

STATE OF NEW HAMPSHIRE

Before the

PUBLIC UTILITIES COMMISSION

DOCKET DG 10-017

ENERGYNORTH NATURAL GAS, INC.

d/b/a

NATIONAL GRID NH

Rebuttal Testimony of

Paul M. Normand

December 7, 2010

**REBUTTAL TESTIMONY OF PAUL M. NORMAND
ON BEHALF OF
NATIONAL GRID NH**

TABLE OF CONTENTS

INTRODUCTION..... 1
RATE DESIGN..... 4
 Rebuttal of Staff Cost Allocation and Rate Design Proposal..... 4
 Rebuttal of the OCA’s Cost Allocation and Rate Design Argument 10
 Rebuttal of Locke Design Proposal..... 11
MARGINAL COST STUDY 13
 Rebuttal of Staff Adjustments 13
 Rebuttal of OCA Position 18
SUMMARY 26

1 **INTRODUCTION**

2 **Q. Please state your name, position and business address.**

3 A. My name is Paul M. Normand. I am a managing consultant with the firm of
4 Management Applications Consulting, Inc. ("MAC"). MAC's headquarters is
5 1103 Rocky Drive, Suite 201, Reading, Pennsylvania 19609.

6
7 **Q. Are you the same Paul M. Normand who presented direct testimony on
8 behalf of National Grid NH ("Company") concerning cash working capital,
9 lead-lag studies, class marginal costs to serve, and rate design?**

10 A. Yes, I am.

11

12 **Q. What is the purpose of your rebuttal testimony?**

13 A. My rebuttal testimony addresses issues concerning:

14 1. The Company's proposed rate design raised by Staff, OCA and Roger Colton
15 on behalf of Pamela Locke and

16 2. The natural gas delivery service marginal cost study ("MCS"), raised by
17 Robert Wyatt from the NH PUC Staff and Lee Smith and Arthur Freitas on
18 behalf of the NH Office of Consumer Advocate ("OCA").

19

20 **Q. Do you need to address rate design issues in your rebuttal?**

21 A. Yes, Staff and Locke have advocated flat rate designs and lowering customer
22 charges from the Company's proposal, both of which are impractical and

1 inappropriate. In addition, Staff and the intervenors have provided incorrect
2 information concerning the technical aspects of the marginal cost study which I
3 would like to address.

4

5 **Q. Please summarize your rebuttal testimony concerning rate design.**

6 **A.** My rate design process incorporates two steps, (1) establishing class revenue
7 targets, also known as apportioning revenue requirements among classes and (2)
8 designing the rates for each class to produce the targeted revenues.

9 Addressing the individual rate designs first, both Staff and Mr. Colton for
10 Ms. Locke have advocated lowering the Company's proposed customer charges
11 and implementing flat rates as a replacement for the existing declining block rate
12 structure. I agree with Staff that it is inappropriate to price consumption above
13 marginal costs simply to encourage conservation because such a practice will
14 discourage economic consumption. Yet, lowering customer charges and
15 establishing flat rates would also discourage economic consumption. I will
16 demonstrate that the Company's customer costs are actually far greater than the
17 customer charges proposed in the Company's rate design proposal, and therefore
18 there should be no reduction in the customer charges proposed by the Company. I
19 will also show why the imposition of smaller increases in the customer charge
20 than proposed by the Company along with flat rates is impractical and will
21 continue economically inefficient intra-class subsidization far into the future.

22 Regarding the first topic, apportioning revenue requirements to rate
23 classes, Staff agrees with my approach of using caps to the percentage of revenue

1 increase to develop class revenue targets with one minor suggested improvement.
2 On the other hand, the OCA witnesses argue against the use of marginal costs to
3 allocate revenue requirements. The OCA demands the use of an allocated cost of
4 service study for this purpose, thereby attempting to raise the same issues
5 concerning the role of marginal costs in the design of rates that have been
6 addressed many times in the past by the NH PUC. The OCA witnesses argue that,
7 in the absence of an accounting cost of service study, it would be inappropriate to
8 propose changes to the general rate design and that a simple “across-the-board”,
9 or equi-proportional, adjustment should be made to all existing rates in this
10 docket. This argument is completely contrary to Commission precedent and
11 practice. The Commission can and does regularly utilize the results of marginal
12 cost studies alone to design rates and has done so on a consistent basis.

13

14 **Q. Please summarize your rebuttal testimony concerning the marginal cost**
15 **study.**

16 **A.** Staff generally concurred with the results of the marginal cost study (“MCS”), but
17 proposed two minor adjustments. These adjustments are insignificant or
18 inappropriate as I will explain later. In addition, the OCA’s consultants criticize
19 some of the procedures and general assumptions normally incorporated in all
20 marginal cost studies. They go on to identify three alleged flaws. I will address
21 these issues as well and explain why one of these criticisms has some validity, but
22 has no impact on the proposed rate design, while the others are baseless.

23

1 **RATE DESIGN**

2 **Rebuttal of Staff Cost Allocation and Rate Design Proposal**

3 **Q. Please summarize the Staff's position on cost allocation.**

4 **A.** Mr. Wyatt generally agrees with my development of class revenue targets. His
5 only exception concerns the development of rate caps. I have proposed rate caps
6 on a percentage basis for each rate class equal to 125% of the overall delivery
7 base rate increase granted for all classes except the Residential Non Heating rate,
8 Rate R-1, where I have specified a 150% rate cap. Mr. Wyatt would use 125%
9 for all rate classes.

10

11 **Q. Why do you disagree with Mr. Wyatt's recommendation?**

12 **A.** I presume that the Staff recommendation is based on the fairness criterion – i.e.,
13 that it is unfair to single out the residential non-heating class for special treatment.
14 Mr. Wyatt goes on to suggest that if my goal is simply to move more quickly
15 toward aligning class revenues with costs to serve, then my logic should have
16 extended to the G-54/G-63 class. However, there are fundamental reasons for
17 singling out the R-1 class and not including the G-54/G-63 class.

18

19 **Q. What distinguishes the R-1 class to justify a higher rate cap?**

20 **A.** Based on my extensive cost of service experience (30 years) and a historical
21 review of EnergyNorth Natural Gas's prior studies, both embedded and marginal
22 costs have shown that the residential non-heating class is subsidized by other

1 classes. EnergyNorth's prior rate cases have consistently shown that large
2 increases are necessary for this class to pay its fair share. Yet, in each case, bill
3 impact considerations have continually hampered progress toward this goal of
4 eliminating subsidies. As a result, the subsidies continue and have been
5 institutionalized. No other class has such a history. The G-54/G-63 class has
6 been priced much closer to its cost to serve than the R-1 class. For example, the
7 settlement rate design in Docket No. DG 08-009 revealed that the R-1 class
8 required a 103% increase to equal costs to serve while the G-54/G-63 class
9 required only a 34% increase. Both classes were assigned the maximum
10 percentage increase. Bear in mind that the G-54/G-63 class is comprised of
11 relatively few very large customers. It is only in recent years that the make-up of
12 the class and its load characteristics have changed, raising its cost to serve.
13 Unlike the R-1 class, the need for larger than average percent increases is
14 relatively new.

15 One of Bonbright's well-known rate design goals addresses predictability¹.
16 Customers should not have significant changes to their rates without notice. The
17 R-1 rate class has been on notice for some time that it is likely that it will need to
18 absorb a higher proportion of delivery costs. The same cannot be said for the G-
19 54/G-63 class.

20 More importantly, the dollar impact of the proposed rate changes should
21 be considered in addition to the percentage increase. Since consumption in the R-

¹ Principles of Public Utility Rates, 1988, pages 387-8.

1 1 class is very low², the dollar increases to individual customers necessary to
2 move them toward parity are also small. In this case, I have proposed an average
3 increase of \$53 per year, while the lower cap that Mr. Wyatt is recommending
4 results in an average increase of \$44, a difference of less than \$1 per month.

5

6 **Q. What is the rate design proposal of the Staff?**

7 **A.** Mr. Wyatt generally endorsed the Company's proposed declining block rates but
8 took exception to the bill impacts for R-3 and R-4, residential heating, and Rate
9 G-41, primarily small commercial heating customers. He recommended a slightly
10 smaller increase to the customer charge. While he mentioned flat rates, he did not
11 recommend eliminating the present declining block rate structure. At the
12 conclusion of his testimony, Mr. Wyatt made a very insightful statement with
13 which I agree and which bears repeating:

14 *Declining block rate structures tend to promote greater usage, which, in*
15 *turn, requires more investment in infrastructure to meet the increased load*
16 *growth. However, if the tail block rate is at or above the marginal cost,*
17 *setting the flat rate above this level simply to promote energy conservation*
18 *will encourage customers to make economically inefficient decisions*
19 *which in the long run lead to an increase in system costs.*³

20

21 **Q. What are the marginal costs that should be used for the design of rates?**

² Average consumption is 234 therms per year, the lowest of any rate class and roughly one quarter of the nearest rate class, residential heating.

³ Wyatt Direct Testimony at 28, lines 14-18.

1 **A.** There are several possible answers to this question, depending on which marginal
2 cost study is used and how volumetric costs are calculated. Using Mr. Wyatt's
3 marginal cost study, I believe he is suggesting that R-3 tail block rates shouldn't
4 exceed \$0.2236⁴. Using this figure, one can see that if customer charges are
5 lower than \$19.37, tail block prices will exceed marginal costs. Alternatively, the
6 marginal cost constraint would make flat rates impossible at the present time
7 unless customer charges were increased substantially.

8

9 **Q.** **Staff appears to argue that the fixed, capacity-related costs in your MCS**
10 **should be collected through a volumetric charge while you have advocated**
11 **that, at least in theory, they should be rolled into a fixed monthly facilities**
12 **charge. Could you comment on this issue?**

13 **A.** I believe that the recovery of capacity costs, those necessary to provide service at
14 time of peak, should not be recovered on the basis of volumetric rates. This fact
15 has been demonstrated in other utilities, both regulated and non-regulated.
16 Utilities offering local phone service, internet access, cable TV service and even
17 cell phone service are similar to gas distribution utilities in many respects. They
18 all incur high fixed costs to provide capacity to customers at time of peak and that
19 capacity is seldom, if ever, fully utilized. Costs are incurred to have capacity
20 available at times of peak, regardless of whether the customer actually uses it at
21 that time. These other utilities recover the large majority of their costs through
22 fixed monthly fees. In the telephone industry, local service is provided on a flat

⁴ Attachment RJW-3, page 10, line 36

1 rate basis. The telephone equivalent of volumetric billing, message unit billing, is
2 feasible for residential customers, though the approach is rarely employed. In the
3 internet access market, most providers initially priced their services on the basis
4 of connected minutes, but the market has shifted, resulting in virtually all carriers
5 offering unlimited usage for a flat monthly fee as their most popular plan. Note
6 that cell phone service plans often allow unlimited usage in off peak periods.
7 Such unlimited off-peak pricing plans are consistent with the fact that marginal
8 capacity costs are zero in off peak periods. Furthermore, many telephone pricing
9 plans bundle a large number of peak period minutes for a fixed monthly fee. The
10 various cell telephone pricing plans have a direct analogy to the gas utility
11 industry. The plan groupings are analogous to the utility's rate classes - large plan
12 users are similar to large commercial and industrial users, both desiring a
13 commitment of capacity. Conversely, small plans are similar to residential users.
14 Even though the cell phone usage among customers signed up for low usage vary,
15 they all pay the same minimum monthly fee.

16 Other gas distribution utilities have implemented fixed rate pricing as I
17 have suggested. For example, Missouri Gas Energy, serving over a half million
18 customers in Missouri including Kansas City, charges residential customers a flat
19 rate of \$26.88 per month for all delivery services under its Residential Gas
20 Service - RS tariff.⁵ Atlanta Gas Light, the eighth largest gas distribution utility
21 in the country, serving the city of Atlanta, offers a pricing variant which is even
22 more faithful to tracking marginal costs. Under Rate R-1 Residential Delivery

⁵ Missouri Public Service Commission, Form 13, P.S.S. Mo No. 1, Eighth Revised Sheet No. 25

1 Service⁶, customers are billed on the basis of their "Dedicated Design Day
2 Capacity". In essence, their tariff sets each customer's distribution revenues on
3 the basis of the customer's estimated design day capacity requirement. In addition,
4 a monthly Customer Charge and Ancillary Service charge recover the cost of the
5 gas connection and the meter reading, respectively. As with the Missouri tariff,
6 none of the delivery charges are billed volumetrically. In Illinois, I recently
7 proposed and the Commission approved recovery of 80% of revenues for
8 residential and small commercial as a fixed monthly charge. (09-0306C)

9 Staff would have most of these capacity costs recovered volumetrically as
10 they have been in the past. In the long run, the price signals this gives customers
11 is just plain wrong. Under Staff's approach, revenues are derived from usage
12 throughout the year, for example, in the summer and on warm winter days. In
13 contrast, the marginal cost study shows that usage in these time periods⁷ has no
14 effect on costs. Customers are simply using the capacity that exists from sunk
15 investments. From a theoretical perspective, volumetric charges are appropriate
16 for pricing supply service, but not delivery service.

17

18 **Q. How does this argument affect the design of rates in this docket?**

19 A. If the long run goal of the Commission is to price delivery service in an efficient
20 manner, then it should be attempting to recover all facilities costs from customers
21 through the monthly customer charge. Using Mr. Wyatt's marginal cost exhibit,

⁶ Georgia Public Service Commission, Atlanta Gas Light Company Tariff, Third Revised Sheet No. 1.1 - 3, Effective May 1, 2002.

⁷ All loads except those that occur on the design day are irrelevant to marginal capacity costs.

1 this means a customer charge of nearly \$40 per month. While I recognize that
2 such a rate would be impractical at the present time, I believe we must change the
3 way we view bill impact analyses for small customers. In order to make
4 meaningful progress toward cost based rates, we must examine the dollar impact
5 of the increase rather than the percentage increase. In the case of R-3 and G-41
6 classes, the dollar impacts that I have proposed are unlikely to be disruptive,
7 especially considering the fact that discounted rates under the R-4 tariff are
8 available for those with limited ability to pay.

9

10 **Rebuttal of the OCA's Cost Allocation and Rate Design Argument**

11 **Q. Please summarize the rate design process proposed by OCA witnesses Smith
12 and Freitas.**

13 **A.** The OCA witnesses claim that it is neither fair nor reasonable to use the results of
14 the marginal cost study to design rates. They divide the rate design process into
15 two steps, establishing the revenue targets for each class and then designing the
16 specific rates. They reject the use of marginal costs to establish class revenue
17 targets. They also reject the use of the marginal cost study for establishing
18 customer charges, but they appear to endorse the concept of using the raw,
19 unadjusted, capacity-related portion of delivery marginal costs to establish pricing
20 for incremental usage. Since the OCA witnesses reject the use of marginal costs
21 to establish revenue targets, in the absence of an embedded cost study, they find
22 no basis for changing the revenue targets among classes and endorse an equal

1 percentage adjustment. As for the actual rate design, the OCA witnesses argue
2 that using the results of the Company's marginal cost study would move away
3 from efficient pricing, and, therefore, the rate designs for each class should also
4 be made on an equal percentage basis.

5

6 **Q. Do you find the OCA's arguments concerning the establishment of revenue**
7 **targets reasonable?**

8 **A.** No, I do not. Simply put, the derivation of class revenue targets can be
9 accomplished by either a marginal or accounting cost of service result. In either
10 case, the final targets will require revenues to be capped for certain classes
11 making either approach valid for rate design purposes. The most important
12 criterion is to maintain consistency in procedure from rate case to rate case while
13 emphasizing gradualism.

14

15 **Rebuttal of Locke Design Proposal**

16 **Q. Please summarize Mr. Colton's rate design recommendations**

17 **A.** Mr. Colton proposes to limit residential customer charge increases to the class's
18 percentage increase and to replace declining block rates with flat rates. I have
19 already discussed why such a proposal is inappropriate in my discussion of Mr.
20 Wyatt's testimony.

21

1 **Q. Please comment specifically on Mr. Colton's suggestion to implement flat**
2 **rate pricing.**

3 **A.** Flat rate pricing offers simplicity as its primary advantage. However, it has some
4 disadvantages, as well. Coupled with the customer charge cap that he has
5 proposed, Mr. Colton's flat rate would increase volumetric charges, which would
6 tend to discourage greater gas consumption, as he stated. However, the therm
7 charges would exceed marginal costs and would not be efficient in an economic
8 sense, violating Mr. Wyatt's tenet. The supply charges, which constitute
9 approximately 70% of customers' bills, provide customers with a sufficient price
10 signal to conserve. In this case, supply charges are designed to recover costs on a
11 consistent basis, that is - supply costs vary with volumes and supply prices are
12 designed on the same metric. Just as important, recall that the present declining
13 block rate structure collects customer costs not already recovered in the customer
14 charge. For example, the head block generates over six dollars per month for a
15 larger than average residential heating customer under the present rates.
16 Eliminating the head block and moving to a flat rate design would increase the
17 variability of customer bills, increase intra-class rate subsidization, exacerbate
18 revenue decoupling and move rates further away from marginal costs to serve. I
19 do not recommend that the Commission move in this direction.

1 **MARGINAL COST STUDY**

2 **Rebuttal of Staff Adjustments**

3 **Q. What are Mr. Wyatt's recommended corrections to the marginal cost study?**

4 **A.** These corrections relate to (a) the calculation of production capacity costs and (b)
5 the calculation of distribution pressure support capacity costs.

6

7 **Q. If the intended use of the marginal cost study is to develop delivery rates,**
8 **why is the computation of marginal production capacity costs relevant?**

9 **A.** Production capacity costs are not relevant to the design of delivery rates;
10 however, the marginal cost for delivery pressure support *is* relevant. In the same
11 vein, the embedded cost of production plant used for delivery pressure support
12 must be excluded from the Cost of Gas Clause and included as part of delivery
13 rates.

14 Prior to the unbundling of supply and delivery rates in New Hampshire,
15 rates were bundled and marginal cost studies necessarily computed all marginal
16 costs including supply and delivery. Marginal production capacity costs were
17 computed using the "Modified Peaker" method. Later, when rates were
18 unbundled in Docket No. DG 00-063 and the calculation of delivery costs became
19 paramount, my colleague Mr. Harrison correctly identified that some portion of
20 the manufactured gas capacity was used to support pressures in remote areas of
21 the distribution system, where cumulative pressure losses became critical. In fact,

1 the use of this supply capacity to reduce pressure losses was often a lower cost
2 alternative to expanding or looping the distribution system to avoid the pressure
3 drop. Calculation of the unit cost for pressure support could be theoretically
4 complex; however, as an expedient in the unbundling docket, Mr. Harrison simply
5 applied a percentage to the already available Modified Peaker capacity cost. His
6 approach was employed by both ENGI and Northern Utilities in all subsequent
7 marginal cost studies, including the one in this case, and that approach was
8 adopted by the Commission.

9 The calculation of pressure support costs that I have employed in this case
10 simply follows the practice adopted in prior dockets. However, Mr. Wyatt has
11 proposed changes to both the Modified Peaker calculation and the percentage that
12 is applied to develop the pressure support cost.

13

14 **Q. Do you agree with his adjustments?**

15 **A.** No, I do not agree with these adjustments proposed by Staff. Although I believe
16 that theoretically these adjustments are incorrect, I am not going to respond to
17 these points at this time, since the impact of all of Staff's recommended changes
18 to the marginal cost study will have little or no impact on the final rate design.

19

1 **Q. Did Staff propose any other adjustments to the MCS?**

2 **A.** Yes, Staff claimed that uncollectible accounts expense is not a marginal cost
3 because, according to Mr. Wyatt, "the cost of customer non-payment is not a
4 marginal cost"⁸.

5
6 **Q. Do you agree?**

7 **A.** No. In over thirty years of consulting, I have never seen a marginal cost study
8 that excludes an allowance for uncollectible accounts expense. Since uncollectible
9 accounts expense exists, a utility can only recover its costs if an allowance for
10 uncollectible accounts expense is included in revenue requirements. As a result,
11 both the Uniform System of Accounts and New Hampshire's code of accounts
12 explicitly list an expense account for uncollectibles, which is included in all utility
13 revenue requirements calculations. This same requirement must be translated in to
14 measuring marginal costs. The purpose of marginal cost pricing is to establish
15 rates that allow utilities to recover the marginal costs incurred to provide service
16 to customers. If uncollectible accounts expense were not a marginal cost as Staff
17 claims, then the cost to meet the demand of a new customer would be independent
18 of whether that customer pays his or her bill. The question boils down to this -
19 Will the utility recover its marginal costs if its charges are not adjusted for to
20 include uncollectible accounts? If a group of new customers were each charged
21 marginal costs excluding an allowance for uncollectibles accounts expenses and
22 one customer defaulted on his or her bill, would the resulting revenues match the

⁸ Wyatt Direct Testimony at p. 21, l6-7.

1 costs incurred? Obviously not. For this reason, **all** marginal cost studies include
2 an adjustment for uncollectible accounts expense. These prior studies include all
3 of the marginal cost studies previously filed by my colleague Mr. Harrison on
4 behalf of ENGI, Northern Utilities and Unitil Energy Services and used to support
5 rate designs accepted by the NHPUC as well as roughly three dozen marginal cost
6 studies MAC has filed in other jurisdictions.

7

8 **Q. After reviewing Mr. McCluskey's testimony in Docket DE 05-178, Mr. Wyatt**
9 **claimed that the marginal cost study filed by Mr. Harrison excluded**
10 **uncollectible accounts expense. Is that true?**

11 A. No, it is not. The Unitil MCS study in that docket included uncollectible
12 accounts. In fact, in the Unitil case Mr. McCluskey acknowledged that
13 uncollectible account expense had been included in the MCS.

14

15 **Q. What was Mr. Wyatt's ultimate recommendation regarding National Grid**
16 **NH's marginal cost study?**

17 A. On page 22, lines 1-4, of his direct testimony, Mr. Wyatt states

18

19 *With these updates, I believe the marginal cost study provides sufficient*
20 *support for changing rate class revenue requirements and redesigning*
21 *rates in a manner that is consistent with results from the prior marginal*
22 *cost study presented in DG 08-009.*
23

24 Although I disagree with Mr. Wyatt regarding his reference to needed updates to
25 the marginal cost study, I note that his changes have little impact on the marginal
26 cost study's results, and I certainly agree with his ultimate recommendation,

1 which is to employ the results of the marginal cost study in setting rate class
2 revenue distributions and in rate design.

3

4 **Q. Please describe the impact of these changes on the Company's proposed rate**
5 **design.**

6 **A.** In the rate design process, class revenue targets are developed subject to a
7 percentage cap based on the size of the class increase. This therefore reduces any
8 impact that the Staff's proposed changes of the marginal cost study would have
9 on the Company's proposed rate design. Examining the class with the largest
10 increase in costs to serve, a slight increase to the residential heating class's cost to
11 serve as suggested by Mr. Wyatt, would have no impact at all on the class's
12 revenue target for rate design. This stems from fact that the increase to the
13 residential heating class was already capped at the maximum allowable increase.
14 So the updates to the MCS as recommended by Mr. Wyatt would have no impact
15 whatsoever on the residential heating class.

1 **Rebuttal of OCA Position**

2 **Q. Please summarize the OCA's criticisms of your MCS.**

3 **A.** The OCA identified three alleged "errors" in the filed MCS as well as two items it
4 called "failures". Specifically, the OCA claims that:

5 1. The MCS does not reflect the revision to the policy for Contributions in
6 aid of Construction (CIAC) that was approved in the Company last rate
7 case,

8 2. The MCS draws an improper conclusion in estimating expenses when the
9 regression results are insignificant,

10 3. The MCS improperly assigns a portion of expenses incurred to operate
11 distribution lines to the customer component,

12 4. The MCS failed to recognize class differences in marketing expenses,

13 5. The MCS failed to recognize the sunk investment in services and meters
14 currently serving existing customers.

15

16 **Q. Do you agree with the OCA's first point regarding CIAC?**

17 **A.** Yes, I agree that the MCS should compute the test year marginal costs based on
18 the CIAC policy that was in effect during the test year. This change will result in
19 a reduction to the residential service cost.

20

21 **Q. Would these reduced service costs have a material impact of the development**
22 **of the revenue targets for the residential rate classes?**

1 **A.** No. If these revised connection costs are employed in the marginal cost study, the
2 increases to the residential class would still exceed the capped level of increase
3 proposed in the rate design. Therefore, contrary to the OCA's assertion,
4 incorporating the new connection policy will have minimal impact to the
5 proposed rate design.

6

7 **Q.** **Do you agree with the OCA's second point, that you have over-estimated**
8 **customer-related expenses?**

9 **A.** No, I do not. The OCA's criticism relates to the calculation of customer
10 accounting expenses on Attachment PMN 3, Table 6 at page 16. A statistical
11 analysis attempting to verify the hypothesis that the costs are a direct function of
12 the number of customers did not reveal a direct causal relationship over the period
13 1989 to 2008. This is borne out by the lack of a significant statistical correlation -
14 the R-squared value was only 34%. Next, a time series analysis of the unit cost
15 data for this same period was attempted. The R-squared for this analysis was
16 62%, indicating a weak statistical correlation. If we were to accept that regression
17 as valid, its results suggest an annual decline in unit costs and a predicted test year
18 value of \$31.57 per customer. Contrary to the OCA's assertion, this value is not
19 negative.

20 Even more importantly, the regression results must be rejected as invalid
21 due to the lack of consistency in the underlying data. As the OCA points out, the
22 data for 2001 and 2002 are outliers. However, a closer examination reveals that
23 these years represented a transition period when ENGI was acquired by KeySpan.

1 Subsequently, the entire customer accounting operation was revamped. The small
2 stand-alone activity headquartered in Manchester was replaced with a much
3 larger, more efficient centralized billing system serving all of the KeySpan
4 utilities. Not only did the customer accounting process undergo a fundamental
5 change, the underlying cost accounting and marketing systems changed. In the
6 transition period, little was the same as before. This is to be expected when a
7 merger takes place. However, in this case it was exaggerated by yet another
8 change - the replacement of the general accounting system. The accounting for
9 some costs changed significantly with the subsequent conversion from the SAP to
10 Oracle accounting system. When a data series is internally inconsistent, no
11 meaningful regression results are possible. The only available set of consistent
12 data came from the years 2003 to 2008, which was too small of a data set to
13 perform meaningful statistical analysis.

14

15 **Q. Could you comment on the OCA's alternate statistical analysis of customer**
16 **accounting costs?**

17 **A.** The OCA's suggestion that the statistical analysis for the years 1989 to 2008 can
18 be made meaningful by adding a dummy variable for the transition years lacks
19 any fundamental rationale. This period includes some pre- and some post-merger
20 years. Any savings or trend in savings that ENGI generated through efficiencies
21 in the 1989 to 2001 period are simply irrelevant to the measurement of the utility's
22 costs today. In the absence of a valid econometric model, the use of the 2002 to
23 2006 average employed in the filed study utilizes all of the available data

1 consistently developed from the Oracle accounting system and best estimates
2 ENGI's current marginal costs.

3

4 **Q. Please comment on the OCA's third point that operating expenses for**
5 **underground lines should be assigned exclusively to the capacity component**
6 **and none should be assigned to the customer component.**

7 **A.** The Uniform System of Accounts, as implemented by the FERC, defines Account
8 874, Mains and Services in great detail. Specifically, these costs include labor,
9 materials and expenses incurred in operating mains and services. The marginal
10 cost methodology used to unbundle rates for both ENGI and Northern Utilities
11 followed the same methodology used here—i.e., assigning a portion of this
12 account to the customer component—as has been the case in all other marginal
13 cost studies performed by MAC—because, contrary to the OCA's assertion, this
14 account includes significant expenses related to services. The OCA's conclusion
15 that none of these expenses should be assigned to the customer component is
16 unfounded.

17

18 **Q. Please comment on the OCA's claim that the MCS is flawed because it fails**
19 **to recognize class differences in marketing costs.**

20 **A.** The MCS allocates Customer Accounting and Marketing expenses on the basis of
21 customer count. This is a very common procedure used to simplify the
22 preparation of marginal and accounting cost studies. In the unbundling docket,
23 when both accounting and marginal cost studies were performed, the accounting

1 cost study examined each cost by code of account and developed different
2 allocations for customer accounting and marketing expense. The marginal study
3 incorporated the allocations from the accounting study. However, in the current
4 docket, no accounting cost study was performed and the simpler approach was
5 employed, primarily to save effort and cost. Examining the post-merger period,
6 2002 to 2008, marketing expenses averaged 17% of the combination of customer
7 accounting and marketing. For 83% of the costs in this category, the OCA does
8 not question the choice of the proper allocator. The OCA simply argues that
9 marketing expenses should be allocated separately. As with any cost study, there
10 is always a trade-off between greater precision and costs. The incorporation of
11 this minor improvement will not result in a significant change to the final rate
12 design and should therefore be ignored.

13

14 **Q. The OCA claims that your cost allocation is flawed for its failure to consider**
15 **commodity or revenue in its allocations. Could you comment?**

16 **A.** The OCA cites the example of main extensions arguing that these investments to
17 serve new load are driven by expected customer volumes and resulting revenues
18 rather than by design day demands. I agree that the utility will perform a revenue
19 test to determine if expected revenues are sufficient to justify a main extension
20 investment. I also agree that, at the present, revenues are driven primarily by
21 customer sales volumes. From this, the OCA concludes that main extension costs
22 are attributable to sales volumes. The problem with this logic is that it is circular
23 - main extension investment is driven by revenues and revenues are driven by

1 rates. Therefore, if rates are based on sales volumes, then sales volumes drive
2 main extension investment. However, the logic breaks down when rates reflect
3 costs to serve. If rates were based on design day demands, as indicated by the
4 marginal cost study, then revenues would be based on design day demands, which
5 in turn, would drive main extension investment. So, if we were to follow the
6 OCA's logic, we should change the way we measure costs, so they better reflect
7 revenues recovered from current pricing, while in truth we should be changing
8 pricing and revenue generation to better reflect costs.

9
10 **Q. The final OCA criticism of the marginal cost study concerns the use of new**
11 **service and meter costs to estimate marginal costs. The OCA claims that the**
12 **MCS "fails" to recognize that the majority of existing customers are served**
13 **by sunk investment, all of which was priced at a fraction of the current cost**
14 **and much of which is heavily depreciated and no longer part of revenue**
15 **requirements. Please respond to OCA's arguments?**

16 **A.** This argument is not a new one. It was considered years ago, when the theory
17 behind current marginal cost pricing was developed. The OCA's argument has
18 been discredited on a number of occasions in the past. OCA argues that the sunk
19 costs for existing services and meters are markedly lower than the costs to serve
20 new customers, and therefore it is wrong to design rates based on the cost to add a
21 new customer. The OCA witnesses ignore the fact that, although the costs for the
22 existing service line and meter are sunk, the costs for the replacement service and
23 meter are not.

1 An intuitive way to show the problem with the OCA's approach is to
2 consider meters which are fungible. An old meter can be used to provide the
3 same service as a new one. Therefore, providing a meter to an existing customer,
4 results in the need to buy a new meter for the next new customer. Conversely, if
5 the existing customer were to leave the system, the meter could be removed and
6 relocated to serve the new customer instead of buying a new one. Therefore the
7 opportunity cost to serve the existing customer is the same as the cost to buy a
8 new meter.

9 There is a second reason for pricing existing customers using the marginal
10 cost of new equipment. Again, using meters as an example, a meter can serve a
11 customer this year and next year. It provides the same function and value both
12 years. The economic value of the meter as measured by the marginal cost study is
13 the same in both years. In constant dollars, as employed by the marginal cost
14 study, the value of the meter is the same, but when stated in current dollars, the
15 value of the meter rises each year with inflation. As a general rule, marginal costs
16 are stated in a given year's dollars. In any different time period, the marginal cost
17 must be restated to reflect the same economic value, i.e. adjusted for inflation.

18 It is true that sunk investments are irrelevant and are ignored in the
19 measurement of marginal costs. If current meters and services had infinite service
20 lives, then the marginal cost to serve existing customers whose meter investments
21 are sunk would be zero. But their service lives are finite, and therefore they need
22 to be replaced.

1 ENGI is obligated to continue to serve existing customers. That means
2 that the Company must operate and maintain the existing service and metering
3 equipment and replace it when necessary. Therefore, while the costs for the
4 existing service is sunk, the costs for the future replacement is not. The decision
5 to continue as a customer will result in additional service investment sometime in
6 the future. Obviously, the customer has no obligation to pay an additional amount
7 for his or her replacement equipment, but ENGI must.

8

9 **Q. What is the annualized cost required to fund the ongoing replacement of**
10 **existing equipment?**

11 A. The annualized cost required to fund the ongoing life-cycle replacement of
12 existing equipment is calculated using an economist's fixed charge rate. The
13 economist's fixed charge rate is used in the marginal cost studies to levelize one-
14 time investments such as the service replacement referred to above. The
15 economist's fixed charge rate, unlike a conventional fixed rate mortgage,
16 generates a series of annual payments over the life of an asset that escalate each
17 year with inflation, so that the payments are equal in constant year dollars. At the
18 end of the asset's useful life and assuming the replacement cost has increased by
19 the same rate of inflation, the levelized payment for the new asset will be exactly
20 equal the levelized payment for the old asset in constant dollars. The annual
21 stream of payments beginning in the test year necessary to fund the replacement
22 service over its expected useful lifetime is exactly the same as the amount
23 developed in the marginal cost study for a new service. Therefore, the annualized

1 marginal costs imposed by new as well as existing customers, when stated as a
2 series of payments escalating with inflation, are the same. The service and meter
3 costs for new customers are no different than the costs for existing customers over
4 the long run. Therefore, the OCA's argument distinguishing the costs between
5 new customers and existing customers is a distinction without a difference; it is
6 flawed. This is why all marginal cost studies treat existing and new customers
7 similarly.

8

9 **SUMMARY**

10 **Q. Please summarize your rebuttal of Staff witness Wyatt's testimony.**

11 **A.** Mr. Wyatt and I are in general agreement. He recommends the use of my lead-lag
12 study and cash working capital, and with minor revisions, my marginal cost and
13 rate design recommendations. I have rebutted several technical issues that Mr.
14 Wyatt had regarding the Company's marginal cost study. I justified the need to
15 provide larger percentage increases to the residential non-heating class. I
16 addressed Mr. Wyatt's pricing recommendations to lower customer charges and
17 employ flat rates, pointing out that other providers of delivery services employ
18 high fixed fees, unrelated to service volume levels, and that the Staff's
19 recommendations would result in inefficient pricing because variable prices
20 would exceed marginal costs.

21

1 **Q. Please summarize your rebuttal of the testimony of OCA witnesses Smith**
2 **and Freitas.**

3 **A.** My rebuttal of the OCA witnesses addressed issues regarding the marginal cost
4 study and rate design. OCA argued that the Company's marginal cost study
5 should reflect the Company's CIAC proposed policy. I agree and such a study
6 has been provided with this rebuttal testimony, showing that it has virtually no
7 impact on the results. I have addressed and rebutted a number of criticisms of my
8 marginal cost study, thereby eliminating any rationale for rejecting the study as
9 the OCA has. With regard to OCA's rate design recommendations, I discussed
10 the problems and fallacies with OCA's arguments regarding differences in new
11 investment and the continuing need to provide replacement investment for
12 existing investment.

13 I disagree with OCA's rate design recommendation that the Commission
14 must employ embedded accounting cost studies rather than marginal cost studies
15 as the basis of rate design as described above. Marginal costs provide useful
16 information for both cost allocation and pricing purposes. Furthermore, as I
17 explained in my direct testimony, the Commission has already investigated
18 costing methodologies and has determined that marginal costs provide an
19 appropriate basis for setting rates.

20

21 **Q. Please summarize your rebuttal of the testimony of Locke witness Roger**
22 **Colton.**

1 **A.** Mr. Colton raises many of the same rate design issues as Mr. Wyatt, that proposed
2 customer charges should be lower and declining blocks should be replace with flat
3 rates. My rebuttal demonstrates the undesirability as well as the impracticality of
4 this approach.

5

6 **Q.** **Does this conclude your rebuttal testimony?**

7 **A.** Yes, it does.