Before the Connecticut Department Of Public Utility Control

Application of the Connecticut Natural Gas Corporation For a Rate Increase

Docket No. 99-09-03 Phase II

Direct Testimony of Timothy Woolf

On Behalf of The Connecticut Office of Consumer Counsel

On the Topic of The Connecticut Natural Gas Company's Proposed Performance-Based Ratemaking Mechanism

September 25, 2000

Table of Contents

1.	INTRODUCTION AND QUALIFICATIONS	. 1
2.	SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS	. 3
3.	THE TIMING OF CNG'S INCENTIVE RATE PLAN PROPOSAL	. 4
4.	DEMONSTRATION OF CUSTOMER BENEFITS	. 7
5.	THE APPROPRIATE BASELINE FOR A PBR MECHANISM	10
6.	CNG'S SERVICE QUALITY PLAN PROPOSAL	13

Exhibit TW-1: Resume of Timothy Woolf

1 **1. INTRODUCTION AND QUALIFICATIONS**

2	Q.	What is your name, position and business address?
3	A.	My name is Timothy Woolf. I am the Vice-President of Synapse Energy
4		Economics, Inc, 22 Crescent Street, Cambridge, MA 02138.
5	Q.	Please describe Synapse Energy Economics.
6	A.	Synapse Energy Economics is a research and consulting firm specializing in
7		electricity industry restructuring, regulation and planning. Synapse works for a
8		variety of clients, with an emphasis on consumer advocates, regulatory
9		commissions, and environmental advocates.
10 11	Q.	Please describe your experience in the area of electric utility restructuring, regulation and planning.
12	A.	My experience is summarized in my resume, which is attached as Exhibit TW-1.
13		Electric power system planning and regulation have been a major focus of my
14		professional activities for the past eighteen years. In my current position at
15		Synapse, I investigate a variety of issues related to the restructuring of the electric
16		industry; with a focus on performance-based ratemaking, market structure, stranded
17		costs, customer aggregation, air quality, energy efficiency, environmental policies
18		and many aspects of consumer protection.
19 20	Q.	Please describe your professional experience before beginning your current position at Synapse Energy Economics.
21	A.	Before joining Synapse Energy Economics, I was the Manager of the Electricity
22		Program at Tellus Institute, a consulting firm in Boston, Massachusetts. In that
23		capacity I managed a staff that provided research, testimony, reports and
24		regulatory support to state energy offices, regulatory commissions, consumer
25		advocates and environmental organizations in the US. Prior to working for Tellus
26		Institute, I was employed as the Research Director of the Association for the
27		Conservation of Energy in London, England. I have also worked as a Staff
28		Economist at the Massachusetts Department of Public Utilities, and as a Policy
29		Analyst at the Massachusetts Executive Office of Energy Resources. I hold a

1		Masters in Business Administration from Boston University, a Diploma in
2		Economics from the London School of Economics, a BS in Mechanical
3		Engineering and a BA in English from Tufts University.
4	Q.	Please describe your recent experience with Performance-Based Ratemaking.
5	A.	I was the editor and one of the authors of the NARUC report, "Performance-
6		Based Regulation in a Restructured Electric Industry." I have also addressed PBR
7		issues on behalf of the Delaware Public Service Commission Staff, the
8		Mississippi Attorney General, the Kentucky Attorney General, and the Colorado
9		Office of Energy Conservation. I have published articles on performance-based
10		ratemaking in Public Utilities Fortnightly and The Electricity Journal. In
11		addition, PBR is a variation of traditional electricity ratemaking, which has been
12		an underlying aspect of much of my professional career.
13	Q.	On whose behalf are you testifying in this case?
14	A.	I am testifying on behalf of the Office of Consumer Counsel (OCC). My
15		testimony is being filed in conjunction with the testimonies of Mr. Paul Chernick
16		and Mr. Hugh Larkin, who are also witnesses for the OCC.
16 17	Q.	
	Q. A.	and Mr. Hugh Larkin, who are also witnesses for the OCC.
17	-	and Mr. Hugh Larkin, who are also witnesses for the OCC. Have you testified previously in this docket?
17 18	A.	and Mr. Hugh Larkin, who are also witnesses for the OCC. Have you testified previously in this docket? No, I have not.
17 18 19	А. Q.	and Mr. Hugh Larkin, who are also witnesses for the OCC. Have you testified previously in this docket? No, I have not. What is the purpose of your testimony.
17 18 19 20	А. Q.	 and Mr. Hugh Larkin, who are also witnesses for the OCC. Have you testified previously in this docket? No, I have not. What is the purpose of your testimony. The purpose of my testimony is to evaluate the overall design of the Connecticut
17 18 19 20 21	А. Q.	and Mr. Hugh Larkin, who are also witnesses for the OCC. Have you testified previously in this docket? No, I have not. What is the purpose of your testimony. The purpose of my testimony is to evaluate the overall design of the Connecticut Natural Gas Company's (CNG or the Company) proposed Incentive Rate Plan
17 18 19 20 21 22	А. Q.	and Mr. Hugh Larkin, who are also witnesses for the OCC. Have you testified previously in this docket? No, I have not. What is the purpose of your testimony. The purpose of my testimony is to evaluate the overall design of the Connecticut Natural Gas Company's (CNG or the Company) proposed Incentive Rate Plan (IRP). Much of my evaluation is based on general regulatory and ratemaking
 17 18 19 20 21 22 23 	А. Q.	and Mr. Hugh Larkin, who are also witnesses for the OCC. Have you testified previously in this docket? No, I have not. What is the purpose of your testimony. The purpose of my testimony is to evaluate the overall design of the Connecticut Natural Gas Company's (CNG or the Company) proposed Incentive Rate Plan (IRP). Much of my evaluation is based on general regulatory and ratemaking policy in Connecticut and elsewhere. I begin with a discussion of the
 17 18 19 20 21 22 23 24 	А. Q.	 and Mr. Hugh Larkin, who are also witnesses for the OCC. Have you testified previously in this docket? No, I have not. What is the purpose of your testimony. The purpose of my testimony is to evaluate the overall design of the Connecticut Natural Gas Company's (CNG or the Company) proposed Incentive Rate Plan (IRP). Much of my evaluation is based on general regulatory and ratemaking policy in Connecticut and elsewhere. I begin with a discussion of the appropriateness of implementing any performance-based ratemaking (PBR)
 17 18 19 20 21 22 23 24 25 	А. Q.	and Mr. Hugh Larkin, who are also witnesses for the OCC. Have you testified previously in this docket? No, I have not. What is the purpose of your testimony. The purpose of my testimony is to evaluate the overall design of the Connecticut Natural Gas Company's (CNG or the Company) proposed Incentive Rate Plan (IRP). Much of my evaluation is based on general regulatory and ratemaking policy in Connecticut and elsewhere. I begin with a discussion of the appropriateness of implementing any performance-based ratemaking (PBR) mechanism at this point in time in Connecticut. I also raise some important

1	Q.	How is your testimony organized?
2	A.	My testimony is organized as follows:
3		1. Introduction and Qualifications.
4		2. Summary of Conclusions and Recommendations.
5		3. The Timing of CNG's Incentive Rate Plan Proposal.
6		4. Demonstration of Customer Benefits.
7		5. The Appropriate Baseline for a PBR Mechanism.
8		6. CNG's Service Quality Plan Proposal.
9	2. S	SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS
10	Q.	Please summarize your primary conclusions.
11	A.	My primary conclusions are summarized as follows:
12		• This is not an appropriate time to fix customer rates through an IRP or
13		PBR mechanism, because there are so many changes occurring in CNG's
14		business environment that an accurate baseline revenue requirement
15		cannot be determined.
16		• The Company's IRP proposal does not provide meaningful benefits to
17		customers, because it does not provide customers with a significant
18		portion of the savings of the merger with Energy East. The Company
19		essentially claims that customers will benefit from the IRP proposal
20		because they will be no worse off than they are today. However, this is
21		the wrong definition of customer benefits. A PBR mechanism must
22		provide demonstrated customer benefits relative to rates they would
23		experience under traditional cost-of-service ratemaking. Under traditional
24		ratemaking, customers would experience all, or at least a significant
25		portion, of the savings from the merger with Energy East.
26		• The CNG IRP proposal is fundamentally flawed because it includes
27		baseline rates that are not prospective and are certain to be too high. The
28		baseline rates in the Company's IRP mechanism should not be based on

1		historical cost-of-service - they should instead incorporate the anticipated
2		future savings from the merger with Energy East.
3		• CNG's service quality plan will not provide adequate protection to
4		consumers because (a) it does not address the most appropriate service
5		quality measures, (b) the benchmarks will not maintain historical
6		performance levels, or achieve the improved performance levels
7		associated with the merger, and (c) the penalties are too low to capture
8		management attention.
9	Q.	Please summarize you primary recommendations.
10	A.	I recommend that the Department reject the Company's IRP proposal.
11		I also recommend that the Department reject the Company's proposed service
12		quality plan. If the Company is allowed to implement any form of PBR
13		mechanism, the service quality plan should be modified to account for the
14		concerns raised herein. The new proposal should be based on a comprehensive
15		assessment of potential service quality indicators. The new proposal should
16		include goals that will clearly maintain the levels of service provided in the past,
17		as well as goals based on promised service improvements due to the merger with
18		Energy East. Finally, the new proposal should include meaningful penalties that
19		are not subject to a cap.

20 3. THE TIMING OF CNG'S INCENTIVE RATE PLAN PROPOSAL

21 22

Q. Please briefly summarize the IRP mechanism that is being proposed by the Company in this docket.

A. CNG has proposed an IRP mechanism that includes the following components.
Rates will be set based on the revenue requirements determined in Phase I of this
docket. The Company states that these rates will be held constant during a fouryear "stay-out" period. CNG proposes that the revenue requirements used in
setting the baseline IRP rates will not incorporate any aspect of the proposed
merger with Energy East. CNG proposes that the Purchased Gas Adjustment
(PGA) clause will remain in place, at least for now. CNG proposes an earnings

sharing mechanism, to allow customers to share 50 percent of any merger savings
 that occur beyond a rate-of-return threshold of 11.8 percent. Finally, the
 Company proposes a service quality plan to prevent the deterioration of customer
 service in response to the price cap.

5

Q. Is this an appropriate time for CNG to be implementing a PBR mechanism?

6 A. No, it is not. This is an inappropriate time to fix customer rates through a PBR 7 mechanism, because there are so many changes occurring in CNG's business 8 environment that an accurate baseline revenue requirement cannot be determined. 9 Three are three types of changes that have not been addressed by CNG in its IRP 10 proposal. First, the gas industry in Connecticut and New England is undergoing 11 significant changes as a result of increased competition. Second, the merger of 12 Energy East and CNG will change the costs, risks and opportunities facing CNG. 13 Third, CNG's recent rate case resulted in rates that we know will either change or 14 be inappropriate for the inclusion in future rates. My colleague Mr. Larkin 15 addresses the latter point in more detail.

16Q.Has the Department established a precedent regarding the application of a17PBR mechanism after a merger?

- A. Yes. The Department has found that a PBR mechanism should not be
 implemented immediately after a merger, due to the difficulty of establishing
 appropriate customer rates. In it's review of the Southern Connecticut Gas
 Company (Southern) rates and charges, Phase II, the Department rejected that
 company's request for a PBR mechanism because of the changes caused by the
 merger. The Department noted:
- 24 A principal concern of the Department lies with the timing of the 25 proposal. Southern is currently in the process of merging with Energy 26 East. As a result, there are likely to be significant changes in the 27 Company's focus and the cost of its operations. Neither in this docket 28 nor in the merger proceeding (Docket No. 99-07-20) has the Company 29 quantified projected savings from the merger. Accordingly, the 30 Department considers it premature to lock in rates for ratepayers for an 31 extended period as proposed in the PBR/RPA. (Department Decision, 32 Docket No. 99-04-18, Phase II, at 43.)

1 2	Q.	Are there other Department Orders that caution against using PBR mechanisms in periods of great change.
3	A.	Yes. In the recent investigation into PBR regulation for electric distribution
4		companies, the Department concluded that "PBR should not be undertaken during
5		periods of fundamental change to a utility's cost structure: hence it should not be
6		undertaken in the near-term." (Department Decision, Docket No. 99-06-21,
7		2/2/2000, at 28). The Department specifically cautioned against the use of a PBR
8		plan associated with the proposed merger between Northeast Utilities and
9		Consolidated Edison, noting that:
10 11 12 13 14 15 16		If approved, the proposed merger between CL&P's parent company, Northeast Utilities, and Consolidated Edison would further obscure CL&P's near-term cost structure. Effective PBR rests upon accurate portrayal of an EDC's costs. Such a portrait is difficult to achieve during a period of fundamental change. Undertaking PBR in the near- term for CL&P is inadvisable. (Department Decision, Docket No. 99- 06-21, 2/2/2000, at 9).
17		This same rationale applies to PBR and mergers of gas companies. A merger can
18		alter the costs, risks and opportunities that an electric or gas utility has
19		experienced in the past, thereby making historical baselines irrelevant.
20		Establishing an appropriate baseline price is one of the most important
21		requirements for implementing a sound PBR mechanism.
22 23	Q.	Has the Company provided evidence suggesting that a PBR mechanism should not be implemented at this time?
24	A.	Yes, it has. Dr. Kenneth Gordon, testifying on behalf of the Company, describes
25		the importance of establishing the correct baseline for any PBR mechanism. In
26		emphasizing the overarching themes of his testimony, Dr. Gordon states that:
27 28 29 30 31 32 33		there must be a good "fit" between the nature, opportunities, and risks of CNG's ongoing LDC's activities and the alternative regulatory plan that will govern these activities. Regulators must have a clear understanding of CNG's basic business roles prior to developing an alternative regulatory plan, as well as an understanding of the sorts of uncertainties, risks, and opportunities that CNG faces. (Gordon PFT, at 10.)

1	Yet immediately following this statement Dr. Gordon presents the very reason
2	why a PBR mechanism would be inappropriate for CNG at this time, by noting
3	that "(g)iven the important changes in the gas business in recent years, the risks
4	and opportunities facing CNG will be quite different from those of the recent
5	past." (Gordon PFT, at 10.) I agree with both of Dr. Gordon's points: a PBR
6	mechanism must be tailored to a gas company's on-going and future business
7	activities, and for CNG those activities will be "quite different" from those of the
8	past. The obvious conclusion to be drawn from these two points, however, is that
9	CNG's IRP proposal should not be implemented at this time. A proposal based on
10	historical business activities, opportunities and risks will simply not provide a
11	proper fit with future activities in this industry.

Q. What do you recommend to the Department, in light of the fact that this is an inappropriate time to implement a PBR mechanism for CNG?

A. I recommend that the Department treat CNG's IRP proposal the same way it
treated PBR for electric utilities in its generic docket (Docket No. 99-06-21). The
Company's request for a PBR should be denied because it is an inappropriate
time.

18 **4. DEMONSTRATION OF CUSTOMER BENEFITS**

19Q.If the Department were to allow a PBR mechanism at this time, should the
mechanism be designed provide benefits to customers?

21 A. Yes, it should. One of the fundamental principles of performance-based 22 ratemaking is that customers must experience distinct, quantifiable benefits 23 relative to traditional cost-of-service ratemaking. The Department has 24 acknowledged the importance of this principle in recent PBR decisions. In Phase II of the recent Southern rate case, the Department noted that Southern must 25 26 demonstrate that its proposal provides "real benefits" to ratepayers. (Department 27 Decision, Docket No. 99-04-18, Phase II, at 43.) In the recent investigation into 28 PBR regulation for electric distribution companies, the Department found that "In 29 principle, PBR plan design should strive to align the interests of ratepayers and 30 shareholders." (Department Decision, Docket No. 99-06-21, 2/2/2000, at 28).

1	The Federal Energy Regulatory Commission (FERC) also acknowledges that
2	customer benefits are a fundamental requirement of any PBR mechanism. In its
3	Policy Statement on Incentive Regulation, FERC identifies five regulatory
4	standards for implementing specific PBR mechanisms: they should (1) be
5	prospective, (2) be voluntary, (3) be understandable, (4) result in quantified
6	benefits to customers, and (5) maintain or enhance incentives to improve the
7	quality of service. (FERC Policy Statement on Incentive Regulation, Docket No.
8	PL92-1-000, October 30, 1992, at 3-4.) FERC emphasizes that the benefits to
9	customers must be quantified, and cannot be based on speculation about the
10	potential for savings.

- 11Q.The Company witnesses claim that the CNG IRP proposal will provide12benefits to customers. Do you agree?
- 13 A. No, I do not. The Company is using the wrong definition of customer benefits. 14 CNG essentially argues that customers will enjoy benefits because they will be no 15 worse off than they would be relative to the prices in place today. However, this 16 is not the proper way to define the customer benefits associated with a PBR 17 mechanism. The benefits to customers from a PBR mechanism should be 18 measured relative to traditional cost-of-service ratemaking, not to the prices in 19 place at the time of the PBR. Under traditional cost-of-service ratemaking, the 20 merger savings would be passed on to customers through reduced rates, thereby 21 making customers better off than they are today. The Company's proposed IRP is 22 not designed to make customers better off than they are today, it is merely 23 designed to ensure that they are no worse off.

Q. Please elaborate on the appropriate way to define customer benefits associated with a PBR mechanism?

- A. With any PBR mechanism, customer benefits should be measured relative to the
 prices they would experience under traditional cost-of-service ratemaking. FERC
 emphasizes this point in its Policy Statement on Incentive Regulation:
- The Commission remains convinced that the benefits to consumers must be quantifiable even though the task is admittedly a difficult one... The cap must be designed to ensure that the incentive rate is no higher than it otherwise would have been under the projected

1 2 3 4 5 6 7 8 9		traditional cost-of-service ratemaking. "Projected cost-of-service" simply means an annual estimate of the cost of service that the utility would otherwise expect to incur during the effective time period of its incentive rate proposal. If the utility proposed a five-year period, it would be required to include in its application with the Commission a comparison of expected incentive rates to the expected cost of service rates that it would otherwise propose to base it rates under traditional ratemaking. (FERC Policy Statement on Incentive Regulation, Docket No. PL92-1-000, October 30, 1992, at 12.)
10		FERC is quite clear that customer benefits of a PBR mechanism must be
11		measured relative to traditional ratemaking, and must be demonstrated with a
12		comparison of rates under the two future scenarios. The Company's definition of
13		customer benefits $-i.e.$, that customers will be no worse off relative to how they
14		are today – clearly does not meet this fundamental standard.
15 16	Q.	Please explain why the Company's definition of customer benefits is simply based on the premise that customers will be no worse off than they are today.
17	A.	The Company claims that there will be four types of customer benefits resulting
18		from its IRP proposal. First, prices will not increase, as a result of the four-year
19		rate freeze. Second, customers will enjoy gas costs reductions due to merger
20		synergies, as a result of the PGA. Third, customers may enjoy a portion of the
21		merger benefits, as a result of the earnings sharing mechanism. Fourth, customers
22		can be assured that service quality will not deteriorate, as a result of the service
23		quality plan.
24		None of these so-called "benefits" provide any real advantage to customers,
25		relative to what they would experience under traditional cost-of-service
26		regulation. First, under traditional regulation gas prices should be reduced as a
27		consequence of the merger savings - not merely held constant. Therefore, this so-
28		called benefit is actually a disadvantage to customers. Second, the PGA would be
29		operational under traditional ratemaking, so customers would enjoy gas costs
30		reductions due to merger synergies anyway. Therefore, these gas cost savings
31		cannot be cited as a customer benefit from the Company's IRP mechanism. Third,
32		the Company's earning sharing mechanism is designed to provide customers with
33		very little, if any, savings resulting from the merger. This point is addressed in

more detail by my colleague Mr. Chernick. Fourth, the service quality plan is
designed to ensure that customer service does not deteriorate over time, but does
not provide any benefit relative to traditional ratemaking practices. In fact,
because of the benchmarks and penalties that the Company has proposed for its
service quality plan, customers may actually be worse off under this plan than
they have been historically. I elaborate on this point in Section 6 of my
testimony.

8 In sum, the Company uses the wrong definition of customer benefits by arguing 9 that customers will be no worse off than they are today. However, when viewed 10 from the appropriate perspective of how customers would fare relative to 11 traditional ratemaking, it becomes clear that customers will indeed be worse off. 12 In order for customers to benefit from a PBR mechanism, it must incorporate the 13 estimated savings from the merger with Energy East. This point is elaborated 14 upon in the next section of my testimony.

15Q.What do you recommend to the Department, in light of the fact that the16Company's proposed IRP does not provide benefits to customers?

- A. I recommend that the Department reject the Company's proposed IRP mechanism.
 The Department should clarify (a) that any PBR mechanism must provide
 meaningful benefits to ratepayers, (b) that those benefits must be measured
 relative to the rates and services provided under traditional ratemaking, and
- 21 (c) that those benefits must be quantified and clearly documented by the utility.

22 5. THE APPROPRIATE BASELINE FOR A PBR MECHANISM

23 24

Q. Do you agree with the Company's proposal to use the rates from Phase I of this rate case for the setting the baseline rates in the IRP?

A. No. The baseline rates in the Company's IRP mechanism should not be based on
 historical cost-of-service – they must incorporate the anticipated savings from the
 merger with Energy East.

1	Q.	Why is it so important that the baseline rates in the IRP be set properly?
2	A.	One of the fundamental principles of designing a PBR is that the starting rates
3		must be an accurate representation of the utility's cost of service during the period
4		in which the PBR is in place. If a PBR mechanism does not adhere to this
5		principle then the twin goals of providing better incentives to the utility and
6		providing customer benefits will be thwarted.
7		The Department acknowledged this important principle in its investigation into
8		PBR for electric distribution companies, where it noted that "(e)ffective PBR rests
9		upon an accurate portrayal of an EDC's (electric distribution company's) costs."
10		(Department Decision, Docket No. 99-06-21, 2/2/2000, at 9). In its findings and
11		policy recommendations, the Department reiterated that "(a)n appropriate baseline
12		revenue requirement is critical to the achievement of real cost savings."
13		(Department Decision, Docket No. 99-06-21, 2/2/2000, at 28).
14		FERC also emphasizes the importance of setting the proper baseline for a PBR
15		mechanism. In its Policy Statement on Incentive Regulation, FERC identifies two
16		general principles that all PBR mechanisms must adhere to. The first general
17		principle is that incentive regulation should encourage efficiency. The second
18		general principle is that starting rates must be just and reasonable in the traditional
19		cost of service sense. (FERC Policy Statement on Incentive Regulation, Docket
20		No. PL92-1-000, October 30, 1992, at 3 and 8.) FERC elaborates upon this point
21		by noting that "(i)ncentive ratemaking must be prospective. Utilities cannot
22		assume that their existing rates will be the base on which the incentive mechanism
23		will apply. The Commission must determine that the base rates, calculated on a
24		cost-of-service basis, are just and reasonable at the inception of an incentive rate
25		program." (FERC Policy Statement on Incentive Regulation, Docket No. PL92-1-
26		000, October 30, 1992, at 10.)

Q. Has the Company acknowledged the importance of setting the proper baseline rate for a PBR?

- A. Yes. In his direct testimony in this docket Dr. Gordon provides five basic
 overarching themes regarding PBR design. One of these themes pertains to the
 - proper baseline to use.

5

6 Finally, I would emphasize that the price-cap plan must begin from a 7 reasonably accurate starting point. The starting point must provide the 8 utility with a reasonable opportunity to recover its costs (including the 9 cost of capital). Any price-cap plan must begin from a starting point that balances the interests of the utility and its customers. If the 10 11 starting point is set too low, the price-cap mechanism, as structured in 12 CNG's RPA, would provide little opportunity, if any, for the utility to 13 actually earn its cost of capital... On the other hand, if the starting point is set too high, customers would have to pay too much over the 14 15 term of the plan... (Gordon PFT, at 11.)

16Q.Does the Company's proposed IRP mechanism include an appropriate17baseline for setting rates?

18 No, it clearly does not. The proposed IRP is based on rates determined in Phase I A. 19 of this proceeding – rates which are based on a historical test year. Hence, the 20 proposed baseline is a reflection of the cost-of-service experience by CNG in the 21 past. A properly-designed PBR mechanism should be prospective, in that it 22 should reflect the anticipated cost-of-service during the period in which the PBR 23 will be in effect. While it is difficult to forecast all the changes that are likely to 24 occur to a utility's cost of doing business in the future, there is one significant change that CNG has explicitly decided to neglect - the changes due to its merger 25 26 with Energy East. By not incorporating the anticipated merger savings in the 27 baseline rates, the Company's IRP violates one of the most important principles in 28 PBR design and thus is fundamentally flawed. The Company's proposal is 29 inconsistent with the Department's standard that a PBR be based on an "accurate 30 portrayal" of costs. It is inconsistent with the FERC standard that PBR baseline 31 rates be prospective and be just and reasonable. And the Company's proposal is 32 inconsistent with its own witness' assertion that a PBR must begin with a 33 "reasonably accurate" starting point that "balances the interests of the utility and 34 its customers." If the baseline doe not include any of the merger savings, then it

4 5	Q.	What do you recommend to the Department, in light of the fact that the Company's IRP is fundamentally flawed?
6	A.	I recommend that the Department reject the Company's proposed IRP mechanism.
7		As discussed above, this is not an appropriate time to implement a PBR for CNG.
8		Furthermore, a utility should only be allowed to implement a PBR if the baseline
9		rates are prospective and provide a reasonably accurate portrayal of the cost-of-
10		service that can be expected during the period in which the PBR will be in effect.
11	6. (CNG'S SERVICE QUALITY PLAN PROPOSAL
12 13	Q.	Please describe the main components of the Company's service quality plan (SQP).
14	A.	The Company's proposal includes the following five service quality indicators,
15		goals for those service quality indicators, and penalties in the event the company's
16		performance does not meet the established goals.
17	Q.	Please discuss the Company's proposed service quality indicators.
18	A.	The Company has proposed five service quality indicators: call center
19		performance, leak response time, service call response time, third party damage to
20		CNG's facilities, and meter reading.
21	Q.	Are these service quality indicators appropriate for this company?
22	A.	It is difficult to determine whether these are the best service quality indicators,
23		because CNG has provided very little analysis of the service quality issues facing
24		the Company. In establishing a service quality plan, it is important to begin with
25		an analysis of all of the relevant service quality issues that are important to the
26		company, it customers, and its employees. In this way, a utility can identify those
27		areas of service that either have deteriorated in recent years or might deteriorate in
28		the future under a different ratemaking system. The Company has not yet
29		performed such a study, and therefore it is difficult to determine whether the

clearly does not balance the interests of the utility and its customers - it simply

incorporated into the rates, then the rates will be too high by definition.

allows the utility to enjoy the savings of the merger. If the merger savings are not

1

2

3

1 Company has chosen the appropriate service quality indicators for its SQP. The 2 absence of information enabling a comparison between the Company's historic 3 performance and other companies' historic performance makes an evaluation of 4 the company's choice of indicators and relative performance levels difficult.

5Q.Are there other service quality indicators that the Company should consider6for its SQP?

- 7 Yes. Natural gas utilities have incorporated a number of other indicators into A. 8 service quality plans. Some indicators focus on customer service; for example, 9 bills rendered in billing period, billing errors or time required to correct errors, 10 customer problems resolved on first call, and consumer complaints to regulatory 11 agencies. Some indicators focus on safety; for example, placement in top quartile 12 of AGA annual safety performance report, worker safety compared with an 13 OSHA benchmark, and lost time incidents per 100 employees. Some indicators 14 focus on customer satisfaction; for example, customer survey responses, and 15 customer satisfaction with company representatives' knowledge and site visits.
- 16In its recent review of the Southern Company's rates and charges, the Department17listed additional indicators that should be included in an SQP, including service18quality indicators for "gas costs, uncollectibles, and uncollectible write-offs in19comparison to industry, regional or index goals or ranges." (Department
- 20 Decision, Docket 99-04-18, January 18, 2000, at 42.)
- The Company has noted several of these other service quality indicators, but has not explained why they were not incorporated into the proposed SQP. (Bryant PFT, at 8; CNG response to GPS-021.) The Company simply notes that the issue was discussed with various members of CNG management, and a general consensus was reached about the measures proposed in the SQP. (Bryant PFT,
- 26 at 8.)

Q. What do you recommend to the Department regarding the Company's proposed service quality indicators?

A. The Department should require the Company to provide an analysis supporting
the choice of specific service quality indicators that are relevant for CNG. Such

an analysis would include comparison of the Company's past performance in
many service quality areas with comparable utilities, as well as an evaluation of
the most appropriate service quality indicators for the future. The Company's
evaluation should address the service quality indicators listed above, and identify
specific indicators to use in light of the Company's past performance and in light
of the merger with Energy East.

7 Q. Please discuss the Company's proposed service quality goals.

A. Overall, the Company's proposal leaves the impression that the Company may not
be willing to maintain the same level of service quality that it has offered in the
past. For four of the five indicators, the proposed service quality goal is at or
below the lowest performance of the last five years (service response time¹, third
party damage, leak response time and actual meter reads). For call center
response time, the goal is set for noticeably lower performance than that of the
past four years.

15 This overall impression is particularly troubling in light of the fact that during 16 merger proceedings Energy East and CTG Resources, parent company of CNG, 17 claimed that the merger would result in improved and enhanced customer services 18 following the merger. For example, the companies stated that CNG's customers 19 would benefit from the best operational practices of NYSEG, an Energy East 20 subsidiary. Despite the promises, the Department found insufficient evidence on 21 the record regarding the companies' plans for implementing their best customer 22 service practices. The Department was dissatisfied with the companies' failure to 23 provide evidence supporting the conclusion that benefits would occur and with 24 the lack of any quantification of customer service benefits to ratepayers. The 25 Department requested a report that would identify and quantify realized and 26 potential customer service benefits from the merger. (Department Decision, 27 Docket No. 99-08-09, at 12-13.)

¹ In LFE 36 the Company explained that it has corrected the problem associated with the computer aided dispatch system that resulted in a lower percentage response for 1999.

Clearly, the customer benefits anticipated from the merger should be an important
 factor in determining the appropriate service quality indicators and goals for
 CNG. However, the Company has provided service quality goals that at best are
 designed to maintain past performance, and at worst could result in deterioration
 of past performance.

6 Q. Has the Company proposed an appropriate goal for call center performance?

- A. This is not entirely clear. It appears as though the Company's performance in this
 area has been satisfactory, relative to other utilities. However, the proposed goal
 is slightly less stringent than CNG's experience of recent years.
- 10 Q. Has the Company proposed an appropriate goal for leak response time?
- 11 A. No. The Department has already indicated that the Company's current level of 12 performance on leak response time is inadequate. In Phase I of this proceeding, 13 the Department stated that it "is concerned about the percentage of responses that 14 meet the guidelines [for gas odor complaint response time]; there must be 15 improvement in this area." (Department Decision, Docket No. 99-09-03, May 25, 16 2000, at 50.) The Department's statement was in response to evidence that the 17 Company met the Department's guideline 86% of the time during normal hours 18 and 97% of the time during off hours. The Company's proposal in the SQP to 19 establish targets of 83% during normal hours and 95% during off peak hours is 20 not responsive to the Department's requirement that the Company improve its 21 performance.
- 22 Q. Has the Company proposed an appropriate goal for service call response?
- A. While the Company has increased its goal for this indicator from its original
 proposal, the goal may still be too low to prevent some deterioration in service.
 The Company has modified its original proposal for the percentage of utility
 service appointments met from 83% to 90%. (LFE 36, CNG response to OCC II094.) This goal is more consistent with maintaining service call response;
 however there are three factors that indicate that the goal may still not prevent
 deterioration in the quality of service call response.

1	First, the company has explained that its lowest percentage level from the past
2	five years, 89%, was due to problems with a new computer aided dispatch system,
3	which have since been corrected (LFE 36). Besides the 89% rate in 1999, the
4	next lowest response rate was five years earlier when the Company met 91% of its
5	scheduled appointments. From 1996 through 1998 the Company met at least 92%
6	of its scheduled appointments. Thus, the proposed service call response level of
7	90% may still be lower than reasonable based on the Company's historical
8	performance.
9	Second, the Company establishes a goal for number of appointments scheduled
10	within two and four hour windows (21,000 appointments) that is significantly
11	below the company's performance in recent years. Reducing the minimum
12	number of appointments that must be scheduled within two and four hour
13	windows will mean that it is much more easy for the company to achieve the goal
14	for percentage of appointments actually met, and could permit the Company's
15	performance for this indicator to decrease from historic levels without penalty to
16	CNG.
17	Third, the Company emphasizes that its practice of offering appointment within a

17 Inird, the Company emphasizes that its practice of offering appointment within a
 2 hour window is relatively uncommon. However, the proposed goal is for
 appointments scheduled and met within two and four-hour windows. Thus, it is
 difficult to determine how significant the two-hour appointments are in evaluating
 the Company's performance.

Q. Has the Company proposed an appropriate goal for damage to CNG facilities?

A. No. The Company proposes to establish the goal at a higher number of hits than
the Company has experienced in any of the last five years. The Company asserts,
without any supporting information, that its performance is "in line with the other
two Connecticut gas companies." (CNG response to OCC II-090.) Even if that
assertion is true, the Company has proposed a goal that would not maintain the
Company's historic performance because the goal is higher than what has been
experienced in the past five years.

1 Q. Has the Company proposed an appropriate goal for meter reading?

2 Α The Company has established its goal at the level of its lowest performance in the 3 past five years, its performance of 1999. The Company argues that setting a goal 4 at the lowest performance of five years would maintain CNG's past level of 5 performance and would not result in penalties to the Company if its performance 6 in the next five years is the same as the past five years (CNG response to OCC II-7 097.) However, the Company's performance on meter reading has shown a 8 steadily deteriorating trend. In the past five years the percentage of actual meter 9 reads has decreased steadily from a high of 91% in 1995 to a low of 86% in 1999. 10 If the Company's historic performance reveals a trend of decreasing service 11 quality for this indicator, setting the goal at the Company's lowest performance 12 level indicates that the Company may not be committed to maintaining its historic 13 level of service to customers.

14 Q. Please describe the Company's proposed penalties for failure to meet the 15 service quality goals.

16 The Company has proposed that failure to meet any of the service quality goals A. 17 would result in a maximum penalty of \$50,000, or four basis points. If the 18 Company were to be penalized for all five of the goals, the maximum penalty 19 would be \$250,000, or twenty basis points. (Supplemental Testimony of Robert 20 Rude, at 10; and Bryant PFT 7; CNG response to OCC II-089.) In addition, CNG 21 has proposed that prior to imposing a penalty, the Company could request a 22 hearing to determine whether failure to achieve the established goal was actually 23 within the Company's control. (Bryant PFT at 7.)

Q. Are the Company's proposed penalties adequate to prevent deterioration in quality of service?

A. No. The Company's proposal to cap penalties at four basis points for each
indicator, with a total cap of twenty basis points, is unlikely to be sufficient to
capture management attention and serve as a deterrent to reducing CNG costs at
the expense of service quality. The penalty for each deviation from a service
quality goal (\$5,000 or \$10,000) is quite small. For example, the meter reading
goal is for 86% of meter reads to be actual, and the Company proposed to pay a

\$5,000 penalty for each percent that the actual meter reading performance falls
 below 86%, up to a maximum of \$50,000. This means that actual meter reads
 could drop to as low as 76% and the Company would incur a penalty of only four
 basis points. Clearly, this penalty is too low for such a large deterioration in
 customer service.

In addition, the Company's proposal to place an overall cap on the penalties for
each service quality indicator may not protect customers from significant
deterioration in service quality. Once the cap is reached, the Company would no
longer face a financial disincentive within the SQP for further deterioration of
service.

Furthermore, the Company's proposed penalties are generally lower than those used by other utilities in their service quality plans. For example, Central Maine Power Company, one of the subsidiaries of Energy East, has an Alternative Rate Plan that includes service quality standards with a maximum penalty of 42 basis points.

16 Q. What level of penalties would be appropriate for the Company's SQP?

A. The level of penalties must be high enough to capture the attention of
management, and ensure that there is no net financial benefit to the Company if it
simply allows service to deteriorate and accepts the penalties. The penalties
proposed by the Company are so low that service could be significantly
compromised within penalties of only five to ten basis points. This is clearly not
enough to capture management attention and prevent the Company from
accepting the penalties.

In general, if the penalties were doubled – so that each service indicator had a
penalty of eight basis points and all the indicators combined had a penalty of 40
points – they would be within the range that management will clearly respond to.
Furthermore, the proposed caps should be removed so that continued deterioration
in service quality will result in increasing levels of penalties.

When considering the size of penalties and whether to use a cap, it is important to remember that the goal of the SQP is to prevent deterioration of service. If the SQP is working properly, then no penalties will be levied on the Company. If, on the other hand, the Company is frequently paying penalties and bumping up against a penalty cap, then the SQP is not working properly – it is not providing sufficient incentive for the Company to maintain customer service levels.

Q. Would the Company's ability to request a hearing prior to the imposition of a penalty be a useful component of the SQP?

9 A. No. The Company states that a hearing may be necessary "to determine if the 10 failure to achieve the identified service level was actually within the Company's control." (Bryant PFT at 7.) This sort of proceeding would be administratively 11 12 burdensome and should not be necessary if the Company has selected service 13 quality indicators that are within the Company's control. As the Company has 14 stated, performance indicators "should focus on specific business activities, so 15 that specific action can be taken if performance falls below an acceptable level." 16 (Bryant PFT at 3.)

Q. What do you recommend to the Department regarding the Company's proposed service quality plan?

19 I recommend that the Department reject the Company's proposed service quality A. 20 plan. If the Company is allowed to implement any form of PBR mechanism, it 21 should be required to propose a new SQP that accounts for the concerns I have 22 raised above. The new proposal should be based on a comprehensive assessment 23 of potential service quality indicators. This assessment should build upon the 24 report that the Department required CNG to file on October 1, 2000 in response to 25 its merger proposal. (Department Decision, Docket No. 99-08-09, at 12-13.) The 26 new proposal should include goals that will clearly maintain the level of service 27 quality provided in the past, as well as goals that will result in improvements in 28 service quality associated with the merger with Energy East. Finally, the new 29 proposal should include meaningful penalties that are not subject to a cap.

1 Q. Does this conclude your testimony at this time?

2 A. Yes, it does.

Timothy Woolf

Vice President Synapse Energy Economics 22 Crescent Street, Cambridge, MA 02138 (617) 661-3248 • fax: 661-0599

PROFESSIONAL EXPERIENCE

Synapse Energy Economics Inc., Cambridge, MA. Vice President, 1997-present. Conducting research, writing reports, and presenting expert testimony pertaining to consumer, environmental, and public policy implications of electricity industry regulation. Primary focus of work includes electricity industry restructuring and competition, electric power system planning, power plant performance and economics, performance-based ratemaking, market power, stranded costs, customer aggregation, information disclosure, air quality, energy efficiency, renewable resources, and many aspects of consumer and environmental protection.

Tellus Institute, Boston, MA. Senior Scientist, Manager of Electricity Program, 1992-1997. Responsible for managing six-person staff that provided research, testimony, reports and regulatory support to consumer advocates, environmental organizations, regulatory commissions, and state energy offices throughout the US.

Association for the Conservation of Energy, London, England. Research Director, 1991-1992. Researched and advocated legislative and regulatory policies for promoting integrated resource planning and energy efficiency in the competitive electric industries in the UK and Europe.

Massachusetts Department of Public Utilities, Boston, MA. Staff Economist, 1989-1990. Responsible for regulating and setting rates of Massachusetts electric utilities. Drafted integrated resource planning regulations. Evaluated utility energy efficiency programs.

Massachusetts Office of Energy Resources, Boston, MA. Policy Analyst, 1987-1989. Researched and advocated integrated resource planning regulations. Participated in demand-side management collaborative with electric utilities and other parties.

Energy Systems Research Group, Boston, MA. Research Associate, 1983-1987. Performed critical evaluations of electric utility planning and economics, including production cost modeling and assessment of power plant costs and performance.

Union of Concerned Scientists and Massachusetts Public Interest Research Group, Cambridge and Boston, MA. Energy Analyst, 1982-1983. Analyzed environmental and economic issues related to nuclear plants, renewable resources and energy efficiency.

EDUCATION

Masters, Business Administration. Boston University, Boston, MA, 1993.Diploma, Economics. London School of Economics, London, England, 1991.B.S., Mechanical Engineering. Tufts University, Medford, MA, 1982.B.A., English. Tufts University, Medford, MA, 1982.

RECENT REPORTS

Comments of the Citizens Action Coalition of Indiana, Workshop on Alternatives to Traditional Generation Resources, June 23, 2000.

Investigation into the July 1999 Outages and General Service Reliability of Delmarva Power & Light Company, prepared for the Delaware Public Service Commission Staff, with Exponent Failure Analysis, Docket No. 99-328, February 1, 2000.

Market Distortions Associated With Inconsistent Air Quality Regulations, prepared for the Project for a Sustainable FERC Energy Policy, November 18, 1999. Principle investigator.

Measures to Ensure Fair Competition and Protect Consumers in a Restructured Electricity Industry in West Virginia, prepared for the West Virginia Consumer Advocate Division, Case No. 98-0452-E-GI, June 15, 1999. Principle Investigator.

The Cape Light Compact Energy Efficiency Plan: Providing Comprehensive Energy Efficiency Services to Communities on Cape Cod and Martha's Vineyard, prepared for the Cape Light Compact, Draft, February 1999. Principal investigator.

Competition and Market Power in the Northern Maine Electricity Market, prepared for the Maine Public Utilities Commission, with Failure Exponent Analysis, November 1998.

New England Tracking System, a methodology for a region-wide electricity tracking system to support the implementation of restructuring-related policies, prepared for the New England Governors' Conference, with Environmental Futures and Tellus Institute, October 1998.

The Role of Ozone Transport in Reaching Attainment in the Northeast: Opportunities, Equity and Economics, prepared for the Northeast States for Coordinated Air Use Management, with the Global Development and Environment Institute, July 1998. Principal investigator.

Grandfathering and Environmental Comparability: An Economic Analysis of Air Emission Regulations and Electricity Market Distortions, prepared for the National Association of Regulatory Utility Commissioners, with the Global Development and Environment Institute, June 1998.

Performance-Based Regulation in a Restructured Electric Industry, prepared for the National Association of Regulatory Utility Commissioners, with Resource Insight, the National Consumer Law Center, and Peter Bradford, February 1998.

Massachusetts Electric Utility Stranded Costs: Potential Magnitude, Public Policy Options, and Impacts on the Massachusetts Economy, prepared for the Union of Concerned Scientists, MASSPIRG and Public Citizen, November 1997.

The Delaware Public Service Commission Staff's Report on Restructuring the Electricity Industry in Delaware, prepared for the Delaware Public Service Commission Staff, Tellus Study No. 96-99, August 1997. Principal investigator.

Preserving Public Interest Obligations Through Customer Aggregation: A Summary of Options for Aggregating Customers in a Restructured Electricity Industry, prepared for the Colorado Office of Energy Conservation, Tellus Study No. 96-130, May 1997. *Zero Carbon Electricity: the Essential Role of Efficiency and Renewables in New England's Electricity Mix*, prepared for the Boston Edison Settlement Board, Tellus Study No. 94-273, April 1997.

Regulatory and Legislative Policies to Promote Renewable Resources in a Competitive Electricity Industry, prepared for the Colorado Governor's Office of Energy Conservation, Tellus Study No. 96-130-A5, January 1997.

Comments Regarding the Investigation of Restructuring the Electricity Industry in Delaware, on behalf of the Staff of the Delaware Public Service Commission, Docket No. 96-83, Tellus Study No. 96-99, November 1996. Principal investigator.

Response of Governor's Office of Energy Conservation, Colorado Public Utilities Commission Questionnaire on Electricity Industry Restructuring,. Docket No. 96Q-313E, Tellus No. 96-130-A3, October 1996.

Position Paper of the Vermont Department of Public Service. Investigation into the Restructuring of the Electric Utility Industry in Vermont, Docket No. 5854, Tellus Study No. 95-308, March 1996.

Can We Get There From Here? The Challenge of Restructuring the Electricity Industry So That All Can Benefit, prepared for the California Utility Consumers' Action Network, Tellus Study No. 95-208 February 1996.

Promoting Environmental Quality in a Restructured Electric Industry, prepared for the National Association of Regulatory Utility Commissioners, Tellus Study No. 95-056, December 1995. Principal investigator.

Comments to the Pennsylvania Public Utilities Commission Regarding an Investigation into Electric Power Competition, on behalf of the Pennsylvania Office of Consumer Advocate, Docket No. I-00940032, Tellus Study No. 95-260, November 1995.

Systems Benefits Funding Options. Prepared for Wisconsin Environmental Decade, Tellus Study No. 95-248, October 1995.

Achieving Efficiency and Equity in the Electricity Industry Through Unbundling and Customer Choice, Initial and Reply Comments of the New Jersey Division of Ratepayer Advocate, in an investigation into the future structure of the electric power industry, Docket No. EX94120585Y, Tellus Study No. 95-029-A3, September 1995.

Non-Price Benefits of BECO Demand-Side Management Programs, prepared for the Boston Edison Settlement Board, Tellus Study No. 93-174, August 1995.

Electric Resource Planning for Sustainability, prepared for the Texas Sustainable Energy Development Council, Tellus Study No. 94-114, February 1995.

TESTIMONY

Mississippi Public Service Commission (Docket No. 96-UA-389). Oral testimony on generation pricing and performance-based ratemaking. On behalf of the Mississippi Attorney General. February 16, 2000.

Delaware Public Service Commission (Docket No. 99-328). Direct testimony on maintaining electric system reliability. On behalf of the Public Service Commission Staff. February 2, 2000.

New Hampshire Public Service Commission (Docket No. 99-099 Phase II). Oral testimony on standard offer services. On behalf of the Campaign for Ratepayers Rights. January 14, 2000.

West Virginia Public Service Commission (Case No. 98-0452-E-GI). Rebuttal testimony on codes of conduct. On behalf of the West Virginia Consumer Advocate Division. July 15, 1999.

West Virginia Public Service Commission (Case No. 98-0452-E-GI). Direct testimony on codes of conduct and other measures to protect consumers in a restructured electricity industry. On behalf of the West Virginia Consumer Advocate Division. June 15, 1999.

Massachusetts Department of Telecommunications and Energy (DPU/DTE 97-111). Direct testimony on Commonwealth Electric Company's energy efficiency plan, and the role of municipal aggregators in delivering demand-side management programs. On behalf of the Cape and Islands Self-Reliance Corporation. January 1998.

Delaware Public Service Commission (DPSC 97-58). Direct testimony on Delmarva Power and Light's request to merge with Atlantic City Electric. On behalf of the Delaware Public Service Commission Staff. May 1997.

Delaware Public Service Commission (DPSC 95-172). Oral testimony on Delmarva's integrated resource plan and DSM programs. On behalf of the Delaware Public Service Commission Staff. May 1996.

Colorado Public Utilities Commission (5A-531EG). Direct testimony on impact of proposed merger on DSM, renewable resources and low-income DSM. On behalf of the Colorado Office of Energy Conservation. April 1996.

Colorado Public Utilities Commission (3I-199EG). Direct testimony on impacts of increased competition on DSM, and recommendations for how to provide utilities with incentives to implement DSM. On behalf of the Colorado Office of Energy Conservation. June 1995.

Colorado Public Utilities Commission (5R-071E). Oral testimony on the Commission's integrated resource planning rules. On behalf of the Colorado Office of Energy Conservation. July 1995.

Colorado Public Utilities Commission (3I-098E). Direct testimony on the Public Service Company of Colorado's DSM programs and integrated resource plans. On behalf of the Colorado Office of Energy Conservation. April 1994.

ARTICLES AND PRESENTATIONS

Electricity Market Distortions Associated With Inconsistent Air Quality Regulations, <u>The Electricity Journal</u>, April 2000.

Grandfathering and Coal Plant Emissions: the Cost of Cleaning Up the Clean Air Act, <u>Energy</u> <u>Policy</u>, with Ackerman, Biewald, White and Moomaw, vol. 27, no 15, December 1999, pages 929-940. *Challenges Faced by Clean Generation Resources Under Electricity Restructuring*, speaker at the Symposium on the Changing Electric System in Florida and What it Means for the Environment, Tallahassee Florida, November 1999.

Follow the Money: A Method for Tracking Electricity for Environmental Disclosure, <u>The Electricity Journal</u>, May 1999.

New England Tracking System Project: An Electricity Tracking System to Support a Wide Range of Restructuring-Related Policies, speaker at the Ninth Annual Energy Services Conference and Exposition, Orlando Florida, December 1998

Efficiency, Renewables and Gas: Restructuring As if Climate Mattered, <u>The Electricity Journal</u>, Vol. 11, No. 1, January/February, 1998.

Flexible Pricing and PBR: Making Rate Discounts Fair for Core Customers, <u>Public Utilities</u> <u>Fortnightly</u>, July 15, 1996.

Overview of IRP and Introduction to Electricity Industry Restructuring, training session provided to the staff of the Delaware Public Service Commission, April, 1996.

Performance-Based Ratemaking: Opportunities and Risks in a Competitive Electricity Industry, <u>The Electricity Journal</u>, Vol. 8, No. 8, October, 1995.

Competition and Regulation in the UK Electric Industry, speaker at the Illinois Commerce Commission's workshop on Restructuring the Electric Industry, August, 1995.

Competition and Regulation in the UK Electric Industry, speaker at the British Columbia Utilities Commission Electricity Market Review, Vancouver, British Columbia, February, 1995.

Retail Competition in the Electricity Industry: Lessons from the United Kingdom, <u>The Electricity</u> <u>Journal</u>, Vol. 7, No. 5, June, 1994.

A Dialogue About the Industry's Future, The Electricity Journal, June, 1994.

Energy Efficiency in Britain: Creating Profitable Alternatives, Utilities Policy, July 1993.

It is Time to Account for the Environmental Costs of Energy Resources, <u>Energy and</u> <u>Environment</u>, Volume 4, No. 1, First Quarter, 1993.

Developing Integrated Resource Planning Policies in the European Community, <u>Review of</u> <u>European Community & International Environmental Law</u>, Energy and Environment Issue, Vol. 1, Issue 2. 1992.

Resume dated September 2000.