or \$0.00047 per ccf. Again, ENSTAR is not proposing any change in the gas cost rate adjustment.

**19. Q. Please summarize your conclusion and recommendation regarding ENSTAR’s proposed two-part rate design for the G1 class.**

A. My conclusion is that the magnitude of increase in the customer charge that the Company is proposing as part of its two-part rate design for the G1 class is not reasonable because it collects more than the direct costs of connecting and billing a customer and weakens the financial incentive of customers to use their natural gas efficiently. This increase also produces higher than class average increases for the lowest use customers in that class. Based on those factors, if the Commission were to approve the Company’s full requested increase in revenue requirements I recommend that it limit the increase in the customer charge to \$10 and require the Company to collect the balance of any allowed increase in class revenue requirements through an increase in the volumetric base rate.

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**20. Q. Please summarize your conclusion and recommendation regarding rate design for the G1 class if the Commission does not approve an increase in revenue requirements, or if it orders a decrease.**

A. In the event that the Commission does not approve an increase in revenue requirements my conclusion is that the Company should make no change in its customer charge and base rate for the G1 class. If the Commission orders a decrease in revenue requirements, that decrease should be implemented through a reduction in the volumetric base rate.

**21. Q. Please summarize the major ratemaking goals upon which you based your analyses, conclusions and recommendations.**

A. Bonbright identified eight goals or criteria of a sound rate structure<sup>2</sup>. Mr. Raab discusses these goals in his Prefiled Direct Testimony at pages 55-57. The goals are:

1. The related, “practical” attributes of simplicity, understandability, public acceptability, and feasibility of application.
2. Freedom from controversies as to proper interpretation.
3. Effectiveness in yielding total revenue requirements under the fair-return standard.
4. Revenue stability from year to year.
5. Stability of the rates themselves, with a minimum of unexpected changes seriously adverse to existing customers. (Compare “The best tax is an old tax.”)

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<sup>2</sup> Phillips, Charles F. Jr. *The Regulation of Public Utilities*, Public Utilities Reports, Arlington, VA, 1993, 434

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- 6. Fairness of the specific rates in the apportionment of total costs of service among the different consumers.
- 7. Avoidance of “undue discrimination” in rate relationships.
- 8. Efficiency of the rate classes and rate blocks in discouraging wasteful use of service while promoting all justified types and amounts of use:
  - (a) in the control of the relative uses of alternative types of service supplied by the company;
  - (b) in the control of the relative uses of alternative types of service (on-peak versus off-peak electricity, Pullman travel versus coach travel, single-party telephone service versus service from a multi-party line, etc.).

Of those goals, the three considered to be primary are: effectiveness in yielding revenue requirements, fairness in the allocation of costs among customers and economic efficiency. Since there are a range of alternative approaches that one can use to design rates I try to determine which rate design will best achieve those three criteria in a balanced manner. In this regard it is important to acknowledge that the choice of a particular rate design is not a mechanical or simple mathematical exercise. Instead the choice of a rate design often requires the exercise of judgment, because some of the major ratemaking goals are conflicting and thus one has to choose a rate design that produces a reasonable balancing or set of tradeoffs between those conflicting goals.

**III. REVENUE DECOUPLING**

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**22. Q. What are the goals of revenue decoupling and how can it be implemented?**

A. Revenue decoupling can achieve two primary, and often related, goals. One goal is to improve a utility’s revenue stability, while the other, often related, goal is to align the utility’s financial incentives with support for energy efficiency. In the case of a gas distribution utility such as ENSTAR, revenue decoupling can be implemented to varying degrees by any approach, or combination of approaches, that reduce or eliminate the link between its collection of revenues for distribution service and the quantity of gas that its customers use. At one extreme, this decoupling could be achieved through annual rate cases. At another extreme it could be achieved through the implementation of single fixed charges, as ENSTAR has proposed. However, where decoupling has been approved it has been most often implemented through some form of revenue-per-customer volumetric rate adjustment

**23. Q. What justification does ENSTAR provide for implementing revenue decoupling?**

A. ENSTAR witnesses Schreiber and Dieckgraeff each state that the trend in declining use per residential customer is having an adverse financial

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impact on ENSTAR. They also note the importance of supporting the efficient use of natural gas.

**24. Q. Is the trend in declining gas use per residential customer either new to the United States gas industry or unique to ENSTAR?**

A. No. Many U.S. gas utilities have experienced similar trends in declining gas use per residential customer over the past ten years and longer. According to the American Gas Association (AGA), natural gas use per residential customer has decreased by about 1 percent per year for the last 38 years.<sup>3</sup> However, those declines have been largely due to what is referred to as “naturally occurring” improvements in efficiency and should therefore be considered part of the normal business risk of a gas utility. It is not clear that those declines, in and of themselves, warrant revenue decoupling. ENSTAR has not prepared any analyses of the effect that implementation of single fixed charges would have on its revenue stability or its proposed return on equity (ENSTAR response to AG-2-14).

**25. Q. Do you agree that it is important for customers to use natural gas efficiently and for utilities to align their financial incentives with support for aggressive improvements in efficiency?**

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<sup>3</sup> *Natural Gas Utilities And Their Customers: Efficient. Naturally.*  
[www.aga.org/legislative/ratesregulatoryissues/ratesregpolicy/issues/energyefficiency](http://www.aga.org/legislative/ratesregulatoryissues/ratesregpolicy/issues/energyefficiency).

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A. Yes. I consider it vitally important that customers use natural gas efficiently. Efficient use of gas in winter months, the period of peak demand for gas supply, appears to be particularly important in the ENSTAR service territory in light of its need to find new supplies to replace declining production from existing reserves.

I also agree with the general goal of improving the alignment of utility financial interests with support for aggressive improvements in efficiency. In fact, I have testified in support of that general goal in several electric and gas utility proceedings. However, I have conditioned my support for the implementation of revenue decoupling on aggressive improvements in energy efficiency by which I mean improvements that reflect best practices and that capture full market potential. ENSTAR has not provided any evidence of the Company's plans to implement aggressive improvements in energy efficiency in conjunction with its implementation of revenue decoupling (ENSTAR response to AG-2-8). Mr. Jackson raised this same concern in his filed comments.

**A. Decoupling via Single Fixed Charges**

**26. Q. Do you support the Company's proposal to implement single fixed charges as an approach to improve its revenue stability and better align its financial incentives with support for efficient gas use?**

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A. No. Implementation of single fixed charges is only one of several possible approaches the Company could use to improve its revenue stability and the alignment of its financial incentives with support for efficiency. As I noted earlier, the more appropriate and more common approach is a revenue-per- customer decoupling mechanism via a volumetric rider.

**27. Q. Please describe the revenue-per-customer approach.**

A. Under a revenue-per-customer approach ENSTAR would adjust its base rates for differences between the actual usage of its customers by rate class in a year and the test year usage per customer by customer class underlying the rates the Commission approves in this proceeding. For example, in a year in which actual average annual usage per customer in the G1 class was 1,390 ccf, or 100 ccf less than the test year quantity of 1,490 ccf, the rider would collect an amount of revenue equal to that shortfall in distribution service revenues, i.e. the approved base rate per ccf times the 100 ccf per customer shortfall times the number of customers. Conversely, in a year when actual average annual usage per customer is greater than the test year usage the rider will ultimately refund an amount of revenue equal to the excess of distribution service revenues resulting from that increase relative to test year. I discuss the advantages and disadvantages of this approach later in my testimony.



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**28. Q. What are the primary problems with ENSTAR’s proposal to implement decoupling through the implementation of single fixed charges?**

A. Even if the Company could justify some form of decoupling, its proposal to implement it through single fixed charges is not reasonable from a ratemaking and energy policy perspective. First, single fixed charges will weaken the financial incentive of customers to use their natural gas efficiently. Second, they will produce an inequitable cross subsidy of higher than average use customers by lower than average use customers within the G1 class. Finally, single fixed charges may cause rate shock to the lowest usage customers in that class.

**29. Q. Please explain why implementation of single fixed charges is not consistent with the ratemaking principle and energy policy goal of economic efficiency.**

A Economic efficiency is one of the major goals of ratemaking and energy policy. According to economic theory rates for a service are economically efficient, and give customers an accurate price signal, when they reflect the marginal cost of providing that service.

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The sales service that ENSTAR is providing its G1 customers consists of a gas supply service plus a distribution service. The price signal that residential customers see when deciding to use one more, or one less, cubic foot of gas service is the total volumetric rate. Currently that total rate is approximately \$0.81 per ccf<sup>4</sup>, consisting of \$0.70 per ccf for gas supply and \$0.11 per ccf for distribution service. That existing total rate reflects ENSTAR’s average cost of providing service, not its marginal cost. ENSTAR has not provided any estimates of its long-run marginal costs of providing gas supply or distribution (Response to AG-2-17). In the absence of any evidence from ENSTAR to the contrary, it is reasonable to assume that its long run marginal cost of gas supply is greater than \$0.70 per ccf which is the annual average cost of gas supply that is reflected in its gas cost adjustment. Moreover, even in the short-run, my understanding is that ENSTAR’s marginal cost of supplying peak gas in winter months is higher than the annual average cost reflected in the GCA.

By implementing single fixed charges, ENSTAR would reduce that total volumetric rate by 14 percent with the elimination of the distribution component of \$0.11 per ccf. Reducing the total volumetric rate by 14 percent will send G1 customers a weaker, and incorrect price signal,

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<sup>4</sup> A ccf is one hundred cubic feet.

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particularly in winter months, and will therefore be inconsistent with the goal of economic efficiency. Mr. Jackson makes this same point in his filed comments.

**30. Q. Can you illustrate how the implementation of single fixed charges will weaken the price signal to customers in winter months?**

A. Yes. Exhibit JRH-2 presents a comparison of monthly bills for an average customer in the proposed G1 class with existing rates and with single fixed charges. The existing rates and usage are from the 2008 Test Year.

That exhibit demonstrates that, in winter months single fixed charges will reduce the bills for an average customer as compared to existing rates and will increase those bills in summer months.<sup>5</sup> In fact, the bills in the months of June through September will be substantially higher than under existing rates.

**31. Q. Please explain why implementation of single fixed charges will produce an inequitable cross subsidy of high use customers by low use customers within the G1 class.**

A Implementation of single fixed charges will produce an inequitable cross subsidy of high use customers by low use customers within the G1 class

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<sup>5</sup> The gas industry typically defines summer as April through October and winter as November through March.

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because those charges do not allocate costs among customers within the G1 class on the basis of cost causation. This fact is supported by the testimony of Mr. Fairchild. The results of his cost of service study indicate that only approximately half of the costs allocated to the G1 class should be recovered via a customer charge while the other half should be recovered via the volumetric base rate (Fairchild, page 25). Mr. Jackson makes this same point in his filed comments.

Under the single fixed charges approach the Company would effectively allocate the same distribution service costs of \$28.66 per month to each customer in the G1 class regardless of that customer's actual usage. However, some customers in the G1 class use less than the class-wide average while other customers use more than that average. The variation in annual use per customer in the G1 class is presented in Exhibit JRH-3. For example, about 14 percent of customers use less than 90 percent of the G1 class average while about 8.5 percent use more than 110 percent of the G1 class average.

**32. Q. Can you illustrate how implementation of single fixed charges will change the relative amounts paid by low use and high use customers within the G1 class?**

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A. Yes. Exhibit JRH-4 presents a comparison of the annual bills of G1 customers with various levels of annual use under existing rates and single fixed charges. The existing rates are for the 2008 Test Year and the annual use reflects the Company’s proposed adjustments to residential billing determinants. (In Exhibits JRH-4 through JRH-7 I use the Company’s proposed residential gas use billing determinants to provide ‘apples to apples” comparisons. Another AG witness, Mr. Ralph Smith, presents a set of proposed higher gas use billing determinants which will produce lower volumetric base rates.) The first page of the Exhibit shows only the distribution component of annual bills, while the second page shows total bills including gas supply costs.

As indicated in that exhibit, under current rates residential customers whose annual usage is lower than the class average have annual bills for distribution service that are lower than the class average. For example, the annual distribution service bills of customers whose usage is less than 90 percent of the G1 class average is between 79 percent and 93 percent of the class average. Similarly, residential customers whose annual usage is higher than the class average have annual bills for distribution service that are higher than the class average.

With the implementation of single fixed charges, all customers in the G1 class will be charged the same annual bill of \$344 ( $\$28.66 * 12$ ) for

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distribution service, regardless of their usage level.<sup>6</sup> As a result, the annual distribution service bills of customers whose usage is less than 90 percent of the G1 class average will be 100 percent of the class average as will the bills of residential customers whose annual usage is higher than the class average. Under this approach the Company will be charging G1 customers whose usage is much lower than the class average more than it incurs to serve them, while it will be charging G1 customers whose usage is much higher than the class average less than it incurs to serve them. In effect, within the G1 class low usage customers will be subsidizing high usage customers.

**33. Q. Please explain why implementation of single fixed charges may cause rate shock for customers in the G1 class with lower than average use.**

A Keeping rates stable, with a minimum of unexpected changes seriously adverse to existing customers is one of the Bonbright ratemaking principles noted earlier. This principle is also referred to as gradualism. Implementation of single fixed charges may cause rate shock for G1 customers whose usage is lower than average because the customer charge will increase by over 200 percent. That dramatic increase in the customer

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<sup>6</sup> Such figures further assume, for purposes of illustrating the impact of the rate design recommendation, that ENSTAR's base cost revenue requirement is approved as presented.

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charge will cause the annual bills of lower usage customers in the G1 class to increase by much more than the G1 class average.

The variation in increases in the distribution component of annual bills in the G1 class under single fixed charges, and their relationship to the class wide average increase, are presented in the last two columns of Exhibit JRH-4. Page one of that Exhibit shows the distribution component of annual bills. For example, customers whose use is less than 90 percent of the class average will increase by approximately 36 percent, approximately 1.4 times the G1 class average of 26 percent.

Page two of that Exhibit shows total annual bills. Customers whose use is less than 90 percent of the class average still see a disproportionate increase of approximately 1.4 times the G1 class average, but the absolute percentage increase is lower because it is expressed as a percentage of the total bill, including gas cost recovery.

**34. Q. Did ENSTAR analyze the distribution of bills in the G1 class at its existing and proposed rates?**

A. No. In response to data request AG-2-5 the Company stated that such analyses were not necessary.

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**35. Q. Please comment on the Company’s expectations regarding customer acceptance of single fixed charges.**

A. Mr. Schreiber and Mr. Dieckgraeff each indicate that they expect customers will accept the Company’s implementation of single fixed charges. However, the material they cite to support their position does not stand up to scrutiny. First, ENSTAR did conduct a survey of customer attitudes towards single fixed charges but it did not indicate the proposed level of those single fixed charges (response AG-2-7 b and c). Second, as I noted earlier, the Company has not analyzed the distribution of bill impacts among customers that would occur within the residential / G1 customer class (response AG-2-5).

In contrast, the fact that relatively few utilities have implemented single fixed charges reflects the general negative reaction to setting high fixed charges. A report published by the National Regulatory Research Institute (NRRI) in 2008 discusses the major reasons for regulatory reluctance to implement this rate design approach<sup>7</sup>.

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<sup>7</sup> Boonin, David Magnus. *A Rate Design To Encourage Energy Efficiency And Reduce Revenue Requirements*. NRRI. July 2008. Report 08-08. Available at <http://nrriu.org/pubs/electricity>.



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**B. Decoupling via a Revenue-per-Customer Volumetric Rider**

**36. Q. Earlier you mentioned other approaches to rate stabilization and decoupling. To what extent have regulators in other jurisdictions approved the use of these other approaches?**

A. Thirty-one natural gas utilities had operative decoupling tariffs in effect as of mid-2009, with decisions pending in another eleven companies according to an August 2009 presentation by the AGA<sup>8</sup>. Additional utilities may have implemented decoupling mechanisms since that report was prepared, as many states have been and are examining the issue of aligning utility incentives with support for efficiency. The American Council for an Energy Efficient Economy (ACEEE) maintains a State Energy Efficiency Policy Database. This is an on-line database of data, listed by state, on energy efficiency policies, utility programs and ratemaking mechanisms related to energy efficiency. It is available at <http://www.aceee.org/energy/state/index.htm>

**37. Q. Is decoupling via a volumetric rate rider generally preferred over single fixed charges by energy and environmental policy analysts?**

A. Yes. Various reports on decoupling either describe it in terms of a volumetric rate rider or state a preference for that approach. These reports

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<sup>8</sup> Marple, Cynthia.. *The Changing Regulatory Environment* American Gas Association, August 2009.

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include those prepared by the National Regulatory Defense Council<sup>9</sup>,  
Regulatory Assistance Project (RAP)<sup>10</sup> and for the National Action Plan on  
Energy Efficiency. (NAPEE).<sup>11</sup> Mr. Jackson makes this same point in his  
filed comments.

**38. Q. Have customer groups expressed concerns regarding decoupling via a volumetric rate rider?**

A. Yes. Consumer groups have consistently raised concerns regarding decoupling proposals. One of the major concerns is that decoupling will shift financial risk from the utility to ratepayers without adequate offsetting benefits to ratepayers. These and other concerns are discussed in a September 2009 report commissioned by the National Action Plan for Energy Efficiency, *Discussion of Consumer Perspectives of Regulation of Energy Efficiency Investments*.

**39. Q. Have you ever supported a gas utility’s proposal to decouple via a revenue-per-customer volumetric rate rider?**

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<sup>9</sup> Lesh, Pamela G. Rate Impacts and Key Design Elements of Gas and Electric Utility Decoupling: A Comprehensive Review. Natural Resources Defense Council, June 2009

<sup>10</sup> Shirley, Wayne et al. Revenue Decoupling Standards and Criteria, A Report to the Minnesota Public Utilities Commission. Regulatory Assistance Project, June 2008.

<sup>11</sup> Jensen, Val R. National Action Plan for Energy Efficiency. *Aligning Utility Incentives with Investment in Energy Efficiency*. ICF International. November 2007.

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A. Yes. In a 2009 gas rate case in Minnesota I testified in support of a settlement between the utility, CenterPoint, two environmental groups and a low income group under which CenterPoint would establish a conservation enabling rider. The Minnesota Public Utilities Commission approved that rider, subject to a few modifications, in the order it issued on January 11, 2010 in Docket G-008/GR-08-1075.

**40. Q. Please describe the key features that ENSTAR should include in a proposal for a volumetric rate adjustment rider if it wishes to pursue revenue decoupling.**

A. If the Company wishes to pursue revenue decoupling it should consider proposing a revenue-per-customer volumetric rate adjustment mechanism.

The key features of such a mechanism should include:

- The test year usage per customer by rate class approved by the Commission in this proceeding;
- The volumetric base rate approved by the Commission in this proceeding;
- A clear description of the differences in use for which the mechanism would operate, for example adjustments for only 90 percent of non-weather related changes in use subject to an earnings test;

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- A commitment to work with relevant stakeholders to identify new and/or enhanced energy efficiency initiatives;
- A limited test period, for example three years;
- A cap on the maximum level of adjustment allowed each year, for example two percent of the total volumetric rate; and
- An evaluation plan and reporting requirements.

The Company should develop any such proposal through discussions with stakeholders.

#### **IV. TWO PART RATE DESIGN**

**41. Q. Please summarize ENSTAR’s proposed alternative, two-part rate design.**

A. As an alternative to single fixed charges ENSTAR is proposing implementation of what it characterizes as a traditional two-part rate design. Under that approach the customer charge would be set to recover all costs that it classified as “customer-related” in its cost of service study. Under that approach the customer charge for residential customers would increase by \$6 per month, approximately 67 percent, to \$15/month. The base rate would decline by about one half percent.

**42. Q. Is this level of increase in the customer charge reasonable?**

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A. No. The proposed increase in the customer charge is not reasonable because it collects more than the direct costs of connecting and billing a customer and it weakens the price signal and hence the financial incentive of customers to use their natural gas efficiently. This increase also produces higher than class average increases for the lowest use customers in that class.

**43. Q. Please comment on the Company's position that this customer charge is justified based upon the results of its cost of service study.**

A. The Company maintains that the customer charges it is proposing are justified based upon the results of its cost of service study. However, that cost of service study assumes that the Company will receive its full request for an increase in revenue requirements. If it does not receive its full requested increase, its total level of costs will be lower and hence its customer charge should be lower. In addition, the proposed customer charge reflects recovery of all costs classified as customer-related in the cost of service study.

The Company's positions do not stand up to scrutiny. First, ENSTAR may not receive its full requested increase in revenue requirements. Second, the Company's proposed charge reflects recovery of all costs that it considers to be caused by the number of customers that it

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serves. If one limits the customer charge solely to recovering the direct costs that ENSTAR incurs to connect individual customers to the system and to bill them and excludes recovery of other indirect costs such as uncollectibles and administrative and general expenses, the customer charge would reduce to approximately \$10. The calculations supporting that customer charge are presented on pages 1 and 2 of Exhibit JRH-5.

**44. Q. Please explain why the proposed increase in the customer charge is inconsistent with the goals of economic efficiency and gradualism.**

A. Yes. ENSTAR’s proposed \$15 customer charge does not weaken the price signal as much as a \$28.66 single fixed charge, but it does weaken it to some extent. As with the single fixed charge, a \$15 customer charge will tend to increase the bills for an average customer more in summer months than in winter months. In addition, ENSTAR is proposing to increase the revenues recovered from G1 customers by approximately 26 percent but to increase one component of the G1 class rates, the customer charge, by 67 percent. A more gradual approach would be to not increase the customer charge by more than twice the class wide revenue increase.

**45. Q. Can you illustrate how the implementation of a \$15 customer charge will weaken the price signal to customers in winter months?**

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A. Yes. A \$15 customer charge does not weaken the price signal as a 28.66 single fixed charge, but it does weaken it to some extent. Page one of Exhibit JRH-6 presents a comparison of monthly bills for an average customer in the proposed G1 class with existing rates and with the Company's proposed two-part rate structure. That exhibit demonstrates that, in winter months single fixed charges will increase the bills for an average customer 3 percent to 4 percent as compared to existing rates but will increase those bills much more than that in summer months. Page two of Exhibit JRH-6 presents a comparison of monthly bills for an average customer in the proposed G1 class with existing rates and with a two-part rate structure using a \$10 customer charge. Under that approach bills increase by about 5 percent in each month of the year.

**46. Q. Can you illustrate the relative impacts of the Company's two-part rate design and your alternative recommendations?**

A. Yes. I illustrate the relative impacts of the Company's two-part rate design and my alternative recommendations on pages one and two of Exhibit JRH-7.

**47. Q. Please summarize your conclusion and recommendation regarding ENSTAR's proposed alternative, two-part rate design.**

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A. My conclusion is that the customer charge component of the Company’s proposed two-part rate design is not reasonable. I recommend that the customer charge for the G1 class, assuming it is approved, increase by no more than \$1.00 per month with the balance of the allowed increase recovered through an increase in the volumetric base rate. If the Commission approves the Company’s full requested increase in revenue requirements this would mean that the G1 customer charge would increase to \$10 per month and the volumetric base rate to \$0.15036 per ccf, as shown earlier on page 2 of Exhibit JRH-5.

**48. Q. Will the changes in base rates be different if the Commission does not approve the Company’s proposed billing determinants?**

A. Under either of those two possible scenarios it would be reasonable to retain the existing rate structure to balance the ratemaking goals of effectiveness in yielding revenue requirements, fairness in the allocation of costs among customers and economic efficiency. In the event that the Commission does not approve an increase in revenue requirements my conclusion is that the Company should make no change in its customer charge and should adjust the volumetric base rate for the G1 class as necessary. If the Commission orders a decrease in revenue requirements, the customer charge should remain at its existing level and the decrease in



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revenue requirements should be implemented through a reduction in the base rate.

**49. Q. Will the changes in base rates be different if the Commission does not approve the Company’s proposed adjustments to decrease test year sales volumes?**

A. Yes. If the Commission does not approve the Company’s various proposed downward adjustments to test year gas sales volumes, the base rates will be lower. As I noted earlier, Exhibits JRH-4 through JRH-7 reflect the Company’s proposed G1 gas use billing determinants to illustrate how my rate design proposals compare to ENSTAR’s proposed rate design excluding any other changes. Another AG witness, Mr. Ralph Smith, has made revenue requirement adjustments that differ from ENSTAR’s proposals and which reflect higher adjusted gas sales (billing determinants) than ENSTAR has proposed. Other things being equal, using higher adjusted gas sales volumes in the billing determinants that are applied for rate design purposes will produce lower volumetric base rates.

**50. Q. Have you prepared an estimate of the base rates for the G1 class at RAPA’s proposed billing determinants and at lower levels of revenue requirements?**

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A. Yes. Exhibit JRH-8 presents estimates of customer charges and base rates for the G1 class at the Company’s proposed Step I increase in revenue requirements and the AG’s adjusted sales volume. This Exhibit also presents estimates of the customer charge and base rates with a zero increase in revenue requirements<sup>12</sup> and the AG’s adjusted sales volume.

At the Company’s proposed Step I increase in revenue requirements, the AG’s adjusted sales volumes and a \$15 customer charge the volumetric base rate would be \$0.09650 per ccf, a decrease of 13 percent as shown in column b. At the Company’s proposed Step I increase in revenue requirements, the AG’s proposed billing determinants and a \$10 customer charge the volumetric base rate would be \$0.13183 per ccf, an increase of 19 percent as shown in column c. Finally, with a zero increase in revenue requirements, the AG’s adjusted sales volumes and a \$9 customer charge the volumetric base rate would be \$0.09437 per ccf, a decrease of 15 percent as shown in column d.

**51. Q. Does this conclude your Direct Testimony?**


A. Yes.

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<sup>12</sup> Because the billing determinants of the G1 class are somewhat different from those of the existing residential class these estimates will need to be verified with the Company. In addition, these estimates are limited to the Step I increase because that has been the basis for the Company’s testimony regarding rate design. I am advised by AG witness Smith that the AG’s proposed RR addresses ENSTAR’s proposed Step II increases and recommends rejection of the additional RR that ENSTAR is requesting in Step II.

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DATED at Cambridge, Massachusetts, this 30th day of March, 2010.



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### **PROFESSIONAL EXPERIENCE**

**Synapse Energy Economics, Inc.**, Cambridge, MA. *Senior Consultant*, 2006 to present.

Analysis and expert testimony regarding planning, market structure, ratemaking and contracting issues in the electricity and natural gas industries.

**Charles River Associates (formerly Tabors Caramanis & Associates)**, Cambridge, MA.

*Principal*, 2004-2006.

*Senior Consultant*, 1998-2004.

Provided expert testimony and litigation support in several energy contract price arbitration proceedings, as well as in electric and gas utility ratemaking proceedings in Ontario, New York, Nova Scotia and New Jersey. Managed a major productivity improvement and planning project for two electric distribution companies within the Abu Dhabi Water and Electricity Authority. Analyzed a range of market structure and contracting issues in wholesale electricity markets.

**Tellus Institute**, Boston, MA.

*Vice President and Director of Energy Group*, 1997–1998.

Presented expert testimony on rates for unbundled retail services in restructured retail markets and analyzed the options for purchasing electricity and gas in those markets.

*Manager of Natural Gas Program*, 1986–1997.

Prepared testimony and reports on a range of gas industry issues including market structure, unbundled services, ratemaking, strategic planning, market analyses, and supply planning.

**Nova Scotia Department of Mines and Energy**, Halifax, Canada; 1981–1986

*Member*, Canada-Nova Scotia Offshore Oil and Gas Board, 1983–1986

Member of a federal-provincial board responsible for regulating petroleum industry exploration and development activity offshore Nova Scotia.

*Assistant Deputy Minister of Energy* 1983–1986

Responsible for analysis and implementation of provincial energy policies and programs, as well as for Energy Division budget and staff. Directed preparation of comprehensive energy plan emphasizing energy efficiency and use of provincial energy resources. Senior technical advisor on provincial team responsible for negotiating and implementing a federal/provincial fiscal, regulatory, and legislative regime to govern offshore oil and gas. Directed analyses of proposals to develop and market natural gas, coal, and tidal power resources. Also served as Director of Energy Resources (1982-1983) and Assistant to the Deputy Minister (1981-1982).

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**Nova Scotia Research Foundation**, Dartmouth, Canada, Consultant, 1978–1981  
Edited Nova Scotia's first comprehensive energy plan. Administered government-funded industrial energy conservation program—audits, feasibility studies, and investment grants.

**Canadian Keyes Fibre**, Hantsport, Canada, Project Engineer, 1975–1977

**Imperial Group Limited**, Bristol, England, Management Consultant, 1973–1975

## **EDUCATION**

M.S., Technology and Policy (Energy), Massachusetts Institute of Technology, 1979.  
Thesis: "An Assessment of Government Policies to Promote Investments in Energy Conserving Technologies"

B.Eng. Industrial Engineering (with Distinction), Dalhousie University, Canada, 1973

## **TESTIMONY**

Pennsylvania Public Utility Commission, Allegheny Power, Docket No. M-2009-2123951, March 2009 and October 2009. Review of proposed advanced metering infrastructure.

Pennsylvania Public Utility Commission, Metropolitan Edison Company et al, Docket No. M-2009-2123950, October 2009. Review of proposed advanced metering infrastructure.

Maryland Public Service Commission, Potomac Electric Power Company, Case No. 9207, October 2009. Review of proposed advanced metering infrastructure.

Maryland Public Service Commission, Baltimore Gas and Electric Company, Case No. 9208, October 2009. Review of proposed advanced metering infrastructure.

New Jersey Board of Public Utilities, Jersey Central Power & Light Company, Dockets EO08050326 and EO08080542, July 2009. Review of proposed demand response programs.

Minnesota Public Utilities Commission, CenterPoint Energy Minnesota Gas, Docket No. G-008/GR-08-1075, June 2009. Review of proposed Conservation Enabling Rider.

South Carolina Public Service Commission, Progress Energy Carolinas, Docket No. 2008-251-E, January 2009. Review of proposed efficiency program performance incentive.

North Carolina Utilities Commission, Progress Energy Carolinas, Docket No. E-2 sub 931, December 2008. Review of proposed efficiency program performance incentive.

Maine Public Utilities Commission, Central Maine Power, Docket 2007 – 215, October 2008. Review of proposed advanced metering infrastructure.

North Carolina Utilities Commission, Duke Energy Carolinas, Docket No. E-7, Sub 831, June 2008. Review of proposed efficiency program performance incentive (save-a-watt).

Indiana Utility Regulatory Commission, Duke Energy Indiana, Cause No. 43374, May 2008. Review of proposed “save-a-watt” approach to compensation for efficiency and demand response.

Pennsylvania Public Utility Commission, PECO Energy Company, Docket P-2008-2032333, June 2008. Review of proposed Residential Real Time Pricing Program (RRTP).

Arkansas Public Service Commission, 06-152-U, Phase II A, Entergy Arkansas, October 2007. Review of proposed interim tolling agreement and proposed allocation of Ouachita Power capacity between retail and non-retail.

Washington Utilities & Transportation Commission, Docket Nos. UE-070804 and UG-070805, September 2007. Review of Avista Utilities request for increases in rates and changes in its revenue recovery mechanisms.

Arkansas Public Service Commission. 06-152-U, Entergy Arkansas, January 2007. Review of need for new load-following capacity.

Michigan Public Service Commission, Case No. U-14992, December 2006. Review the proposed sale of the Palisades nuclear plant and associated power purchase agreement.

Arizona Corporation Commission, Docket E-01345A-05-0816, August 2006 and September 2006. Review of Arizona Public Service hedging strategy and Base Fuel Recovery Amount.

Michigan Public Service Commission, Case No. U-14274-R, October 2006. Review the Resource Conservation Plan for purchases from Midland Cogeneration Venture Limited Partnership.

Illinois Commerce Commission, Docket No. 06-0540, October and December 2006. Review of service quality issues.

State of Connecticut, Department Of Public Utility Control. Docket No. 06-03-04PH01, November 2006. Review gas supply strategy and proposed rate recovery.

Testimony before an arbitration panel in Toronto, Ontario, on behalf of a cogeneration plant regarding a dispute over a component of the price for steam under a 20-year contract. January 2006.

Testimony before an arbitration panel in Halifax, Nova Scotia, on behalf of Nova Scotia Power against Shell Canada regarding the determination of a new price under their ten year natural gas supply contract. October 2005.

State of New York, Public Service Commission, Case 00-M-0504, September 2002 and October 2002. Review of estimates of embedded costs of unbundled services (e.g., supply, distribution, metering, billing), and associated proposed rates, filed by Consolidated Edison of New York and New York State Electric and Gas respectively.

State of New Jersey Board of Public Utilities, BPU Docket GM00080564, April 2001. Analysis of the proposed transfer of gas supply and capacity contracts from Public Service Electric and Gas to an unregulated affiliate, and the full requirements supply contract associated with that transfer.

Nova Scotia Utility and Review Board, NSUARB-NG-SEMPRA-SEM-00-08, February 2001. Review of proposed distribution service tariff, including methodology for setting market-based rates, rates for large customers and default supply.

State of New Jersey Board of Public Utilities, BPU Docket EX99009676, March 2000. Analysis of the design and pricing of customer account services to be offered by utilities on an unbundled basis.

United States of America Bonneville Power Administration, BPA Docket WP-02, (TCA #391), November 1999. Functionalization of Communication Plant.

South Carolina Public Service Commission, 99-006-G, South Carolina Electric and Gas, October 1999. Reasonableness of purchased gas costs.

State of New Jersey Board of Public Utilities, BPU Dockets GO99030122–GO99030125, July 1999 and sur-rebuttal September 1999. Analysis of service unbundling policies and rates proposed in filings of Public Service Electric & Gas, South Jersey Gas, New Jersey Natural Gas, and Elizabethtown Gas.

Maine Public Utilities Commission, Docket 97-393, Northern Utilities Inc., September 1998 and rebuttal December 1998. Review of request for approval of rate redesign and partial unbundling proposal.

Pennsylvania Public Utility Commission, R-00984281, A-12250F0008, Peoples Natural Gas, May 1998. Analysis of the reasonableness of 1998 1307(f) filing and proposal to transfer production assets to affiliate.

State of New Jersey, Board of Public Utilities, BPU E09707 0465, OAL PUC-7309-97, BPU E09707 0464, OAL PUC-7310-97, January 1998 with Supplemental and Sur-rebuttal March 1998. Analysis of rate unbundling filing of Rockland Electric Company.

State of New Jersey, Board of Public Utilities, BPU EO9707 0459, OAL PUC- 7308-97, BPU E09707 0458, OAL PUC-7307-97, November 1997. Analysis of rate unbundling filing of Jersey Central Power & Light Company d/b/a GPU Energy.

Pennsylvania Public Utility Commission, R-00963858, Equitable Gas Company, June 1997 with rebuttal and sur-rebuttal July 1997. Analysis of the reasonableness of rate structure proposals.

Pennsylvania Public Utility Commission, R-00973896 and A-0012250F-0007, (Tellus 97-065) Peoples Natural Gas Company, May 1997. Review of 1997 1307(f) filing, proposal to transfer producing assets to CNG Producing Company, and proposed Migration Rider.

South Carolina Public Service Commission, 97-009-G, South Carolina Pipeline Corporation, April 1997. Reasonableness of proposal to acquire an additional 75,700 Mcf/day of capacity from Transco.

Federal Energy Regulatory Commission, RP95-197-001, RP97-71-000, March 1997. Review of proposed rolled-in ratemaking for Leidy Line incremental facilities.

Arkansas Public Service Commission 95-401-U, Arkla, September 1996. Review of proposed gas purchasing and transportation plan.

Maine Public Utilities Commission, 95-480, 95-481, April 1996, proposed Precedent Agreement between Northern Utilities, Inc. and Granite State Gas Transmission, Inc. for LNG Storage Service (95-480); and PNGTS for Transportation Service (95-481).

Rhode Island Public Utilities Commission, 2025, November 1995, Settlement Agreement reached between ProvGas and the Division of Public Utilities and Carriers.

Pennsylvania Public Utility Commission, R-953406, October 1995, application of T.W. Phillips Gas and Oil Co. for increase in rates and changes in rate and tariff design.

Illinois Commerce Commission, 95-0219, August 1995, application of Northern Illinois Gas Company for increase in rates and changes in rate and tariff design.

Pennsylvania Public Utility Commission, R-953316, May 1995, purchased gas costs and gas procurement of Columbia Gas of Pennsylvania with Supplemental Direct Testimony and Sur-Rebuttal Testimony.

Pennsylvania Public Utility Commission R-943252, (Tellus 95-039), May 1995, application of Peoples Natural Gas Company for increase in rates and changes in rate and tariff design.

South Carolina Public Service Commission, 94-007-G, (Tellus 95-038), April 1995, reasonableness of 1994 purchased gas costs of South Carolina Pipeline Corporation.

Pennsylvania Public Utility Commission R-943207, (Tellus 95-014), March 1995, 1995 Purchased Gas Adjustment filing of National Fuel Gas Distribution Corp.

Pennsylvania Public Utility Commission, R-00943063, (Tellus 94-271), December 1994, design of FERC Order 636 transition cost tariff of UGI Utilities, Inc.



South Carolina Public Service Commission, 94-008-G, (Tellus 94-173), October 1994, 1994 Purchased Gas Adjustment of South Carolina Electric and Gas Co.

Oklahoma Corporation Commission, PUD 920, 001342, (Tellus93-250) September 1994, reasonableness of gas supply strategy of Public Service of Oklahoma, including payments to Transok, Inc. for transportation and agency services and rate mechanism for cost recovery. November 1994 Rebuttal testimony in above docket.

Pennsylvania Public Utility Commission, R-943078, (Tellus 94-155), September 1994, Market Sensitive Sales Service proposed by Pennsylvania Gas and Water Company (PG&W).

Massachusetts Department of Public Utilities, D.P.U. 93-141-A, (Tellus 94-184), September 1994, response to questions regarding policies on interruptible transportation and capacity release in DPU IT/CAPACITY RELEASE SCOPE document dated June 16, 1994. October 1994 Comments in above docket.

Hawaii Public Utilities Commission, 7259, (Tellus 94-020), August 1994, HELCO'S proposed DSM programs for competitive energy end-use markets and its multi-attribute analysis.

Pennsylvania Public Utility Commission, R-00943066, (Tellus 94-135), July 1994, 1994 Purchased Gas Adjustment of Pennsylvania Gas and Water Company. August 1994 Sur-rebuttal testimony in above docket.

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New Jersey Board of Public Utilities, GR 88081-019, (ESRG 88-103), November 1988, Take-or-Pay Cost Recovery, South Jersey Gas Company.

New Jersey Board of Public Utilities, GR 88070-877 (ESRG 88-89), October 1988, Take-or-Pay Cost Recovery, Public Service Electric and Gas.

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**Variation in Annual Gas Use per Customer - Proposed G1 Class**

Meter Type	2008 Year End Customers		2008 Annual Usage	
	Count (1)	% of Class Total	ccf (1)	% of Class Average
S110 5TC	706	0.6%	966	56%
A175 5TC	15,775	13.3%	1,501	88%
R275 5TC	2,034	1.7%	1,610	94%
Unknown	73	0.1%	1,697	99%
A250 5TC	77,606	65.3%	1,703	99%
R200 5TC	12,568	10.6%	1,798	105%
R175 5TC	5,074	4.3%	1,889	110%
R250 5TC	4,962	4.2%	1,905	111%
<b>Total</b>	<b>118,798</b>	<b>100%</b>	<b>201,584,731</b>	
<b>Average # Meters (2)</b>	<b>117,733</b>		<b>201,584,731</b>	
<b>Weighted Annual Use per Average # Meters (ccf)</b>			<b>1,712</b>	

<b>Source</b>	Enstar response AG - 1 - 2, Revised Step 1 Meter COS (Revised Substitute Exhibit BHF-2.xls)
1	Base Data sheet
2	Usage sheet

**Impacts of Single Fixed Charges on G1 Class Annual Bills - Excluding Gas Supply Costs**

Distribution of Customers and Annual Usage			Distribution Service at Existing Rates				Distribution Service Bills at Single Fixed Charges					
			Customer \$/month	Delivery \$/ccf	Total Distribution Service Cost	Percent of Class Average	Customer Charge Cost	Delivery Charge Cost	Total Distribution Service Cost	Percent of Class Average		
Distribution Rates			Average Annual Bill				Average Annual Bill					
Meter Type	% of Customers (1)	Annual Use per Enstar Adjustments (ccf) (2)	Customer		Total Distribution Service Cost	Percent of Class Average (1)	Delivery		Total Distribution Service Cost	Percent of Class Average	Change vs Existing	Change as multiple of Class Average
			\$/month	\$/ccf			Charge Cost	Charge Cost				
S110 5TC	0.6%	840	108	93	201	74%	344	-	344	100%	71%	2.7
A175 5TC	13.3%	1,305	108	144	252	93%	344	-	344	100%	36%	1.4
R275 5TC	1.7%	1,400	108	155	263	96%	344	-	344	100%	31%	1.2
Unknown	0.1%	1,476	108	163	271	99%	344	-	344	100%	27%	1.0
A250 5TC	65.3%	1,481	108	164	272	100%	344	-	344	100%	27%	1.0
R200 5TC	10.6%	1,564	108	173	281	103%	344	-	344	100%	22%	0.9
R175 5TC	4.3%	1,643	108	182	290	106%	344	-	344	100%	19%	0.7
R250 5TC	4.2%	1,657	108	183	291	107%	344	-	344	100%	18%	0.7
<b>Class Total (2)</b>	<b>117,733</b>	<b>175,297,720</b>	<b>108</b>	<b>165</b>	<b>273</b>	<b>100%</b>	<b>344</b>	<b>-</b>	<b>344</b>	<b>100%</b>	<b>26%</b>	<b>1.0</b>
<b>Class Average (2)</b>		<b>1,489</b>	<b>108</b>	<b>165</b>	<b>273</b>	<b>100%</b>	<b>344</b>	<b>-</b>	<b>344</b>	<b>100%</b>	<b>26%</b>	<b>1.0</b>

Sources / Notes

1 Exhibit JRH-3

2 Annual use from Exhibit JRH-2 pro-rated per Adjusted Use in Usage Data sheet of Revised Step 1 Meter COS (Revised Substitute Exhibit BHF-2.xls)



**Impacts of Single Fixed Charges on G1 Class Annual Bills - Including Gas Supply Costs**

Distribution of Customers and Annual Usage		Distribution Service at Existing Rates				Distribution Service Bills at Single Fixed Charges								
		Distribution Rates		2008 Gas Supply		Distribution Rates		2008 Gas Supply						
		Customer \$/month	Delivery \$/ccf	\$/ccf	\$/ccf	Customer \$/month	Delivery \$/ccf	\$/ccf	\$/ccf					
		9	0.11054	0.68709	28.66	0	0.68709							
Meter Type	% of Customers (1)	Annual Use per Enstar Adjustments (ccf) (2)	Average Annual Bill				Average Annual Bill							
			Customer Charge Cost	Delivery Charge Cost	Gas Supply Cost	Total Service Cost	Customer Charge Cost	Delivery Charge Cost	Gas Supply Cost	Total Service Cost				
S110 5TC	0.6%	840	\$ 108	\$ 93	\$ 577	\$ 778	\$ 344	\$ -	\$ 577	\$ 921	67%	18%	3.3	
A175 5TC	13.3%	1,305	\$ 108	\$ 144	\$ 897	\$ 1,149	\$ 344	\$ -	\$ 897	\$ 1,241	91%	8%	1.4	
R275 5TC	1.7%	1,400	\$ 108	\$ 155	\$ 962	\$ 1,225	\$ 344	\$ -	\$ 962	\$ 1,306	96%	7%	1.2	
Unknown	0.1%	1,476	\$ 108	\$ 163	\$ 1,014	\$ 1,285	\$ 344	\$ -	\$ 1,014	\$ 1,358	99%	6%	1.0	
A250 5TC	65.3%	1,481	\$ 108	\$ 164	\$ 1,018	\$ 1,289	\$ 344	\$ -	\$ 1,018	\$ 1,361	100%	6%	1.0	
R200 5TC	10.6%	1,564	\$ 108	\$ 173	\$ 1,074	\$ 1,355	\$ 344	\$ -	\$ 1,074	\$ 1,418	104%	5%	0.8	
R175 5TC	4.3%	1,643	\$ 108	\$ 182	\$ 1,129	\$ 1,418	\$ 344	\$ -	\$ 1,129	\$ 1,473	108%	4%	0.7	
R250 5TC	4.2%	1,657	\$ 108	\$ 183	\$ 1,138	\$ 1,429	\$ 344	\$ -	\$ 1,138	\$ 1,482	108%	4%	0.7	
<b>Class Total (2)</b>	<b>117,733</b>	<b>175,297,720</b>												
<b>Class Average (2)</b>		<b>1,489</b>	<b>\$ 108</b>	<b>\$ 165</b>	<b>\$ 1,023</b>	<b>\$ 1,296</b>	<b>\$ 344</b>	<b>\$ -</b>	<b>\$ 1,023</b>	<b>\$ 1,367</b>	<b>100%</b>	<b>6%</b>	<b>1.0</b>	

**Sources / Notes**

- 1 Exhibit JRH-3
- 2 Annual use from Exhibit JRH-2 pro-rated per Adjusted Use in Usage Data sheet of Revised Step 1 Meter COS (Revised Substitute Exhibit BHF-2.xls)

## Alternative Customer Charges in Two-Part Rates, G1 Class

Acct. No.	Description	Cost Classification	Alloc. Factor	SYNAPSE			
				Enstar (1) Customer	Adjustment	Comment	Customer Charge
	<b>OPERATING EXPENSES</b>						
	<b>Distribution Expense</b>						
870	Operation Supervision & Engrn.	Allocation	J	\$ 173,047	\$ (168,762)	2	\$ 4,285
871	Distribution Load Dispatching	Capacity	D	\$ -			\$ -
874	Mains and Services Expenses	Allocation	K	\$ 262,496			\$ 262,496
875	M&R Station Expenses - General	Capacity	D	\$ -			\$ -
876	M&R Station Expenses - Industrial	Capacity	D	\$ -			\$ -
878	Meter and House Regulator Expenses	Customer	B.1	\$ 612,879			\$ 612,879
879	Customer Installations Expenses	Customer	B.1	\$ 535,684			\$ 535,684
880	Other Expenses	Allocation	J	\$ 132,553	(129,287)	2	\$ 3,266
881	Rents	Allocation	J	\$ 15,616	(15,227)	2	\$ 389
882	Temporary Service Line Expense	Allocation	B.1	\$ 28,166			\$ 28,166
885	Maintenance Supervision & Engrn.	Allocation	L	\$ -			\$ -
887	Maintenance of Mains	Allocation	U	\$ -			\$ -
889	Maint. M&R Stn. Equip. General	Capacity	D	\$ -			\$ -
890	Maint. M&R Stn. Equip. Indust.	Capacity	D	\$ -			\$ -
892	Maintenance of Services	Customer	B.1	\$ 251,141			\$ 251,141
893	Maint. of Meter & House Regulators	Customer	B.1	\$ 262,410			\$ 262,410
				<b>\$ 2,273,991</b>			<b>\$ 1,960,715</b>
							\$ -
901-904	<b>Customer Accounts Expenses</b>	Customer	C	\$ 4,157,556	\$ (899,073)	3	\$ 3,258,483
							\$ -
911-912	<b>Sales Expenses</b>	Customer	C	\$ 171,938	\$ (167,990)	2	\$ 3,948
							\$ -
920-931	<b>Admin. &amp; General Expenses</b>	Allocation	M	\$ 5,754,763	\$ (5,787,571)	2	\$ (32,808)
							\$ -
	<b>Depreciation Expense</b>	Allocation		\$ 2,915,821			\$ 2,915,821
							\$ -
	<b>TOTAL OPERATING EXPENSES</b>			<b>\$ 15,274,069</b>	<b>\$ (6,854,634)</b>		<b>\$ 8,106,159</b>
							\$ -
	<b>TAXES OTHER THAN INCOME</b>						\$ -
	Ad Valorem	Allocation	N	\$ 469,446			\$ 469,446
	Miscellaneous	Allocation	M	\$ (34,012)			\$ (34,012)
				\$ 435,434			\$ 435,434
							\$ -
	<b>RETURN</b>	Allocation	P	\$ 3,940,848			\$ 3,940,848
							\$ -
	<b>INCOME TAXES</b>	Allocation	P	\$ 1,801,674			\$ 1,801,674
							\$ -
	<b>OTHER REVENUES</b>	Allocation	O	\$ (432,137)			\$ (432,137)
							\$ -
	<b>TOTAL</b>			<b>\$ 21,019,888</b>			<b>\$ 13,851,978</b>

### Sources / Notes

- 1 Cost Allocation sheet of Revised Step 1 Meter COS (Revised Substitute Exhibit BHF-2.xls)
- 2 Remove costs that are not direct, e.g. overhead
- 3 Uncollectible adjustment based on residential portion of \$1,193,136 from Step 1 275 (a) Attachment B Sch Q

**Alternative Customer and Volumetric Charges for Two-Part Rates, G1 Class**

	Enstar (1)	SYNAPSE (2)	
		\$10 Customer Charge, Enstar Billing Determinants	
Customer	21,019,888		13,851,978
Capacity	19,194,478		26,637,280
Commodity	274,891		
Total	40,489,258		40,489,258
No. of Customers	117,733		117,733
Volumes	17,531,836		17,531,836
Annual Vol per Cust (Mcf)	149		149
Annual Vol per Cust (ccf)	1,489		1,489
Customer Charge	\$ 14.88	\$	9.80
Rounded	<b>\$ 15.00</b>	<b>\$</b>	<b>10.00</b>
Volume Charge (\$/Mcf)	<b>\$ 1.1007</b>	<b>\$</b>	<b>1.5036</b>
Volume Charge (\$/ccf)	\$ 0.11007	\$	0.15036

Source

- 1 *Rate Design* sheet of Revised Step 1 Meter COS (Revised Substitute Exhibit BHF-2.xls)
- 2 Exhibit JRH-5, page 1 of 2

**Impact of Alternative Customer Charge on Total Monthly Bills - G1 Class  
\$15 Customer Charge**

Monthly Use of Average Customer in Proposed G1 Class - 2008 Test Year (1)		Distribution Service at Existing Rates					Distribution Service Bills at Single Fixed Charges													
		Distribution Rates		2008 Gas Supply			Distribution Rates		2008 Gas Supply											
		Customer \$/month	Delivery \$/ccf	Customer \$/month	Delivery \$/ccf	2008 Gas Supply \$/ccf	Customer \$/month	Delivery \$/ccf	Customer \$/month	Delivery \$/ccf	2008 Gas Supply \$/ccf									
		9	0.11054	0.68709		15	0.11007	0.68709												
		Monthly Bill					Monthly Bill					Monthly Bill								
Season	Month	Annual Use per Enstar Adjustments (ccf) (2)	Customer Charge Cost	Delivery Charge Cost	Gas Supply Cost	Total Service Cost	Customer Charge Cost	Delivery Charge Cost	Gas Supply Cost	Total Service Cost	Customer Charge Cost	Delivery Charge Cost	Gas Supply Cost	Total Service Cost	Change vs Existing					
Winter	January-08	249	\$ 9	\$ 28	\$ 171	\$ 208	\$ 15	\$ 27	\$ 171	\$ 214	\$ 15	\$ 27	\$ 171	\$ 214	3%					
	February-08	263	\$ 9	\$ 29	\$ 181	\$ 219	\$ 15	\$ 29	\$ 181	\$ 224	\$ 15	\$ 29	\$ 181	\$ 224	3%					
	March-08	195	\$ 9	\$ 22	\$ 134	\$ 165	\$ 15	\$ 21	\$ 134	\$ 171	\$ 15	\$ 21	\$ 134	\$ 171	4%					
Summer	April-08	152	\$ 9	\$ 17	\$ 105	\$ 130	\$ 15	\$ 17	\$ 105	\$ 136	\$ 15	\$ 17	\$ 105	\$ 136	5%					
	May-08	123	\$ 9	\$ 14	\$ 84	\$ 107	\$ 15	\$ 14	\$ 84	\$ 113	\$ 15	\$ 14	\$ 84	\$ 113	6%					
	June-08	75	\$ 9	\$ 8	\$ 51	\$ 69	\$ 15	\$ 8	\$ 51	\$ 75	\$ 15	\$ 8	\$ 51	\$ 75	9%					
	July-08	57	\$ 9	\$ 6	\$ 39	\$ 54	\$ 15	\$ 6	\$ 39	\$ 60	\$ 15	\$ 6	\$ 39	\$ 60	11%					
	August-08	52	\$ 9	\$ 6	\$ 36	\$ 51	\$ 15	\$ 6	\$ 36	\$ 57	\$ 15	\$ 6	\$ 36	\$ 57	12%					
Winter	September-08	56	\$ 9	\$ 6	\$ 39	\$ 54	\$ 15	\$ 6	\$ 39	\$ 60	\$ 15	\$ 6	\$ 39	\$ 60	11%					
	October-08	99	\$ 9	\$ 11	\$ 68	\$ 88	\$ 15	\$ 11	\$ 68	\$ 94	\$ 15	\$ 11	\$ 68	\$ 94	7%					
	November-08	190	\$ 9	\$ 21	\$ 131	\$ 161	\$ 15	\$ 21	\$ 131	\$ 167	\$ 15	\$ 21	\$ 131	\$ 167	4%					
	December-08	200	\$ 9	\$ 22	\$ 138	\$ 169	\$ 15	\$ 22	\$ 138	\$ 175	\$ 15	\$ 22	\$ 138	\$ 175	3%					

Source: Workpaper to Exhibit JRH-2

**Impact of Alternative Customer Charge on Total Monthly Bills - G1 Class  
\$10 Customer Charge**

Monthly Use of Average Customer in Proposed G1 Class - 2008 Test Year (1)		Distribution Service at Existing Rates					Distribution Service Bills at Single Fixed Charges					
		Distribution Rates		2008 Gas Supply		Annual Use per Enstar Adjustments (ccf) (2)	Distribution Rates		2008 Gas Supply		Total Service Cost	Change vs Existing
		Customer \$/month	Delivery \$/ccf	Customer \$/month	Delivery \$/ccf		Customer \$/month	Delivery \$/ccf	Customer \$/month	Delivery \$/ccf		
		9	0.11054	0.68709		10	0.15036	0.68709				
Season	Month	Monthly Bill					Monthly Bill					Change vs Existing
		Customer Charge Cost	Delivery Charge Cost	Gas Supply Cost	Total Service Cost	Customer Charge Cost	Delivery Charge Cost	Gas Supply Cost	Total Service Cost			
Winter	January-08	\$ 9	\$ 28	\$ 171	\$ 208	\$ 10	\$ 38	\$ 171	\$ 219	5%		
	February-08	\$ 9	\$ 29	\$ 181	\$ 219	\$ 10	\$ 40	\$ 181	\$ 230	5%		
	March-08	\$ 9	\$ 22	\$ 134	\$ 165	\$ 10	\$ 29	\$ 134	\$ 173	5%		
Summer	April-08	\$ 9	\$ 17	\$ 105	\$ 130	\$ 10	\$ 23	\$ 105	\$ 137	5%		
	May-08	\$ 9	\$ 14	\$ 84	\$ 107	\$ 10	\$ 18	\$ 84	\$ 113	6%		
	June-08	\$ 9	\$ 8	\$ 51	\$ 69	\$ 10	\$ 11	\$ 51	\$ 73	6%		
	July-08	\$ 9	\$ 6	\$ 39	\$ 54	\$ 10	\$ 9	\$ 39	\$ 57	6%		
	August-08	\$ 9	\$ 6	\$ 36	\$ 51	\$ 10	\$ 8	\$ 36	\$ 54	6%		
Winter	September-08	\$ 9	\$ 6	\$ 39	\$ 54	\$ 10	\$ 8	\$ 39	\$ 57	6%		
	October-08	\$ 9	\$ 11	\$ 68	\$ 88	\$ 10	\$ 15	\$ 68	\$ 93	6%		
	November-08	\$ 9	\$ 21	\$ 131	\$ 161	\$ 10	\$ 29	\$ 131	\$ 169	5%		
	December-08	\$ 9	\$ 22	\$ 138	\$ 169	\$ 10	\$ 30	\$ 138	\$ 178	5%		

Source: Workpaper to Exhibit JRH-2

**Impact of Alternative Customer Charge on Total Monthly Bills - G1 Class**  
**\$15 Customer Charge**

Meter Type	Distribution of Customers and Annual Usage			Distribution Service at Existing Rates					Distribution Service Bills at Single Fixed Charges						
	% of Customers (1)	Annual Use per Enstar Adjustments (ccf) (2)	Percent of Class Average (1)	Average Annual Bill			Average Annual Bill			Average Annual Bill			Change as multiple of Class Average		
				Customer Charge Cost	Delivery Charge Cost	Gas Supply Cost	Total Service Cost	Percent of Class Average	Customer Charge Cost	Delivery Charge Cost	Gas Supply Cost	Total Service Cost		Percent of Class Average	
S110 5TC	0.6%	840	56%	\$ 108	\$ 93	\$ 577	\$ 778	60%	\$ 180	\$ 92	\$ 577	\$ 850	62%	9%	1.7
A175 5TC	13.3%	1,305	88%	\$ 108	\$ 144	\$ 897	\$ 1,149	89%	\$ 180	\$ 144	\$ 897	\$ 1,221	89%	6%	1.1
R275 5TC	1.7%	1,400	94%	\$ 108	\$ 155	\$ 962	\$ 1,225	95%	\$ 180	\$ 154	\$ 962	\$ 1,296	95%	8%	1.1
Unknown	0.1%	1,476	99%	\$ 108	\$ 163	\$ 1,014	\$ 1,285	99%	\$ 180	\$ 162	\$ 1,014	\$ 1,356	99%	6%	1.0
A250 5TC	65.3%	1,481	99%	\$ 108	\$ 164	\$ 1,018	\$ 1,289	100%	\$ 180	\$ 163	\$ 1,018	\$ 1,361	100%	6%	1.0
R200 5TC	10.6%	1,564	105%	\$ 108	\$ 173	\$ 1,074	\$ 1,355	105%	\$ 180	\$ 172	\$ 1,074	\$ 1,426	104%	5%	1.0
R175 5TC	4.3%	1,643	110%	\$ 108	\$ 182	\$ 1,129	\$ 1,418	109%	\$ 180	\$ 181	\$ 1,129	\$ 1,489	109%	5%	0.9
R250 5TC	4.2%	1,657	111%	\$ 108	\$ 183	\$ 1,138	\$ 1,429	110%	\$ 180	\$ 182	\$ 1,138	\$ 1,501	110%	5%	0.9
<b>Class Total (2)</b>	<b>117,733</b>	<b>175,297,720</b>	<b>100%</b>	<b>\$ 108</b>	<b>\$ 165</b>	<b>\$ 1,023</b>	<b>\$ 1,296</b>	<b>100%</b>	<b>\$ 180</b>	<b>\$ 164</b>	<b>\$ 1,023</b>	<b>\$ 1,367</b>	<b>100%</b>	<b>6%</b>	<b>1.0</b>
<b>Class Average (2)</b>		<b>1,489</b>													

Sources / Notes

- 1 Exhibit JRH-3
- 2 Annual use from Exhibit JRH-2 pro-rated per Adjusted Use in Usage Data sheet of Revised Step 1 Meter COS (Revised Substitute Exhibit BHF-2.xls)

**Impact of Alternative Customer Charge on Total Monthly Bills - G1 Class  
\$10 Customer Charge**

Distribution of Customers and Annual Usage		Distribution Service at Existing Rates				Distribution Service Bills at Single Fixed Charges							
		Distribution Rates		2008 Gas Supply		Distribution Rates		2008 Gas Supply					
		Customer \$/month	Delivery \$/ccf	\$/ccf	\$/ccf	Customer \$/month	Delivery \$/ccf	\$/ccf	\$/ccf				
		9	0.11054			10	0.15036						
Meter Type	% of Customers (1)	Annual Use per Enstar Adjustments (ccf) (2)	Average Annual Bill				Average Annual Bill				Change as multiple of Class Average		
			Customer Charge Cost	Delivery Charge Cost	Gas Supply Cost	Total Service Cost	Customer Charge Cost	Delivery Charge Cost	Gas Supply Cost	Total Service Cost			
S110 5TC	0.6%	840	\$ 108	\$ 93	\$ 577	\$ 778	\$ 120	\$ 126	\$ 577	\$ 823	60%	6%	1.1
A175 5TC	13.3%	1,305	\$ 108	\$ 144	\$ 897	\$ 1,149	\$ 120	\$ 196	\$ 897	\$ 1,213	89%	6%	1.0
R275 5TC	1.7%	1,400	\$ 108	\$ 155	\$ 962	\$ 1,225	\$ 120	\$ 211	\$ 962	\$ 1,292	95%	6%	1.0
Unknown	0.1%	1,476	\$ 108	\$ 163	\$ 1,014	\$ 1,285	\$ 120	\$ 222	\$ 1,014	\$ 1,356	99%	6%	1.0
A250 5TC	65.3%	1,481	\$ 108	\$ 164	\$ 1,018	\$ 1,289	\$ 120	\$ 223	\$ 1,018	\$ 1,360	100%	6%	1.0
R200 5TC	10.6%	1,564	\$ 108	\$ 173	\$ 1,074	\$ 1,355	\$ 120	\$ 235	\$ 1,074	\$ 1,429	105%	5%	1.0
R175 5TC	4.3%	1,643	\$ 108	\$ 182	\$ 1,129	\$ 1,418	\$ 120	\$ 247	\$ 1,129	\$ 1,496	109%	5%	1.0
R250 5TC	4.2%	1,657	\$ 108	\$ 183	\$ 1,138	\$ 1,429	\$ 120	\$ 249	\$ 1,138	\$ 1,507	110%	5%	1.0
<b>Class Total (2)</b>	<b>117,733</b>	<b>175,297,720</b>											
<b>Class Average (2)</b>		<b>1,489</b>	<b>\$ 108</b>	<b>\$ 165</b>	<b>\$ 1,023</b>	<b>\$ 1,296</b>	<b>\$ 120</b>	<b>\$ 224</b>	<b>\$ 1,023</b>	<b>\$ 1,367</b>	<b>100%</b>	<b>6%</b>	<b>1.0</b>

**Sources / Notes**

- 1 Exhibit JRH-3
- 2 Annual use from Exhibit JRH-2 pro-rated per Adjusted Use in Usage Data sheet of Revised Step 1 Meter COS (Revised Substitute Exhibit BHF-2.xls)

**Alternative Customer and Volumetric Charges for Two-Part Rates, G1 Class**

Parameters	ENSTAR Requested Step 1 Increase in Revenue Requirement				Zero increase in Revenue Requirements - estimate (4)
	Enstar (1)	SYNAPSE			
		\$15 Customer Charge, RAPA Billing Determinants (2)	\$10 Customer Charge, RAPA Billing Determinants (3)	\$9 Customer Charge, RAPA Billing Determinants	
Column	a	b	c	d	SYNAPSE
Customer Capacity	\$ 21,019,888.25	\$ 21,019,888.25	\$ 13,851,978.17	\$ 12,715,125.84	
Commodity	\$ 19,194,478.21	\$ 19,469,369.60	\$ 26,637,279.69	\$ 18,871,392.43	
Total	\$ 40,489,257.85	\$ 40,489,257.85	\$ 40,489,257.85	\$ 31,586,518.27	
No. of Customers	117,733	117,733	117,733	117,733	
Volumes	17,531,836	19,996,659	19,996,659	19,996,659	
Annual Vol per Cust (Mcf)	149	170	170	170	
Annual Vol per Cust (ccf)	1,489	1,698	1,698	1,698	
Customer Charge	\$ 14.88	\$ 14.88	\$ 9.80	\$ 9.00	
Rounded	\$ 15.00	\$ 15.00	\$ 10.00	\$ 9.00	
Change vs existing (\$9)	\$ 6.00	\$ 6.00	\$ 1.00	\$ -	
	67%	67%	11%	0%	
Volume Charge (\$/Mcf)	\$ 1.1007	\$ 0.9650	\$ 1.3183	\$ 0.9437	
Volume Charge (\$/ccf)	\$ 0.11007	\$ 0.09650	\$ 0.13183	\$ 0.09437	
Change vs existing (\$0.11054)	\$ (0.00047)	\$ (0.01404)	\$ 0.02129	\$ (0.01617)	
	-0.42%	-13%	19%	-15%	

Sources

- 1 Rate Design sheet of Revised Step 1 Meter COS (Revised Substitute Exhibit BHF-2.xls)
- 2 Exhibit JRH-5, page 1 of 2
- 3 Annual volume per customer from Exhibit RCS-2, Schedule C-1.1
- 4 # customers 115,911 Weather adjusted Volume 19,687,256  
G1 Normalized revenues at existing rates pro-rated from page 2 of Substitute Exhibits BHF-1 and BHF - 2



STATE OF ALASKA

BEFORE THE REGULATORY COMMISSION OF ALASKA

Before Commissioners:

Robert M. Pickett, Chairman  
Kate Giard  
Paul F. Lisankie  
Anthony A. Price  
Janis W. Wilson

In the Matter of the Revenue Requirement )  
Designated as TA177-4 Filed by ENSTAR )  
NATURAL GAS COMPANY, A DIVISION OF )  
SEMCO ENERGY, INC. )

Docket No. U-09-69

In the Matter of the Rate Design Revision )  
Designated as TA177-4 Filed by ENSTAR )  
NATURAL GAS COMPANY, A DIVISION OF )  
SEMCO ENERGY, INC. )

Docket No. U-09-70

ENSTAR'S RESPONSES TO THE ATTORNEY GENERAL'S  
SECOND SET OF REQUESTS FOR DISCOVERY

PRELIMINARY STATEMENT

Discovery in this docket is not complete. As discovery proceeds, facts, information, evidence, documents, and things may be discovered which are not set forth in these responses, but which may be responsive to these discovery requests. The following responses are based on ENSTAR's knowledge, information and belief at this time, and are complete as to ENSTAR's best knowledge at this time. Furthermore, these responses were prepared based on

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ENSTAR's good faith interpretation of the discovery requests, and are subject to correction for inadvertent errors or omissions, if any.

ENSTAR reserves the right to refer to, conduct discovery with reference to, or offer into evidence at the time of hearing, any and all facts, evidence, documents and things developed during the course of discovery and hearing preparation, notwithstanding references to facts, evidence, documents and things provided herein. These responses are given without prejudice to subsequent revision or supplementation, including objections, based on any information, evidence and documentation which hereinafter may be discovered.

### GENERAL OBJECTIONS

ENSTAR expressly incorporates the following general objections as if set forth fully in response to each of the following individual discovery requests addressed in the specific objections section below, and any response below is made subject to and without waiving these objections:

1. ENSTAR objects to the discovery requests to the extent they purport to impose requirements upon ENSTAR beyond those authorized by Alaska Rules of Civil Procedure 26, 33, and 34, and otherwise fail to comport with the Alaska rules and the standard rules and practices for Commission proceedings involving discovery.

2. ENSTAR objects to requests for the production of documents, calculations, and analyses that do not exist. Under Alaska Civil Rule 34, parties are required to produce documents within their "possession, custody, or control." A document is not within a party's "possession, custody, or control" if it does not exist.

3. ENSTAR objects to each and every discovery request insofar as they are vague, ambiguous, overly broad, unduly burdensome, or use terms that are subject to multiple interpretations but are not properly defined or explained for purposes of these discovery requests.

4. ENSTAR objects to each and every discovery request insofar as they are not reasonably calculated to lead to the discovery of admissible evidence and are not relevant to the subject matter of this proceeding.

5. ENSTAR objects to providing information to the extent that it is already a matter of public record, or to the extent it is obtainable from other sources that are more convenient and less burdensome, or are equally available to the Attorney General. The Attorney General is not entitled to require other parties to gather information that is equally available and accessible to it.

6. ENSTAR objects to each and every discovery request insofar as they seek documents or information protected by the attorney-client privilege or the work product privilege. Nothing contained in these responses is intended as, or shall in any way be deemed, a waiver of any such privilege or protection, or any other applicable privilege or doctrine.

7. ENSTAR objects to the instructions contained in the Attorney General's discovery requests. In responding to the requests, ENSTAR will follow the standard rules and practices for Commission proceedings involving discovery.

8. ENSTAR objects to production of any confidential documents or other information that could prejudice the business interests of ENSTAR or of any party that may have provided the confidential information to ENSTAR.

9. ENSTAR objects to the discovery requests insofar as certain requests are duplicative of other requests. ENSTAR will not undertake to produce more than one copy of any document that may be responsive to more than one request.

**SPECIFIC OBJECTIONS AND RESPONSES**

**AG-2-1.** Refer to the June 1, 2009 Pre-filed Testimony of Bruce Fairchild. Page 24, lines 1 to 4.

(a) Please describe the quality of transportation service that ENSTAR provides to the CEA International power plant, *i.e.*, is it firm or interruptible?

(b) Please provide the bills, and underlying billing determinants, by month for the transportation service that ENSTAR provided to the CEA International power plant in the 2008 test year.

(c) Please provide the tariff or contract under which ENSTAR provides transportation service to the CEA International power plant.

**RESPONSE:** (a) Because the Commission determined in Docket U-83-38 that all service to power plants should be firm service, the CEA International power plant is provided Firm Service.

(b) See file labeled "Response to AG-2-1(b).

(c) See Tariff Section 2101 "Service to Power Plants," Sheet 211. A copy is in the file labeled "Response to AG-2-1(c)."

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**AG-2-2.** Refer to the June 1, 2009 Pre-filed Testimony of Bruce Fairchild. Page 26, lines 2 to 6. Please provide a similar page showing normalized revenues by existing rate class for the 2008 test year.

**RESPONSE:** The following table, which should have been inserted on page 26, lines 5-6 of Dr. Fairchild's June 1, 2009 testimony, compares normalized revenues by existing customer class with the results of the cost-of-service study:

Class	Cost-of-Service	Current Base Revenues	Base Revenue Shortfall	Percent Increase
Residential (A)	41,483,264	32,577,624	8,905,640	27.34%
Small Comm. (B)	10,629,033	7,572,980	3,056,053	40.35%
Large Comm. (C)	13,578,388	11,848,670	1,729,718	14.60%
ML&P	4,045,548	3,114,570	930,977	29.89%
VLT	1,985,083	1,764,963	220,120	12.47%
FNG	402,207	252,012	150,195	59.60%
<b>Total</b>	<b>72,123,523</b>	<b>57,130,820</b>	<b>14,992,704</b>	<b>26.24%</b>

**AG-2-3.** Refer to the June 1, 2009 Pre-filed Testimony of Bruce Fairchild. Page 28, lines 7 to 8. Please provide a similar page showing cost of service for the proposed customer classes.

**RESPONSE:** The following table, which should have been inserted on page 28, lines 7-8 of Dr. Fairchild's June 1, 2009 testimony (and was subsequently corrected on June 3, 2009), shows the results of the cost-of-service study for ENSTAR's proposed customer classes:

Class	Customer	Capacity	Commodity	Total
General Service 1	20,932,910	19,014,099	277,728	40,224,737
General Service 2	2,146,131	2,382,488	34,934	4,563,554
General Service 3	4,833,818	4,371,653	63,482	9,268,953
General Service 4	4,284,491	7,243,522	105,749	11,633,762
ML&P	51,983	3,876,130	117,286	4,045,399
VLT	52,025	1,880,124	52,785	1,984,934
FNG	7,833	383,653	10,700	402,185
<b>Total</b>				<b>72,123,524</b>

AG-2-4. Refer to the June 1, 2009 Pre-filed Testimony of Bruce Fairchild. Page 29, lines 9 to 11.

(a) Please identify and provide copies of all analyses prepared by or for ENSTAR of the degree to which customers in each of the proposed rate classes G1 through G4 are homogeneous.

(b) Please describe all other reasons why ENSTAR is proposing two-part rates for the proposed G3 and G4 rate classes.

**RESPONSE:** (a) Please refer to the table in the attached Response to AG-2-4(a) that shows average usage during the test year (2008) and in the peak month of the test year (December 2008) by meter size within each proposed customer class. The data in this table is taken from the "Base Data" tab in the Excel spreadsheet "Meter COS.xls," which was previously provided.

(b) Most of the reasons for ENSTAR's proposal to charge the G1 and G2 classes a fixed monthly service charge also apply to the G3 and G4 classes. However, because of the lack of homogeneity within the G3 and G4 classes evidenced in the table provided in response

to AG-2-4, a two-part rate design for these classes was proposed in order to achieve a better matching between cost-causers and cost-payers.

AG-2-5. Refer to the June 1, 2009 Pre-filed Testimony of Bruce Fairchild. Page 29, line 12 to page 30 line 13 and of Daniel Dieckgraeff pages 44 to 46 and of Mr. Paul Raab pages 39 and 40.

(a) Please provide the distribution of monthly and annual bills within the existing residential class at existing rates. Please include a copy of the operational electronic workbook with all supporting inputs and calculations. If the Company has not prepared such an analysis please explain why not.

(b) Please provide the distribution of monthly and annual bills within the existing residential class at the proposed G1 charge of \$28.47 per customer per month. Please include a copy of the operational electronic workbook with all supporting inputs and calculations. If the Company has not prepared such an analysis please explain why not.

(c) Please provide the distribution of monthly and annual bills within the existing residential class at G1 charges of \$15 per customer per month and \$1.0856 per Mcf. Please include a copy of the operational electronic workbook with all supporting inputs and calculations. If the Company has not prepared such an analysis please explain why not.

**RESPONSE:** (a) No distribution of bills within the existing residential class at existing rates was prepared. Such a distribution was unnecessary because ENSTAR's existing rate structure consists of a flat volumetric charge, with no volumes being included in the

monthly customer charge, and ENSTAR is proposing to change to customer classes based on meter size.

(b) No distribution of bills within the proposed G1 class was prepared other than that discussed in the response to AG-2-4. A more detailed distribution was unnecessary because ENSTAR is proposing a fixed monthly charge for this class with no volume charges (other than the cost of gas).

(c) Please see the responses to AG-2-5 (a) and (b) above.

**AG-2-6.** Refer to the June 1, 2009 Pre-filed Testimony of Daniel Dieckgraeff page 44.

(a) Please explain why ENSTAR is not proposing a new rate class for residential customers who do not use gas for space-heating, *i.e.*, low usage residential customers.

(b) Does ENSTAR have any residential customers who do not use gas for space-heating? If so, please explain how ENSTAR identifies such customers, and state how many such customers ENSTAR has in each month of the test year.

**RESPONSE:** (a) Please see Mr. Dieckgraeff's testimony beginning at line 20, page 42. ENSTAR is proposing rate classifications that can be determined by objective and transparent criteria, and do not rely upon determinations based upon "behind the meter" facts that are known with certainty only by the customer. Additionally, besides the fact that virtually all of ENSTAR's residential customers use gas for space heating, ENSTAR has not proposed a separate rate for "low usage" residential customers because the cost of serving them (except for

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the cost of gas, which is differentiated based on usage) is not appreciably different than serving the average residential customer.

(b) ENSTAR objects to this subpart because it seeks information that does not exist. ENSTAR does not collect data regarding whether any of its residential customers do not use natural gas for space heating, and doing so would require “behind the meter” facts that are known with certainty only by the customer. ENSTAR is aware of a very limited number of instances where, at the time of that the initial natural gas service connection was installed, there was no gas space-heating equipment. ENSTAR has no way of knowing if the space-heating equipment may have been installed later. Given natural gas’s cost advantage over other space-heating fuels in its service area, ENSTAR’s experience is that customers try to use gas for space-heating in virtually all locations.

AG-2-7. Refer to the June 1, 2009 Pre-filed Testimony of Daniel Dieckgraeff page 45 and 46.

(a) Please provide the average annual usage of the 36,000 residential customers currently on budget billing.

(b) Please confirm that the survey question in Exhibit DMD-2 does not indicate the level of the fixed monthly fee.

(c) Please identify and provide copies of all analyses prepared by or for ENSTAR of residential customer attitudes towards a fixed monthly fee in the order of \$28. If the Company has not conducted such market research please explain why not.

**RESPONSE:** (a) ENSTAR objects to this subpart because it seeks information that does not exist. ENSTAR does not track this information. Further, the question incorrectly assumes that all of ENSTAR's budget billing customers are residential customers. Budget billing is available to both residential and small commercial customers.

(b) Admitted.

(c) ENSTAR has not done the analysis referenced here. At the time ENSTAR performed the survey referred to by Mr. Dieckgraeff, it had not yet determined the amount of a fixed monthly fee.

**AG-2-8.** Refer to the June 1, 2009 Pre-filed Testimony of Daniel Dieckgraeff, pages 11 to 17 and of George Schreiber page 20 lines 7 to 12 and page 35 pages 1 to 11.

(a) Please identify all programs and/or initiatives that ENSTAR implemented in the 2008 test year to help residential customers improve the efficiency of their gas use, including the number of residential customers who participated in each program.

(b) Please identify all programs and/or initiatives that ENSTAR proposes to implement to help residential customers improve the efficiency of their gas use if its proposed rate design is approved.

**RESPONSE:** (a) ENSTAR did not implement any such programs of its own during the 2008 test year; however, it did promote the State of Alaska's \$130 million Home Energy Rebate Program in its bill stuffers and on its web site. Mr. Dieckgraeff discusses that program in detail beginning at page 14 of his testimony.

(b) Given the level of State commitment and expenditures, ENSTAR is not proposing any programs of its own. It would propose to work with the State Weatherization and Home Energy Rebate program personnel to promote the programs, assist with data collection and evaluation, and to assist with identification of prospective participants.

AG-2-9. Refer to the June 1, 2009 Pre-filed Testimony of Daniel Dieckgraeff, pages 3 and 4. Please confirm that the Company had the right to submit a request for an increase in its rates at any time since its last base rate review (Docket U-00-88). If the Company cannot confirm this, please explain why not.

RESPONSE: Admitted.

AG-2-10. Refer to the June 1, 2009 Pre-filed Testimony of Daniel Dieckgraeff, page 41 lines 8 to 15.

(a) Please identify and provide the Company's most recent analysis of the value of gas service to residential customers for cooking and/or water heating. If the Company has not prepared this analysis, please explain why not.

(b) Please identify and provide the Company's most recent analysis of the cost of gas service to residential customers for cooking and/or water heating at existing rates. If the Company has not prepared this analysis, please explain why not.

(c) Please identify and provide the Company's most recent analysis of the cost of gas service to residential customers for cooking and/or water heating at a proposed

customer charge of \$28.47 per month. If the Company has not prepared this analysis, please explain why not.

(d) Please identify and provide the Company's most recent analysis of the cost of gas service to residential customers for cooking and/or water heating at G1 charges of \$15 per customer per month and \$1.0856 per Mcf. If the Company has not prepared this analysis, please explain why not.

**RESPONSE:** No such analyses were done as they were not considered useful or cost effective given the alternative energy costs in ENSTAR's service area. See the attached energy cost comparison attached as "Response to AG-2-12." See also Response to AG-2-6.

**AG-2-11.** Refer to the June 1, 2009 Pre-filed Testimony of George Schreiber.

(a) Refer to page 19, line 15. Please identify and provide all analyses that support the position that a single fixed charge is "...the most equitable."

(b) Refer to page 19, line 21. Please explain the phrase "without a transition."

**RESPONSE:** (a) The analyses that support the position that a single fixed charge is the most equitable may generally be found in the Prefiled Testimony of George Schreiber, page 19, line 17 to page 21, line 8. A specific discussion of equity issues also can be found in the Prefiled Testimony of Paul H. Raab, page 44, line 3 to page 52, line 7. The complete quotation is: "In my view, this is the most equitable manner for a utility to recover its costs of providing service." A primary basis for this opinion is Mr. Schreiber's experience in the utility industry,

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including efforts in recent years to address a decline in per customer usage through a change in rate design that would more closely match cost incurrence and collection.

(b) There are many possible ways to transition to the Company's preferred rate design proposal. One such way is described in the Prefiled Testimony of George Schreiber, page 21, lines 9-19. The phrase "without a transition" in this context means that the Company's preferred rate design proposal would be implemented without the phase-in discussed on page 21, lines 9-19 of Mr. Schreiber's testimony, thus making it unnecessary for the Commission to decide what billing determinants should be used to set rates (because there would no longer be a volumetric component of base rates).

AG-2-12. Refer to the June 1, 2009 Pre-filed Testimony of George Schreiber. Page 21 line 3.

(a) Please provide the Company's weighted average cost of gas in the 2008 test year.

(b) Please provide the Company's most recent estimate of its weighted average cost of gas in calendar year 2009.

(c) Please provide the Company's most recent estimate of its weighted average cost of gas in 2010 and 2011 respectively.

**RESPONSE:** (a) & (b) Objection. The data requested is on Schedule A of the 275(a) filing. Notwithstanding this Objection, the weighted average cost of gas (WACOG) for 2008 was \$6.8709/Mcf and the WACOG for 2009 was \$8.7457/Mcf.

(c) ENSTAR's 2010 annual GCA revision (TA 181-4) with a WACOG of \$6.9943/Mcf has recently received interim approval by RCA. ENSTAR has not projected the 2011 WACOG.

AG-2-13. Refer to the June 1, 2009 Pre-filed Testimony of George Schreiber. Page 21 lines 20 to 23. Does ENSTAR consider this to be the only issue to be considered in moving to a single fixed charge rate design? If not, please list all other impacts that should be considered.

RESPONSE: No. The other impacts are discussed in the Prefiled Testimony of George Schreiber, page 21, line 20 to page 26, line 22. Implementation issues are also the subject of the Prefiled Testimony of Paul H. Raab.

AG-2-14. Refer to the June 1, 2009 Pre-filed Testimony of George Schreiber. Pages 27 to 35.

(a) Please identify and provide all analyses prepared by or for ENSTAR of the improvement in revenue stability resulting from a transition to single fixed charge rate design.

(b) Please identify, quantify and describe in detail how Dr. Olson has reflected the value of improved revenue stability resulting from a transition to single fixed charge rate design in his proposed return on equity.

RESPONSE: (a) ENSTAR's general analysis of this issue is addressed, among other places, in the prefiled testimony of George Schreiber and Daniel Dieckgraeff. No specific analyses were prepared examining the specific effect on revenue stability of moving from a rate

ENSTAR'S RESPONSES TO THE ATTORNEY GENERAL'S SECOND SET OF  
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design consisting of a monthly customer charge and volumetric charges (plus the cost of gas) to one consisting of a fixed monthly service charge (plus the cost of gas). Because this proposed rate design would only apply to customers in the G1 and G2 classes, there would be no change in revenue stability for customers in the G3 and G4 classes.

(b) Dr. Olson has carefully studied the gas and electric rate decoupling situation in the United States and concluded that investors have built decoupling into their expectations for gas utilities. A substantial amount of material on this subject is publicly available on the internet though a Google search using the phrase "gas utility rate decoupling." The investor view is available from The Wall Street Journal (February 8, 2009, 4:29 P.M. ET) under the title "Less Demand, Same Great Revenue." A more substantial discussion is available from Pamela G Lesh, "Rate Impacts and Key Design Elements of Gas and Electric Utility Decoupling" (6/30/2009). Finally, utility rate decoupling is a condition of receiving certain funds under Section 410 of the American Recovery and Renewal Act of 2009. Based on the analysis Dr. Olson has done, there is no need to adjust the market-based returns he has derived. Indeed, if the recommended rate design change is not made, the authorized return level should be increased to the high end of Dr. Olson's range.

**AG-2-15.** Refer to the June 1, 2009 Pre-filed Testimony of Paul Raab.

(a) Page 24, lines 16 to 19; please indicate the number of natural gas distribution companies in the United States.

(b) Page 24, lines 16 to 19; please indicate the number of natural gas distribution companies in the United States with a customer charge for residential customers of \$15 or more.

(c) Page 9, lines 18 to 24; please indicate the number of natural gas distribution companies in the United States with a repression adjustment.

(d) Page 9, lines 18 to 24; please identify by utility name, jurisdiction and docket number all proceedings in which you have proposed a repression adjustment in the last ten years.

(e) Please provide an online link, or a complete copy of, each testimony, report or other document in which you have proposed a repression adjustment in the last ten years, as identified in response to part d.

(f) Page 15, lines 1 to 2, please provide the range of retail gas prices within which these relationships would continue to apply.

**RESPONSE:** (a) The witness does not know. However, for purposes of providing context to the remaining responses of this question, AGA estimates that natural gas was supplied to approximately 65 million residential customers in 2007.

(b) According to AGA, 11 LDCs in 7 jurisdictions have implemented SFV rate designs similar to those proposed by the Company in this proceeding and 2 more LDCs have proposed cost-based rate designs. The 11 LDCs for whom cost-based rate designs have been approved serve approximately 8 million residential customers. Thus, approximately 12 percent of all residential customers are served under cost-based rate designs.



(c) The response to this question defines “repression adjustment” broadly to include any mechanism that adjusts billing determinants for customer response. Given this definition, AGA estimates that, as of October 2009, 35 companies in 18 states serving 22 million residential customers employed some form of repression adjustment mechanism. In other words, approximately 1/3 of all residential customers in the United States are currently served by utilities that adjust billing determinants for customer response.

(d) Under the broad definition of repression adjustment discussed above, Mr. Raab has proposed repression adjustments in the following jurisdictions for the following utilities in the following docket numbers in the last ten years:

Jurisdiction	Docket Number	Utility
Alaska	U-09-69, U-09-70	ENSTAR Natural Gas
District of Columbia	989	Washington Gas
	1016	Washington Gas
	1053	Washington Gas
	1054	Washington Gas
Iowa	RPU-05-2	Aquila
Kansas	05-AQLG-367-RTS	Aquila
	06-KGSG-1209-RTS	Kansas Gas Service
	07-AQLG-431-RTS	Aquila
Maryland	8959	Washington Gas
	9092	Washington Gas
	9104	Washington Gas
	9106	Washington Gas
Missouri	GR-2002-356	LaClede Gas

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Nebraska	NG-0041	Aquila
Oklahoma	PUD 200400610	Oklahoma Natural Gas
	PUD 200800348	Oklahoma Natural Gas
	PUD 200900110	Oklahoma Natural Gas
Virginia	PUE-2006-00059	Washington Gas
	PUE-2008-00060	Washington Gas
	PUE-2009-00064	Virginia Natural Gas

(e) If available, these testimonies can be found on the state commission websites indicated by the jurisdiction listed. All state commission websites may be accessed through [www.naruc.org](http://www.naruc.org).

(f) Mr. Raab has estimated log-linear specifications. A mathematical consequence of such specifications is that they result in a constant elasticity across the entire range of retail gas prices. In other words, these elasticities apply over the entire range of retail gas prices.

**AG-2-16.** Refer to the June 1, 2009 Pre-filed Testimony of Paul Raab, page 37.

(a) Is it the Company's position that it is legally obligated to connect, and provide service to, a prospective new customer in any class if the revenues it expects to collect from that customer will not recover the costs it will incur to serve that customer. If so, please specifically identify and provide the statutes, Commission orders and rules, tariffs, and all other authority upon which the Company's position is based.

(b) Please identify and provide a copy of the sections of the Company's tariff that describe the economic tests or thresholds which a prospective customer must meet before the Company will connect and provide service to that customer.

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(c) Please list, by year, the number of residential customers the Company has connected in each year since 2003 whose usage indicates they are not using natural gas for space heating, and provide the corresponding average annual usage of those new customers in each of those years.

(d) Include all customer count information calculations in Excel that were used in responding to part c.

**RESPONSE:** (a) ENSTAR objects to this subpart as calling for a legal conclusion and thus outside the scope of permissible discovery.

(b) Section 400 of ENSTAR's tariff (Sheets 28-49.1) relates to Customer-Company Relations Regarding Service, including Customer requests for service. Section 600 of ENSTAR's tariff (Sheets 52-77) relates to the Company's Installation including system expansion. See the attached file "Response to AG-2-16(b)."

(c) ENSTAR objects to this subpart because it seeks information that does not exist. ENSTAR does not collect data regarding whether any of its residential customers do not use natural gas for space heating, and doing so would require "behind the meter" facts that are known with certainty only by the customer.

(d) Not applicable. See Response to AG-2-16(c).

**AG-2-17.** Refer to the June 1, 2009 Pre-filed Testimony of Paul Raab, page 39 lines 1 to 6, page 42 lines 13 to 15 and page 52. Please provide the Company's most recent analyses of the long run marginal cost of each of the following components associated with gas use by

its customers. If the Company has not prepared analyses of long run marginal costs please explain fully and in detail why not.

- (a) Production
- (b) Transmission
- (c) Distribution
- (d) Environmental externalities, such as carbon dioxide emissions.

**RESPONSE:** The Company has not conducted a long run marginal cost analysis of any of the components listed because such an analysis was not necessary to fully support its rate design proposals in this case. It has been the historical practice of ENSTAR (and the Commission) to calculate rates on the basis of embedded, not long-run marginal, costs. The only “marginal” cost studies prepared by ENSTAR are in connection with its line extension policy (see the response to AG-2-16 (b)).

**AG-2-18.** Refer to the June 1, 2009 Pre-filed Testimony of Paul Raab, page 40 lines 1 to 3.

(a) Please indicate exactly where in his testimony Mr. Fairchild describes this aspect of the proposed rate design.

(b) If not described in Mr. Fairchild’s testimony, please provide a complete explanation and description of this aspect of the proposed rate design.

**RESPONSE:** (a) The referenced passage is intended to convey the idea that Dr. Fairchild has recognized that G3 and G4 customers are less homogenous than G1 and G2 customers and would therefore likely experience greater rate shock as a result of a move to a

straight fixed variable rate design. Recognition of this fact resulted in Dr. Fairchild proposing a two-part rate for these classes consisting of a monthly customer charge plus a uniform volume charge, rather than a more cost-based rate design. Mr. Dieckgraeff discusses the customer impact of ENSTAR's proposed rate structure versus its existing rate structure (see page 46-47 of Mr. Dieckgraeff's June 1, 2009 testimony).

(b) Not applicable. See response to AG-2-18 (a).

**AG-2-19.** Refer to the June 1, 2009 Pre-filed Testimony of Paul Raab, page 46 lines 18 to 21.

(a) Please explain how a negative income elasticity implies that low-income customers are high use consumers of natural gas.

(b) Please identify and provide a copy of all authoritative texts and publications relied upon for this testimony and the explanation provided in response to part a.

**RESPONSE:** (a) An income elasticity of demand defines the relationship of changes in demand to changes in income. Thus, a good or service whose demand is characterized by a negative income elasticity of demand is one whose quantity demanded declines as incomes rise. A negative income elasticity of demand is generally associated with natural gas demand. It therefore follows logically that customers with higher incomes will demand less natural gas and customers with lower incomes will demand more natural gas.

(b) Goods or services whose demand is characterized by a negative income elasticity of demand are referred to as "inferior goods" in economic parlance. A discussion of inferior goods pervades even elementary economics texts when describing potato consumption, bus

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travel, and cigarettes, to name but a few products, whose consumption is inversely related to income levels, and to list all of these sources would be virtually impossible. However, a good article that describes the relationship between income and natural gas consumption is "Estimation of Short-Run and Long-Run Elasticities of Energy Demand From Panel Data Using Shrinkage Estimators," in the Journal of Business and Economic Statistics, January 1997, Volume 15, No. 1. This article, authored by G. S. Maddalla, Robert P. Trost, Hongyi Li, and Frederick Joutz, describes the estimation of price and income elasticities for each of 49 states in the United States using data for 21 years. The study described by this article represents the most recent estimation of which Mr. Raab is aware of short- and long-run elasticities of natural gas demand that are both econometrically correct and geographically comprehensive.

With respect to the income elasticities derived, this article contains the following conclusion:

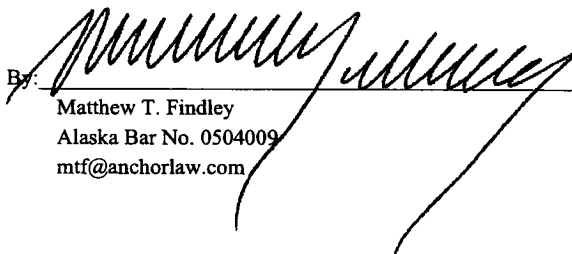
The long-run income elasticity for natural gas is persistently estimated as negative with the individual OLS regressions and is nearly 0 (-.057) with the shrunken estimates. Although it seems counterintuitive that the long-run natural gas income elasticity is smaller than the short-run natural gas elasticity, there are several explanations for this result. First, as incomes rise, households may buy microwave ovens and will substitute away from gas cooking into microwave cooking. Second, as incomes rise, households may convert their homes to central air conditioning and households that previously used gas for heating now have the option of converting to electric heating and cooling with a heat pump. Hence, a certain subset of these households will reduce their gas consumption dramatically as incomes rise. Third, as incomes rise, households will remodel their homes. In many cases the configuration of appliances such as ranges, clothes dryers, and water heaters after remodeling are not convenient to gas lines. Again, a subset of households that previously used gas for these end users will now convert to electricity as incomes rise. Finally, natural gas price controls had an impact

on the availability of supplies...The combination of these factors can explain the income elasticity results. (Maddalla, Trost, Li, and Joust at 98.)

This means that, according to empirical research, it is more likely that high volume users of natural gas are lower income consumers. This is confirmed by data compiled in the LIHEAP Home Energy Notebook. These data show that low income households use, on average, more natural gas for heating than non-low income households. Furthermore, confirming the price elasticity work that the Company has performed, LIHEAP recipients use more natural gas per household for space heating purposes than their non-LIHEAP counterparts and, on average, over 22% more than their non low income counterparts.

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DATED: December 21, 2009

**CERTIFICATE OF SERVICE**

I certify that a copy of the foregoing was served electronically and/or by U.S. Mail with attachments on CD-ROMS only on the 21st day of December 2009, on:

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