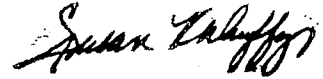


**BEFORE THE CORPORATION COMMISSION
OF THE STATE OF KANSAS**

STATE CORPORATION COMMISSION

MAR 31 2010



Docket No. 10-BHCG-639-TAR

**Black Hills/Kansas Gas Utility Company, LLC,
d/b/a Black Hills Energy**

Prepared Direct Testimony of

Dr. John Chamberlin

DIRECT TESTIMONY OF JOHN CHAMBERLIN, PH.D.
THE STATE CORPORATION COMMISSION
OF THE STATE OF KANSAS
DOCKET NO. _____

1 **1. Q: Please state your name, your employer, and your business address.**

2 **A:** My name is John Chamberlin. I am employed by The Cadmus Group,
3 which has recently merged with my previous company: Quantec, LLC. My
4 address is 1720 East Main Street, Reedsburg, Wisconsin, 53959.

5 **2. Q: What position do you hold with Cadmus Group, formerly**
6 **Quantec, LLC?**

7 **A:** I hold the position of Principal.

8 **3. Q: Please describe your education and business experience.**

9 **A:** I received a Ph.D. in economics from Washington State University in
10 1976. Prior to my present position with The Cadmus Group, I was employed as
11 Vice President for Xenergy, Inc., Vice President for Strategy and Planning at
12 PG&E Energy Services, and was Executive Vice President at the consulting firm I
13 co-founded, Barakat and Chamberlin. Earlier in my career, I was a Senior Project
14 Manager at the Electric Power Research Institute, and an Analyst at Westinghouse
15 Hanford.

16 **4. Q: Are you familiar with utility rate regulation?**

17 **A:** Yes. I have extensive experience in all aspects of utility rate design and
18 analysis. I have performed numerous cost of service analyses, designed both
19 traditional and innovative rates, written extensively on the design of utility rates,

1 developed and implemented utility rate design workshops and short courses, and
2 spoken numerous times at industry conferences on utility rate issues. In addition, I
3 have testified on utility rate issues in a wide variety of state and local regulatory
4 proceedings. A biography describing my professional experience is provided in
5 Exhibit _____ (JHC-1).

6 **5. Q: Have you previously testified in regulatory proceedings?**

7 **A:** Yes. I have testified in numerous state regulatory proceedings on a variety
8 of matters ranging from avoided cost, energy efficiency, rates and cost of service,
9 DSM and Integrated Resource Planning, and industry restructuring. I have also
10 testified before a number of civil jurisdictions, municipal utility regulatory bodies,
11 and state legislatures.

12 **6. Q: What is the purpose of your direct testimony in this proceeding?**

13 **A:** Black Hills Energy (“BHE” or “Company”) is proposing an alternate rate
14 mechanism to allow for the recovery of its approved fixed costs in conjunction
15 with the implementation of its Kansas Gas Demand Side Management (DSM)
16 program. Specifically, the Company’s proposed DSM programs may precipitate
17 frequent rate revisions in order to provide the Company an opportunity to recover
18 its approved level of fixed costs and earn its authorized return. I will testify that
19 the Company’s alternate rate proposal is reasonable, appropriate and likely to
20 stabilize revenues over time, resulting in benefits to both its customers and the
21 Company.

22 **7. Q: Please summarize the Company’s proposal.**

1 **A:** The Company is proposing an adjustment to its distribution rates that it
2 calls a "Revenue Normalization Mechanism." The Revenue Normalization
3 Mechanism ("RNM") is a decoupling mechanism intended to adjust the
4 Company's revenues to match the expected weather-normalized revenues from the
5 Company's Commission-approved level of revenues. As discussed in BHE's
6 Verified Application for approval of its DSM Plan, and as demonstrated in the Pro
7 Forma Gas tariff contained in Appendix E of the DSM Plan, RNM will be a
8 component of BHE's Energy Efficiency Cost Recovery Adjustment (EECR). The
9 EECR is a rider that in addition to including the RNA will be used by the
10 Company to recover the cost of its energy efficiency programs. This type of rider
11 recovery mechanism was determined by the Commission in its Final Order in
12 Docket 08-GIMX-441-GIV ("441 Docket") to be the best cost recovery
13 mechanism with respect to recovery of costs associated with utility energy
14 efficiency programs. Final Order, page 10, par. 29.

15
16 The RNM portion of the EECR will account for changes in revenues per
17 customer resulting from differences in usage per customer relative to historical
18 test year usage per customer, and for changes in the number of customers. Actual
19 revenues collected will be compared to the revenues approved in the most recent
20 base rate proceeding, adjusted for changes in the number of customers, to
21 determine the amount of under- or over-collection. This cost amount will then be
22 added to the Company's DSM costs and proposed DSM performance mechanism
23 to determine the overall EECR. This Commission recognized in its 441 Docket

1 that addressing the throughput incentive may be necessary to avoid utilities
2 experiencing loss of margin as a result of implementing energy efficiency
3 programs. Final Order, page 15, par. 45. This Commission also acknowledged in
4 its 441 Docket that it would consider decoupling proposals like the proposed
5 RNM from natural gas utilities with concerns about revenue stability and invited
6 gas utilities like BHE to make application for decoupling as part of their energy
7 efficiency filings and the Commission would address each application on a case
8 by case basis. Final Order, page 20, par. 60."

9 **8. Q: Why is the RNM needed?**

10 **A:** In Kansas, as is common throughout the US, natural gas rates are designed
11 to recover both fixed and variable costs. Historically, however, natural gas rates
12 have been set to recover a substantial portion of the utility's fixed costs through a
13 volumetric charge. This characteristic leaves a natural gas distribution company
14 highly susceptible to under- or over-collecting its fixed costs due to changes in
15 natural gas usage.

16 **9. Q: Are there general principles widely in use to aid in the design of utility**
17 **rates?**

18 **A:** Yes. In their seminal text "Principles of Public Utility Rates" the authors,
19 James C. Bonbright et al, state: "In very general terms, optimal rates should
20 provide clear, efficient, effective, informative, and cost effective market signals
21 about the present and future cost of service to buyers and sellers, which requires
22 that prices track costs." ("Principles of Public Utility Rates", Bonbright et al,
23 Second Edition, 1988, p. 382)

1 **10. Q: How does this principle apply to a natural gas distribution utility?**

2 **A:** For a distribution company, the majority of the costs are fixed in the short
3 term. These costs include the recovery of the physical plant investments and
4 operating and maintenance costs. Costs associated with the natural gas itself are
5 passed through to the customer based on the actual costs incurred by the
6 distribution company. Traditional ratemaking includes both fixed and volumetric
7 rates. The monthly customer charge is intended to reflect that there are fixed costs
8 associated with simply having a customer on the system – metering and customer
9 accounting are examples. Many of the core distribution costs (from the customer
10 to the city gate) are also fixed, and do not vary with volume – at least in the short
11 term. However, this customer charge is not typically set at a level to recover all of
12 the fixed costs. Consequently, a significant portion of the fixed costs are still
13 recovered through the volumetric portion of the rate. That creates a basic
14 mismatch between the underlying costs and the rates intended to recover those
15 costs. Increases or decreases in natural gas purchased will cause the utility to
16 over-collect or under-collect its fixed costs. BHE’s proposed Revenue
17 Normalization Mechanism is intended to address that problem.

18 **11. Q: Are BHE’s proposed energy efficiency programs expected to**
19 **significantly reduce usage?**

20 **A:** Yes. BHE is proposing an aggressive portfolio of programs that
21 effectively bring the Company’s well-established, high impact Iowa and Colorado
22 gas energy efficiency programs to Kansas. The programs are anticipated to reduce
23 BHE’s sales volume by nearly 2% at the end of the 5 year plan, resulting in an

1 average residential bill savings of over \$17 per year and an average commercial
2 bill savings of over \$161 per year by the end of the 5 year plan. As shown in
3 Chapter 7 of BHE's Plan, fixed cost recovery (i.e., "revenue losses") are
4 estimated at approximately \$1 million over the first five years of the DSM
5 Program. This under-recovery of revenues will become even more pronounced as
6 the programs continue beyond the first five years in the absence of either annual
7 rate cases (which are costly in both time and resources) or some other alternate
8 cost recovery approach. It is important to recognize that this revenue loss is an
9 underrecovery of fixed costs that had already been authorized for recovery by the
10 Kansas Commission.

11 **12. Q: What alternate forms of regulation have other natural gas utilities**
12 **used?**

13 **A:** The problem described above is not unique to BHE; many other utilities
14 across the country are in a similar position, and have developed a variety of
15 approaches to address the over- and under-recovery problem. Exhibit _____
16 (JHC-2) describes the variety of means that have been implemented recently to
17 address the problem. I would classify the approaches as:

- 18 • Weather Normalization Clauses – riders that correct for weather-related
19 changes in usage
- 20 • Revenue Decoupling Tariffs – riders that correct for any differences in the
21 usage levels built into base rates
- 22 • Return Stabilization Mechanisms – expedited rate proceedings or riders
23 that correct for both differences in usage and differences in cost

- 1 • Fixed Variable Rate Design – rate design changes that shift all fixed costs
- 2 into fixed rate elements
- 3 • Increased Customer Charge – rate design changes that shift additional
- 4 fixed costs to the customer charge

5 While each of the approaches to address this issue has strengths and weaknesses, I
6 believe BHE’s proposal is particularly appropriate, representing a balance among
7 the objectives of cost alignment, gradualism and efficiency. The proposed
8 mechanism complements BHE’s move towards a rate structure that recovers a
9 higher proportion of fixed costs through the customer charge.

10 **13. Q: Have other utilities implemented decoupling mechanisms like the one**
11 **proposed by BHE?**

12 **A:** Yes, there are currently 28 gas LDCs, and 12 electric utilities across 17
13 states that have decoupling mechanisms similar to the one proposed by BHE.
14 Another 6 states have approved the concept in principle, but have not yet
15 implemented a specific mechanism.

16 **14. Q: Has the National Association of Regulatory Commissioners**
17 **(“NARUC”) addressed this issue?**

18 **A:** Yes. NARUC has issued two resolutions specifically addressing the need
19 for alternate forms of regulation for natural gas utilities. In its “Resolution on Gas
20 and Electric Energy Efficiency” adopted by the NARUC Board of Directors on
21 July 14, 2004, NARUC encouraged state commissions to “address regulatory
22 incentives to address inefficient use of gas and electricity.” (A copy of this 2004
23 NARUC resolution is attached as Exhibit _____ (JHC-3).) In the same resolution

1 NARUC encouraged state commissions to review and consider the
2 recommendations in the “Joint Statement of the American Gas Association, the
3 Natural Resources Defense Council, and the American Council for an Energy
4 Efficient Economy”. (Those recommendations will be discussed below.)

5 In its “Resolution Supporting the National Action Plan on Energy Efficiency”
6 adopted by the NARUC Board of Directors on August 2, 2006, NARUC endorsed
7 “the principal objectives and recommendations of the National Action Plan on
8 Energy Efficiency, and commended to its member commissions a State-specific,
9 and where appropriate, regional review of the elements and potential applicability
10 of energy efficiency policy recommendations outlined in the Plan, in an effort to
11 identify potential improvements in energy efficiency policy nationwide.” (A copy
12 of the 2006 NARUC resolution is attached as Exhibit _____. (JHC-4).) The 2006
13 NARUC resolution cited five key elements of the National Energy Plan: 1)
14 Recognize energy efficiency as a high priority energy resource; 2) Make a strong,
15 long-term commitment to cost-effective energy efficiency as a resource; 3)
16 Broadly communicate the benefits of and opportunities for energy efficiency; 4)
17 Promote sufficient, timely, and stable program funding to deliver energy
18 efficiency where cost-effective; and 5) Modify policies to align utility incentives
19 with the delivery of cost-effective energy efficiency and modify ratemaking
20 practices to promote energy efficiency investments.

21 15. Q: **Does the “Joint Statement of the American Gas Association, Natural**
22 **Resources Defense Council and the American Council for an Energy**

1 **Efficient Economy” cited favorably by the NARUC list the benefits of**
2 **alternate regulatory approaches?**

3 A: Yes. The statement lists several key benefits:

- 4 • Customers could save money by using less natural gas
- 5 • Reduced overall use would help push down short-term prices at times
6 when markets are under stress, reducing costs for all customers (whether
7 or not they participate in utility energy efficiency programs)
- 8 • Utilities would be better able to recover their costs and have a fair
9 opportunity to earn their allowed returns
- 10 • State policies to encourage economic development would be enhanced by
11 increased energy efficiency and lower business energy costs
- 12 • State regulatory commissions would be able to support larger state policy
13 objectives

14 (A copy of the *Joint Statement of the American Gas Association and the Natural*
15 *Resources Defense Council* is attached as Exhibit _____ (JHC-5).)

16 **16. Q: Have mechanisms similar to BHE’s proposed Revenue Normalization**
17 **Mechanism been independently evaluated?**

18 A: Yes. In 2005 the consulting firm Christensen Associates conducted an
19 independent evaluation of NW Natural’s revenue normalization mechanism in
20 compliance with the Oregon Public Utility Commission’s Order No. 02-634 in
21 Docket UG-143. The NW Natural adjustment mechanism is similar to BHE’s
22 RNM proposal in that it normalizes revenues on a per-customer basis for

1 differences between actual and authorized levels. The Christensen researchers
2 found that NW Natural's mechanism:

- 3 • Reduced the company's disincentive towards energy efficiency
- 4 • Did not shift risk to the customers
- 5 • Did not create negative incentives with respect to customer service
- 6 • Improved the company's ability to recover its fixed costs

7 Because the structure of the NW Natural mechanism is similar to BHE's RNM
8 proposal, I would expect it to have similar impacts.

9 **17. Q: How have existing decoupling mechanisms affected rates in other**
10 **jurisdictions?**

11 **A:** The experience in other jurisdictions indicates that decoupling
12 mechanisms exhibit two significant characteristics. First, the decoupling
13 adjustments tend to be very small, or even miniscule. The majority of adjustments
14 have been under one percent according to a survey conducted by Pamela Lesh,
15 former vice president of regulation for Portland General, in June of 2009 in a
16 recent study published by the RAP. Second, the decoupling adjustments have
17 historically produced both refunds and surcharges for customers.

18 **18. Q: What do you conclude about the appropriateness of BHE's proposed**
19 **Revenue Normalization Mechanism?**

20 **A:** I conclude that BHE's proposed Revenue Normalization Mechanism is
21 consistent with approaches that have been implemented successfully by natural
22 gas distribution companies in jurisdictions across the United States, in that it will

1 adjust revenues for differences between authorized and actual levels. I expect that
2 the Revenue Normalization Mechanism will have the following impacts:

- 3 1. Disincentives toward energy efficiency will be reduced
- 4 2. Customer bills will be more stable
- 5 3. Revenues will be better aligned with costs
- 6 4. The Company will be better able to recover its fixed costs

7 **19. Q: Did you consider alternatives to the proposed RNM?**

8 **A:** Yes, I considered a mechanism that would limit recovery to the revenues
9 lost specifically due to energy efficiency programs. A “lost revenue adjustment
10 mechanism” (“LRAM”) could be developed that utilized estimates of usage
11 changes for each energy efficiency program, multiplied by the fixed costs that
12 were unrecovered for each such program. This type of mechanism has appeal in
13 the abstract, since it would directly tie revenue recovery to revenues lost as a
14 result of the energy efficiency programs. For BHE, however, an LRAM suffers
15 from two problems:

- 16 1. The costs associated with required Evaluation Measurement and
17 Verification (“EM&V”) activities would be excessive relative to the size
18 of the expected adjustments.
- 19 2. The process required to implement an LRAM relative to the level of
20 recovery would be more expensive, and would likely be much more
21 contentious.

22 **20. Q: Please describe these concerns more fully.**

1 **A:** The RNM can be implemented in a manner which is clear, simple and
2 transparent. The adjustment is made simply on the basis of the difference
3 between the test year usage per customer and the actual usage per customer, along
4 with the Commission approved level of authorized fixed costs. In contrast, an
5 LRAM requires that estimates be prepared of the reduction in usage associated
6 with each specific program. The reduction is the difference between actual usage
7 (which of course is metered), and the usage that would have occurred in the
8 absence of the energy efficiency program. Since the latter value is not metered, it
9 must be estimated. This estimation is referred to as Evaluation, Measurement and
10 Verification or EM&V.

11 The EM&V approach included in BHE's DSM Program calls for about \$70,000,
12 (5%) of the total budget, to be devoted to EM&V activities. It contains a mix of
13 deemed savings and more extensive evaluations. The additional costs of going
14 beyond BHE's proposed EM&V effort – one that would not rely on deemed
15 savings for any technology or program and would instead provide statistically
16 significant estimates of usage impacts for each program and technology – would
17 likely double BHE's proposed EM&V budget and possibly lead to several
18 hundred thousand dollars in EM&V costs depending on the required data
19 collection, sample size, desired statistical confidence levels, and analysis
20 approaches. It does not seem reasonable to implement a process to recover lost
21 revenues by a mechanism that costs a significant portion of the lost revenues to be
22 recovered.

1 In addition, there would surely be differences in opinion about the results of the
2 evaluations and the size of the estimated impacts. The process to resolve these
3 could be complicated, contentious and probably expensive as well.

4 For these reasons, I believe the RNM is significantly better than an LRAM in the
5 present context, and have therefore proposed it for BHE.

6 **21. Q: Did you consider an RNM that excluded customer growth (i.e., that**
7 **adjusted revenue on an entire usage basis, rather than a per-customer basis)?**

8 **A:** Yes. One reason that the per-customer RNM approach is appropriate for
9 gas distribution utilities is that changes in usage do not generally result in changes
10 in cost, since almost all costs are fixed. The primary exception to this, however,
11 is that customer additions (as opposed to usage increases) do result in cost
12 increases. When a customer is added, BHE may incur line extension costs along
13 with the cost of the meter, customer-service-related costs, and other
14 administrative costs. If customer growth is excluded, these costs are not
15 recovered via additional revenue. Therefore, I think it is appropriate that a
16 mechanism include some vehicle that allows revenue increases tied to a source of
17 the underlying cost driver. The per-customer RNM is a simple and
18 straightforward way to accomplish that.

19 **22. Q: Have you reviewed BHE's proposed recovery of the RNM through**
20 **its Pro Forma Energy Efficiency Cost Recovery (EECR) tariff?**

21 **A:** Yes. I have reviewed both the Pro Forma tariff and the RNM calculation
22 process described in Chapter 7, of the Energy Efficiency Plan. This approach
23 accomplishes the purpose of recovering BHE's lost fixed costs.

1 **23. Q: How does the proposed RNM cost compare to the DSM program**
2 **savings?**

3 **A:** The RNM is projected to add a little more than \$2 annually to residential
4 bills, while the DSM program will save over \$17 annually for residential
5 customers. Similarly, the RNM is projected to add a little more than \$18 annually
6 for commercial customers, while the DSM program will save over \$161 annually.

7 **24. Q: If the RNM were to be adopted in this proceeding, would it be**
8 **appropriate to maintain the existing WNA?**

9 **A:** No, since the RNM would adjust for any difference between actual, and
10 normal weather, the WNA would no longer be required.

11 **25. Q: Is BHE proposing a shared savings performance incentive**
12 **mechanism?**

13 **A:** Yes.

14 **26. Q: Please explain the purpose of a shared savings mechanism.**

15 **A:** Decoupling mechanisms such as the RNM that BHE is proposing remove
16 a significant barrier to DSM program implementation but DSM resources are still
17 not on a level field with other utility investments that generate earnings for the
18 utility shareholders. A shared savings performance incentive mechanism helps
19 create a balance by allowing shareholders to benefit from the investment in DSM
20 programs.

21 **27. Q: Did the Kansas Corporation Commission recognize the value of**
22 **performance incentive mechanisms in its Final Order in Docket 08-GIMX-**
23 **441-GIV (“Final Order”)?**

1 A: Yes. In paragraph 97 of the Final Order the Commission indicated that it
2 will consider performance benefits for two classes of DSM programs; programs
3 that target low and fixed income customers and renters and programs that target
4 new and existing residential housing utilizing a comprehensive approach.

5 **28. Q: Did the Commission also indicate its preferred performance incentive**
6 **mechanism?**

7 A: Yes. In paragraph 99 of Final Order the Commission indicated that it
8 prefers a shared benefit mechanism.

9 **29. Q: Is BHE's proposed mechanism consistent with the Commission's**
10 **directives?**

11 A: Yes.

12 **30. Q: What are the characteristics of a well designed DSM program**
13 **incentive mechanism?**

14 A: A well designed DSM program incentive mechanism would have the
15 following characteristics:

16 1) Both the utility shareholders and customers would benefit by having the
17 mechanism in place

18 2) It would be easy to understand and simple to implement

19 3) It would produce an earnings potential that is significant and comparable to
20 that of other utility investments

21 **31. Q: Please describe BHE's proposed mechanism.**

22 A: BHE is proposing a simple to implement mechanism that provides the
23 Company's shareholders 10% of the net Total Resource Cost benefits of the

1 Company's residential portfolio of programs. The mechanism would be capped at
2 20% of the total residential portfolio program expenditures.

3 **32. Q: Does this mechanism meet your criteria?**

4 A: Yes, in part. The mechanism would benefit both customers and
5 shareholders in that only the actual savings from the targeted programs would be
6 used, thus ensuring that there is a significant net customer benefit. Shareholders
7 would receive one-tenth of the total net benefit, providing incentive for the
8 Company to aggressively pursue these savings. The mechanism is also very
9 simple to understand, calculate and implement. However, restricting the
10 mechanism to just the residential and low income programs results in a potential
11 incentive that is below the level that makes these investments comparable to other
12 utility investments.

13 **33. Q: What is the level of incentive that would result from BHE's program**
14 **plan?**

15 A: The expected total resource cost net benefit for the residential portfolio is
16 \$970,000. The total resource cost net benefit for the low income programs is
17 (\$551,000) for a combined total resource cost net benefit of \$419,000. A 10%
18 shareholder incentive would be \$42,000 on a total investment in these programs
19 of \$9.2 million. This equates to approximately 0.55% return on the investment.

20 **34. Q: Why is BHE proposing a mechanism that results in a less than**
21 **optimal balance with other potential utility investments?**

22 A: BHE is proposing this mechanism to be consistent with the direction
23 provided by the Commission. BHE also recognizes that total resource cost

1 benefits depend in large part on the project future natural gas prices. At times of
2 higher prices the return provided by the mechanism will better balance
3 investments in DSM with other potential investments.

4 **35. Q: Do you suggest that the performance incentive mechanism be**
5 **expanded to include the non-residential programs?**

6 A: The Commission has already considered this issue and indicated its
7 willingness to consider a performance incentive mechanism only for the low-
8 income and rental class of customers and for a comprehensive approach for other
9 residential customers. I respect the Commission's disposition. Nonetheless, the
10 Commission has also indicated a desire to place DSM on a comparable footing
11 with other utility investments. The relatively low net benefits of residential and
12 low income programs make the latter result unlikely. Consequently, it may be
13 worthwhile to consider expanding the programs eligible for a performance
14 incentive to include non-residential programs.

15 **36. Q: How are the savings that are used for the calculation of the total**
16 **resource cost net benefits verified?**

17 A: The savings used would be the same savings used to determine the RNM.
18 Deemed savings per unit would be applied to a verified number of units installed.
19 The deemed savings would be updated based on findings from program
20 evaluations and applied to future program years.


21 **37. Q: Does this conclude your direct testimony?**

22 A: Yes.

VERIFICATION OF JOHN H. CHAMBERLIN

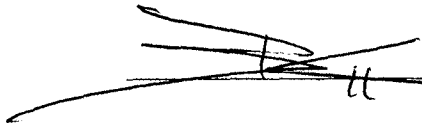
STATE OF CALIFORNIA)
)ss:
COUNTY OF BUTE)

John H. Chamberlin, being first duly sworn, deposes and says that he is John H. Chamberlin referred to in the foregoing document entitled "Direct Testimony of John H. Chamberlin" before the State Corporation Commission of the State of Kansas and the statements therein were prepared by him or under his direction and are true and correct to the best of his information, knowledge and belief.



John H. Chamberlin

SUBSCRIBED AND SWORN to before me this 29th day of MARCH, 2010.



Notary Public

My Appointment Expires: JUNE 23, 2012



John H. Chamberlin, Ph.D.
The Cadmus Group
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Reedsburg, WI 53959
(608) 524-4844
john.chamberlinc@cadmusgroup.com

EXPERIENCE

Principal **The Cadmus Group (Quantec, LLC prior to May 1, 2008)**
(2003 to present)

Leads several practice areas including utility pricing and rate design, portfolio planning, regulatory strategy and retail market analysis.

Vice President , Strategic Services **XENERGY Consulting Inc.**
(2000 to 2003)

Responsible for the development and implementation of tools and process to improve the profitability of product and service offerings, for the development of strategic services related to resource acquisition and management, and risk assessment and risk management services.

Vice President, Strategy and Planning **PG&E Energy Services**
(1998–2000)

Developed and managed all planning-related processes, including long-range planning, budgeting, acquisition, market entry, product development, commodity assessment, risk management and assessment, and market planning.

Vice President, Business Products and Services
(1997)

Responsible for the development and management of all non-commodity products and services, including those related to power quality, information services, energy management, load management, and mass market.

Executive Vice President **Barakat and Chamberlin, Inc.**
(1985–1997)

Director of the firm's strategic planning work for utilities. Performed numerous utility cost of service (both embedded and marginal), pricing, rate design and regulatory support assignments. Has been instrumental in developing competitive business plans for utilities throughout the United States and Canada. Expertise includes resource planning, business planning, innovative products and pricing, market assessments and planning, interfuel competition, promotional practices, and performance-based incentive mechanisms. Many engagements focused upon emerging issues in the areas of regulatory restructuring, competitive assessment, and new

product development. Has worked with more than 70 utilities to develop effective and profitable energy efficiency programs. Has prepared and presented testimony in approximately 100 regulatory and civil proceedings in the United States and Canada and has helped design and implement ratemaking frameworks in numerous jurisdictions. Has also prepared and presented expert witness testimony in support of business litigation.

Senior Project Manager
(1982–1985)

Electric Power Research Institute

Developed, managed, and coordinated projects related to demand-side planning, rate design, load forecasting, and customer behavior and response. Major projects included the development of a short-term forecasting software package, the management of a large load-control experiment, and the development of a method for integrating rate design and load-management incentives. Also initiated a project designed to improve planning and analysis techniques for providing service options to utility customers.

Project Manager
(1979–1982)

ICF, Incorporated

Work centered on issues related to costs, rates, and load management for electric utilities. Major projects included the development of the first comprehensive textbooks concerning the calculation of marginal costs and marginal-cost-based rates. Developed the PURPA time-of-day and load-management guidelines and conducted several cost-benefit studies of load management. Developed and conducted a series of workshops on costing and ratemaking for utility and commission personnel.

Instructor
Cybernetic Systems Program
(1979–1980)

San Jose State University

Taught graduate courses in statistics and dynamic modeling.

Project Manager
(1977–1979)

Electric Power Research Institute

Developed and managed projects related to modeling, rate design, and forecasting the supply of electricity. A major project was the development of a generation expansion planning model and associated databases.

Economist
(1975–1977)

Hanford Engineering Development Laboratory

Involved in all aspects of modeling and forecasting electricity supply, demand, and power systems costs. Developed and applied load forecasting, production costing, expansion planning, and financial analysis models. Also performed cost-benefit analyses of advanced nuclear systems.

EDUCATION

Ph.D., Economics, Washington State University, 1976

M.A., Economics, Washington State University, 1975

B.A., Economics, California State University, 1972

PUBLICATIONS AND COURSES

Author of 4 books, numerous published articles, and a wide variety of invited talks at industry conferences and workshops.

Developed and taught approximately 20 courses and workshops on ratemaking, utility planning, cost of service, forecasting, and related topics.

Exhibit ____ (JHC-2)

Revenue Stabilization Strategy	Description	Utilities Implementing Strategy
Weather Normalization ¹	Adjusts monthly bills through a change in rate, change in volume or through a surcharge such that the monthly bill equals that approved by the state regulators for normal weather conditions.	Weather normalization adjustments are approved for dozens of utilities in AL, AR, CA, CT, GA, IN, KS, KY, LA, MD, MS, NJ, NY, NC, ND, OR, OK, PA, RI, SC, SD, TN, TX, UT, VA, WY
Revenue Decoupling ²	Fixed cost revenue requirement is determined on a per-customer basis, often with a weather and productivity adjustments. Deviations from approved revenue collections on a per-customer basis are accumulated in a true-up account, which is recovered through an adjustment to the rate in subsequent months.	Arkansas Oklahoma, Arkansas Western, Centerpoint (AR), PG&E, SDG&E, SoCal Gas, Southwest Gas (CA), Public Service Company of Colorado (CO), Integrys (IL), Citizens, Vectren (IN), Baltimore Gas and Electric, Washington Gas (MD), Piedmont Natural Gas (NC), NJ Natural Gas, South Jersey Gas (NJ), Con Edison, National Fuel (NY), Vectren (OH), Cascade Natural Gas, NW Natural (OR), Questar Gas (UT), Avista, Cascade Natural Gas (WA). Several additional natural gas utilities have applications pending.
Return Stabilization ¹	Formulary plans that replace traditional rate cases. They provide a streamlined way to monitor the utility's earnings and adjust rates to maintain the earned return within an authorized band.	Alabama Gas, Mobile Gas, Atmos (LA, MS), CenterPoint (LA, MS, OK, TX), Entergy (LA), Piedmont, South Carolina E&G (SC)
Fixed Variable Rates / Increased Customer Charge ¹	Modification to traditional fixed/variable rates. Typically, the demand or customer charge is more closely aligned with total fixed costs. Demand charge may be seasonally adjusted.	Atlanta Gas, Laclede (MO), Xcel (ND), ONEOK (OK), Atmos (GA)

¹ American Gas Association June 2007 presentation - AGA/EEI 2007 Chief Accounting Officers Conference
² July 2008 edition of the American Gas Association "Natural Gas Rate Round-up" newsletter.

Resolution on Gas and Electric Energy Efficiency

WHEREAS, The National Association of Regulatory Utility Commissioners (NARUC), at its July 2003 Summer Meetings, adopted a *Resolution on State Commission Responses to the Natural Gas Supply Situation* that encouraged State and Federal regulatory commissions to review and reconsider the level of support and incentives for existing gas and electric utility programs designed to promote and aggressively implement cost-effective conservation, energy efficiency, weatherization, and demand response in both gas and electricity markets; *and*

WHEREAS, The National Petroleum Council (NPC), in its September 25, 2003 report on *Balancing Natural Gas Policy – Fueling the Demands of a Growing Economy*, found that greater energy efficiency and conservation are vital near-term and long-term mechanisms for moderating price levels and reducing volatility and recommended all sectors of the economy work toward improving demand flexibility and efficiency; *and*

WHEREAS, The NPC, in its report, identified key elements of the effort to maintain and continue improvements in the efficient use of electricity and natural gas, including (but not limited to):

- (i) enhanced and expanded public education programs for energy conservation, efficiency, and weatherization,
- (ii) DOE identification of best practices utilized by States for low-income weatherization programs and to encourage nation-wide adoption of these practices,
- (iii) a review and upgrade of the energy efficiency standards for buildings and appliances (to reflect current technology and relevant life-cycle cost analyses) to ensure these standards remain valid under potentially higher energy prices
- (iv) promote the use of high-efficiency consumer products including advanced building materials, Energy Star appliances, energy “smart” metering and information control devices
- (v) on-peak electricity conservation to minimize the use of gas-fired electric generating plants,
- (vi) the use of combined-cycle gas-fired electric generating units instead of less-efficient gas-fired boilers, and
- (vii) clear natural gas and power price signals; and
- (viii) remove regulatory and rate structure incentives to inefficient use of natural gas and electricity; and

WHEREAS, The NARUC, at its November 2003 annual convention, adopted a *Resolution Adopting Natural Gas Information “Toolkit”* which encouraged the NARUC Natural Gas Task Force, to review (among other things) the findings and recommendations in the NPC report that have regulatory implications for State commissions for improving and promoting energy efficiency and conservation initiatives, including consumer outreach and education, review of regulatory throughput incentives; *and*

WHEREAS, The American Council for an Energy-Efficient Economy (“ACEEE”), in its December 2003 report on *Responding to the Natural Gas Crisis: America’s Best Natural Gas Energy Efficiency Programs*, (i) identified States and utilities with programs that many would consider best practice or model programs for all types of natural gas customers and all principal natural gas end-use technologies, and (ii) found that these programs are concentrated in relatively few States and regions and could be expanded in other parts of the country to great benefit; *and*

WHEREAS, the Natural Resources Defense Council (NRDC), the American Gas Association (AGA) and the ACEEE have recently adopted a Joint Statement noting that traditional rate structures often act as disincentives for natural gas utilities to aggressively encourage their customers to use less gas. Therefore, the NRDC, AGA, and the ACEEE have urged public utility commissions to align the interests of consumers, utility shareholders, and society as a whole by encouraging conservation. Among the mechanisms supported by these groups are the use of automatic rate true-ups to ensure that a utility’s opportunity to recover authorized fixed costs is not held hostage to fluctuations in retail gas sales; *now therefore be it*

RESOLVED, That the Board of Directors of the National Association of Regulatory Utility Commissioners (NARUC), convened in its 2004 Summer Meetings in Salt Lake City, Utah, encourages State commissions and other policy makers to support the expansion of natural gas energy efficiency programs and electric energy efficiency programs, including those designed to promote consumer education, weatherization, and the use of high-efficiency appliances, where economic, and to address regulatory incentives to address inefficient use of gas and electricity; *and be it further*

RESOLVED, That the Board of Directors of the NARUC, encourages State and Federal policy makers to: (i) review and upgrade the energy efficiency standards for buildings and appliances, where economic, to ensure these standards remain valid under potentially higher energy prices, and (ii) promote the use of high-efficiency consumer products, where economic, including advanced building materials, Energy Star appliances, and energy “smart” metering and information control devices; *and be it further*

RESOLVED, That Board of Directors of NARUC encourages State Commissions to review and consider the recommendations contained in the enclosed *Joint Statement of the American Gas Association, the Natural Resources Defense Council, and the American Council for an Energy-Efficient Economy*; *and be it further*

RESOLVED, That the Board of Directors of the NARUC recognizes that the best approach towards promoting gas energy efficiency programs and electric energy efficiency programs for any single utility, State or region may likely depend on local issues, preferences and conditions.

*Sponsored by the NARUC Natural Gas Task Force, Committee on Gas, Committee on Consumer Affairs, Committee on Electricity, and Committee on Energy Resources and the Environment
Adopted by the NARUC Board of Directors July 14, 2004*

Resolution Supporting the National Action Plan on Energy Efficiency

WHEREAS, The United States is in an increasing energy cost environment, both for the cost of energy commodities and new energy infrastructure, such that there is uniform recognition at every level of government and industry that concerted efforts and attention must be focused on ways to conserve energy and utilize it more efficiently in order to reduce the corresponding costs to both consumers and our economy; *and*

WHEREAS, The Department of Energy (DOE), the Environmental Protection Agency (EPA), and other government and non-profit agencies are working with a number of public and private entities in numerous States to identify, implement and improve public policy and planning efforts related to the achievement of energy efficiency objectives; *and*

WHEREAS, The Board of Directors of the National Association of Regulatory Utility Commissioners adopted a "Resolution on Gas and Electric Energy Efficiency" at its July 2004 meeting that encouraged State policy makers to: (1) support the expansion of energy efficiency programs; (2) review and upgrade energy efficiency standards for buildings and appliances and promote the use of high-efficiency consumer products, including smart metering and information control devices; and (3) recognize that the best approach for promoting such programs may depend on local issues, preferences, and conditions; *and*

WHEREAS, The National Action Plan on Energy Efficiency was released on July 31, 2006, recommending key action items for public policymakers and private industry to consider in each region, with the goal of saving consumers billions of dollars in energy costs over the next 15 years; *and*

WHEREAS, The following five recommendation areas comprise the key elements of the 2006 National Action Plan on Energy Efficiency: (1) Recognize energy efficiency as a high priority energy resource; (2) Make a strong, long-term commitment to cost-effective energy efficiency as a resource; (3) Broadly communicate the benefits of and opportunities for energy efficiency; (4) Promote sufficient, timely, and stable program funding to deliver energy efficiency where cost-effective; and (5) Modify policies to align utility incentives with the delivery of cost-effective energy efficiency and modify ratemaking practices to promote energy efficiency investments; *now therefore be it*

RESOLVED, That the Board of Directors of the National Association of Regulatory Utility Commissioners (NARUC), convened in its 2006 Summer Meeting in San Francisco, California, reaffirms its support for the Association's July 2004 "Resolution on Gas and Electric Energy Efficiency"; *and be it further*

RESOLVED, That the Board of Directors commends the commitments made on July 31, 2006 at the opening session of these meetings by a number of State commissions and other stakeholders to take specific actions to move their States aggressively toward increased energy efficiency; *and be it further*

RESOLVED, That the Board of Directors endorses the principal objectives and recommendations of the National Action Plan on Energy Efficiency, and commends to its member commissions a State-specific, and where appropriate, regional review of the elements and potential applicability of the energy efficiency policy recommendations outlined in the Plan, in an effort to identify potential improvements in energy efficiency policy nationwide.

Sponsored by the Executive Committee and the Committees on Consumer Affairs, Electricity, Energy Resources and the Environment, and Gas

Adopted by the NARUC Board of Directors August 2, 2006



Joint Statement of the American Gas Association and the Natural Resources Defense Council

Submitted to the National Association of Regulatory Utility Commissioners
July 2004

The American Gas Association (AGA) and the Natural Resources Defense Council (NRDC) recognize the many benefits of using clean-burning natural gas efficiently to provide high quality energy services in all sectors of the economy. This statement identifies ways to promote both economic and environmental progress by removing barriers to natural gas distribution companies' investments in urgently needed and cost-effective resources and infrastructure.

NRDC and AGA agree on the importance of state Public Utility Commissions' consideration of innovative programs that encourage increased total energy efficiency and conservation in ways that will align the interests of state regulators, natural gas utility company customers, utility shareholders, and other stakeholders. Cost-effective opportunities abound to improve the efficiency of buildings and equipment in ways that promote the interests of both individual customers and entire utility systems, while improving environmental quality. For example, when energy supply and delivery systems are under stress, even relatively modest reductions in use can yield significant additional cost savings for all customers by relieving strong upward pressures on short-term prices.

NRDC and AGA also encourage state Commissions to support gas distribution company efforts to manage volatility in energy prices and reduce volatility risks for customers.

The Energy Efficiency Problem: Regulated Natural Gas Utilities are Penalized for Aggressively Promoting Energy Efficiency

Local natural gas distribution companies (gas utilities) have very high fixed costs. These fixed costs include the costs of maintaining system safety and reliability throughout the year, staffing customer service telephone lines 24 hours a day and doing what it takes each day of the year to ensure the safe and reliable delivery of natural gas to homes, schools, hospitals, retailers, factories and other customers.

Natural gas utilities typically purchase natural gas on behalf of their customers, and pass through the cost without markup. This means that natural gas utilities do not

profit from their acquisitions of natural gas to serve customer needs. The profit (authorized level of rate of return) comes from the rates utilities charge for transporting the natural gas to customers' homes and businesses.

The vast majority of the non-commodity costs of running a gas distribution utility are fixed and do not vary significantly from month to month. However, traditional utility rates do not reflect this reality. Traditional utility rates are designed to capture most of approved revenue requirements for fixed costs through volumetric retail sales of natural gas, so that a utility can recover these costs fully only if its customers consume a certain minimum amount of natural gas (these amounts are normally calculated in rate cases and generally are based on what customers consumed in the past). Thus, many states' rate structures offer – quite unintentionally – a significant financial disincentive for natural gas utilities to aggressively encourage their customers to use less natural gas, such as by providing financial incentives and education to promote energy-efficiency and conservation techniques.

When customers use less natural gas, utility profitability almost always suffers, because recovery of fixed costs is reduced in proportion to the reduction in sales. Thus, conservation may prevent the utility from recovering its authorized fixed costs and earning its state-allowed rate of return. In this important respect, traditional utility rate practices fail to align the interests of utility shareholders with those of utility customers and society as a whole. This need not be the case. Public utility commissions should consider utility rate proposals and other innovative programs that reward utilities for encouraging conservation and managing customer bills to avoid certain negative impacts associated with colder-than-normal weather. There are a number of ways to do this, and NRDC and AGA join in supporting mechanisms that use modest automatic rate true-ups to ensure that a utility's opportunity to recover authorized fixed costs is not held hostage to fluctuations in retail gas sales.¹ We also support performance-based incentives designed to allow utilities to share in independently verified savings associated with cost-effective energy efficiency programs.

Many states' rate structures also place utilities at risk for variations in customer usage based on variations in weather from a normal pattern. This variation can be both positive and negative. Utilities' allowed rate of return is premised on the

¹For example, in 2003 the Oregon Public Utility Commission approved a "conservation tariff" for Northwest Natural Gas Company (NW Natural) "to break the link between an energy utility's sales and its profitability, so that the utility can assist its customers with energy efficiency without conflict." The conservation tariff seeks to do that by using modest periodic rate adjustments to "decouple" recovery of the utility's authorized fixed costs from unexpected fluctuations in retail sales. See Oregon PUC Order No. 02-634, *Stipulation Adopting Northwest Natural Gas Company Application for Public Purpose Funding and Distribution Margin Normalization* (Sept. 12, 2003). In California, PG&E and other gas utilities have a long tradition of investment in energy efficiency services, including those targeting low-income households, and the PUC is now considering further expansion of these investments along with the creation of performance-based incentives tied to verified net savings. California also pioneered the use of modest periodic true-ups in rates to break the linkage between utilities' financial health and their retail gas sales, and has now restored this policy in the aftermath of an ill-fated industry restructuring experiment. Thus, in March 2004, Southwest Gas Company received an order that authorizes it to establish a margin tracker that will balance actual margin revenues to authorized levels.

expectation that weather will be normal, on average, and that customer use of gas will maintain a predictable pattern going forward. Proposals by utilities to decouple revenues from both conservation-induced usage changes and variations in weather from normal have sometimes been characterized as attempts to reduce utilities' risk of earning their authorized return. The result of these rate reforms, in this regulatory view, should be a lowered authorized return. But reducing authorized returns would penalize utilities for socially beneficial advocacy and action, including efforts to create mechanisms that minimize the volatility of customer bills.

Our shared objective is to give utilities real incentives to encourage conservation and energy efficiency. With properly designed programs, the benefits could be significant and widespread:

- Customers could save money by using less natural gas;
- Reduced overall use will help push down short-term prices at times when markets are under stress, reducing costs for all customers (whether or not they participate in the utility programs);
- Utilities would recover their costs and have a fair opportunity to earn their allowed return;
- State policies to encourage economic development could be enhanced by increased energy efficiency and lower business energy costs;
- State PUCs would be able to support larger state policy objectives as well as programs that reflect the public's desire to use energy efficiently and wisely.

In today's climate of rapidly changing natural gas prices, such reforms make good sense for consumers, shareholders, state governments, and the environment.

Natural Gas Consumers, Price Volatility and Resource Portfolio Management.

Another area of concern shared by NRDC and AGA is the impact of natural gas price volatility on natural gas consumers, which can be exacerbated by limited diversification of utilities' resource portfolios. Today many of the nation's natural gas utilities find themselves relying on short-term markets for most of their gas needs, with either the encouragement or the acquiescence of their regulators. During much of the 1990's this approach was typically advantageous to consumers, as the market price of natural gas was generally low and did not fluctuate dramatically. As wholesale natural gas prices have risen since 2000 and become more volatile, however, many utilities and commissions are reconsidering this emphasis on short-term market purchases.

While purchasing practices based on short-term supply contracts may offer consumers relatively low-cost natural gas, those consumers are also exposed to more volatile prices and natural gas bills that may rise and fall unpredictably. Public Utility Commissions should favorably consider gas distribution company proposals to manage volatility, such as through hedging, fixed-price contracts of various durations, energy-efficiency improvements in customers' buildings and equipment, and other measures designed to provide greater certainty about both supply

adequacy and price stability. Achieving these goals will sometimes require paying a premium over prevailing spot market prices. Like diversified investment portfolios that are designed to mitigate risk, prudent hedging plans should be encouraged as a way to help stabilize gas prices and ensure long-term access to affordable natural gas services.

This Joint Statement also has been reviewed and endorsed by:



**ALLIANCE TO
SAVE ENERGY**
Creating an Energy-Efficient World

Alliance to Save Energy



American Council for an Energy-Efficient Economy