BEFORE THE

NEW HAMPSHIRE PUBLIC UTILITIES COMMISSION

Re.   :
                                                 :
PETITION FOR APPROVAL OF 2010   :   Docket No. DG 09-170
"CORE" ENERGY EFFICIENCY   :
PROGRAMS   :
                                                 :
                                                 :

REBUTTAL TESTIMONY OF

ROGER D. COLTON

ON BEHALF OF

THE WAY HOME

December 9, 2009

1   Q.   **PLEASE STATE YOUR NAME AND ADDRESS.**

2   A.   My name is Roger Colton. My address is Fisher, Sheehan & Colton, Public

3   Finance and General Economics, 34 Warwick Road, Belmont, Massachusetts,

4   02478.

5

6   Q.   **ARE YOU THE SAME ROGER COLTON WHO PREVIOUSLY FILED**

7   **DIRECT TESTIMONY IN THIS PROCEEDING ON BEHALF OF THE**

8   **WAY HOME?**

9   A.   Yes.

10

11   Q.   **PLEASE EXPLAIN THE PURPOSE OF YOUR REBUTTAL**

12   **TESTIMONY.**

13   A.   My rebuttal testimony will respond to the testimony of Staff witness James

14   Cunningham regarding the appropriate CORE budget for low-income energy

15   efficiency programs. My testimony is divided into the following parts:

16   ➤ Part 1 considers the extent to which the Staff low-income formula

17   diverges from historic energy efficiency policy in New Hampshire.

18   ➤ Part 2 considers the impacts that would arise to the low-income

19   efficiency budget should the Staff formula be adopted.

20   ➤ Part 3 considers operational flaws in the low-income formula proposed

21   by Staff.

22

23   Q.   **WHAT DO YOU CONCLUDE?**

1   A.   I conclude that the low-income "formula" advanced by Staff in this proceeding,

2   along with the annual low-income budget that would result from adopting this

3   formula, is unreasonable and should not be adopted. More specifically, I find

4   that:

5   ➢ the Staff low-income formula represents a fundamental departure from energy

6   efficiency policy. The Staff low-income formula is advanced with no

7   programmatic objectives underlying it. The Staff low-income formula does

8   not provide participation goals, the very measure that is currently used as a

9   means by which to measure the "success" of the low-income program.

10   ➢ had the Staff low-income formula been in operation for the years 2005 to

11   present, the low-income budget would have been reduced by 20% for that

12   time period; the resulting reduction in low-income lifetime energy savings

13   (kWh) would have resulted in an increase in low-income bills of more than

14           $3.8 million in present value terms; and nearly 900 low-income homes would

15   have received _no_ treatment. In effect, had the Staff low-income formula been

16   adopted in 2005, New Hampshire would have lost more than one year of low-

17   income efficiency effort.

18   ➢ the Staff low-income formula has a variety of operational problems. It relies

19   upon the percentage of total _persons_ rather than upon the percentage of total

20   _households_ in setting the low-income budget. It relies upon a statewide

21   average distribution of sales from the residential and commercial/industrial

22   (C&I) sectors even though there is considerable variability in that distribution

23   between individual companies.

1   ➤ the Staff low-income formula results in a fundamental shifting of cost-

2   responsibility for low-income energy efficiency program to the residential

3   sector.

4   Each of these conclusions is considered in greater detail below.

5

6   **Part 1. The Staff Formula and Energy Efficiency Policy.**

7   **Q.**   **PLEASE SUMMARIZE THE FORMULA PROPOSED BY STAFF FOR**

8   **SETTING THE LOW-INCOME EFFICIENCY BUDGET EACH YEAR.**

9   **A.**   The Staff formula for setting a low-income efficiency budget is summarized in

10   Schedule JJC-2 attached to Mr. Cunningham's Direct Testimony; that formula

11   was modified in response to discovery requests submitted to Staff by both the

12   Office of Consumer Advocate (OCA) and The Way Home. The modification, set

13   forth in the Staff response to OCA 1-9, is attached to this Rebuttal Testimony as

14   Appendix A.

15

16   In essence, the Staff formula proposal would calculate a low-income efficiency

17   budget through the following steps:

18   ➤ The formula begins by ascertaining projected total sales (kWh) for both the

19   residential and the C&I customer sectors.[1]

20   ➤ The formula multiplies that sales figure by 1.8 mils per kWh, the System

21   Benefits Charge (SBC) rate historically used to generate efficiency funding.

22   ➤ The formula sums the residential budget with the commercial and industrial

23   budget to obtain a *total* energy efficiency budget.

1   ➢   The low-income budget is calculated in two parts:

2   ❖   **Residential sector payment**: The formula calculates the percentage of

3   New Hampshire's total population that is "low-income."[2] The

4   residential budget is multiplied by this percentage to determine the

5   residential contribution to the low-income budget;[3]

6   ❖   **C&I sector payment**: The formula calculates the percentage of the

7   total statewide efficiency budget that is generated by the C&I sector.

8   The residential contribution toward the low-income budget is

9   multiplied by this percentage to determine the contribution of the C&I

10   sector to the low-income budget.[4]

11   ➢   Finally, the contribution to the low-income efficiency budget from the

12   residential sector is summed with the contribution from the C&I sector to

13   determine the total low-income efficiency budget.

14   The Staff formula finally divides the resulting low-income budget allocation by

15   the total CORE budget to determine the percentage that the low-income budget

16   represents of the total statewide budget.

17

18   Q.   **PLEASE EXPLAIN WHETHER THE STAFF LOW-INCOME FORMULA**

19   **IS CONSISTENT WITH HISTORICALLY-ADOPTED ENERGY**

20   **EFFICIENCY POLICY IN NEW HAMPSHIRE.**

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[1] I explain the problems with using these sales figures as the basis for the formula in more detail below.
[2] I explain the problems with calculating a percentage of *persons* rather than the percentage of *households* in more detail below.
[3] If, for example, 20% of New Hampshire's population has income at or below 200% of the Federal Poverty Level, then the residential efficiency budget is multiplied by 20% to determine the residential contribution to the low-income budget.

1   A.   The Staff's low-income formula proposal in this proceeding is inconsistent with

2   Commission policy regarding investment in low-income energy efficiency

3   programs. For example, the New Hampshire Energy Efficiency Working Group

4   recommended "funding and infrastructure to ultimately serve approximately

5   2,500 low-income customers per year" (Final Report to the New Hampshire

6   Public Utilities Commission on Rate Ratepayer-Funded Energy Efficiency Issues

7   in New Hampshire From the Energy Efficiency Working Group, July 6, 1999, DR

8   96-150, at 10, July 6, 1999). The Commission approved the recommendations of

9   the Working Group regarding low-income efficiency. (Order 23,574, at 26,

10   ("except as specifically noted above, the Commission adopts the

11   recommendations of the New Hampshire Energy Efficiency Working Group

12   Report.").[5]

13

14   Moreover, certain principles were articulated in the 2001 Settlement of Docket

15   DE 01-057. Amongst the principles agreed to by all parties, including Staff, were

16   that one objective of the utility energy efficiency programs was "to reduce or

17   eliminate market barriers." Another objective was to "address the unique needs of

18   low-income residents." (Order 23,850, at 7, issued November 29, 2001).

19

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[4] If the C&I efficiency budget is 60% of the total statewide efficiency budget, the residential low-income contribution is multiplied by 60% to determine the C&I contribution to the low-income budget.

[5] In contrast to approving the recommendations of the Working Group in Order 23,574, the Commission approved specific *funding* levels for the low-income program in response to the May 8, 2002 "Phase II" settlement in Docket DE 01-057. Order 23,982, issued May 31, 2002 (also "reaffirming" the "principles and policy choices" articulated in Order 23,850).

1 Q. **HAS THE STAFF EVER ENDORSED THE FINDINGS AND**

2   **RECOMMENDATIONS OF THE WORKING GROUP REPORT WITH**

3   **RESPECT TO LOW-INCOME ENERGY EFFICIENCY?**

4 A. Yes. The Staff explicitly endorsed the Working Group report. Along with other

5   members of the Working Group, Staff signed the Working Group report, asserting

6   that Staff "participated in the New Hampshire Energy Efficiency Working Group

7   process and endorse(s) the findings and recommendations contained in this

8   report." (Working Group Report, at 22).

9

10   Moreover, Staff relied on, and used the Working Group Report as a basis for

11   decisionmaking on other occasions as well. As recently as Docket DE 08-120

12   regarding the 2009 CORE Energy Efficiency programs, the Staff cited the Energy

13   Efficiency Working Group Report as a basis for Commission decisionmaking

14   specifically on low-income programs. (Order 24,930, at 16 - 17, issued January 5,

15   2009).

16

17 Q. **DO THE GOALS AND OBJECTIVES FOR THE LOW-INCOME**

18   **PROGRAM, AS ARTICULATED IN THE WORKING GROUP REPORT,**

19   **REMAIN IN EFFECT TODAY?**

20 A. Yes. The goals and objectives articulated in the Working Group report remain

21   valid today as the means by which to implement the electric restructuring statute

22   in New Hampshire. In January 2009 (Order 24,930, issued January 5, 2009), the

23   Commission stated that the energy efficiency programs adopted to date have been

1	rooted in the New Hampshire restructuring statute. In approving CORE energy
2	efficiency programs to date, "the Commission made clear that it was acting to
3	advance specific policy goals related to energy efficiency and demand-side
4	management in the Electric Industry Restructuring Act. . ." (Order 24,930, at 18).
5	The Commission stated that "the applicable principles for the CORE program
6	remain unchanged." (Order 24,930, at 18).
7	
8	Q. WHAT APPLICABLE PRINCIPLE UNDERLIES THE LOW-INCOME
9	CORE PROGRAM?
10	A. The applicable principle for the low-income program is that sufficient funding
11	and infrastructure should be provided to respond to the "undesirable market
12	conditions" that would prevent low-income households from investing in energy
13	efficiency on their own. This principle is set forth by statute. (NH RSA §374-
14	F:3(X) (2009)). That statute provides that: "Restructuring should be designed to
15	reduce market barriers to investments in energy efficiency and provide incentives
16	for appropriate demand-side management and not reduce cost-effective customer
17	conservation. Utility sponsored energy efficiency programs should target cost-
18	effective opportunities that may otherwise be lost due to market barriers."
19	
20	Q. HAVE YOU EXAMINED THE "UNDESIRABLE MARKET
21	CONDITIONS" CITED BY THE COMMISSION IN ITS ADOPTION OF
22	THE LOW-INCOME PROGRAM TO DETERMINE WHETHER THOSE
23	CONDITIONS CONTINUE TODAY?

1   A.   Yes. As I indicated in my Direct Testimony (Colton Direct, at 8 – 10), an

2   empirical review of the "undesirable market conditions" indicates that those

3   undesirable conditions have not only persisted, but that in most cases, they have

4   worsened, since they were first discussed by the Working Group and Commission

5   in 1999 and 2000. Both the Office of Consumer Advocate (OCA) and the Staff

6   asked for the empirical data I referenced in my Direct Testimony. I have attached

7   my response to OCA Data Request #3 to this Rebuttal Testimony as Appendix B.[6]

8   I have attached my response to Staff Data Request #3 to this Rebuttal Testimony

9   as Appendix C. In addition, Staff asked for the data supporting the conclusion

10   that high implicit discount rates remain a substantial impediment to low-income

11   energy efficiency investments absent external support. I have attached my

12   response to Staff Data Request #8 as Appendix D to this Rebuttal Testimony.

13

14   Q.   **PLEASE BRIEFLY SUMMARIZE YOUR CONCLUSIONS BASED ON**

15   **THAT EMPIRICAL REVIEW.**

16   A.   While the findings and conclusions I reached are presented in detail in the

17   attached Appendices, in brief, those findings and conclusions can be summarized

18   as follows:

19   ➤ **High initial capital costs**: The barrier posed by high initial capital costs was
20   considered by examining the discretionary income of New Hampshire
21   households at different levels of the Federal Poverty Level. For each
22   geographic area, each household type, and each level of Poverty Status, the
23   income deficiency increased from 2004 to 2006 and increased further from
24   2006 to 2008. See, TWH Response to OCA data request #3.
25

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[6] My corresponding response to Staff Data Request #5 simply cross-referenced my response to this OCA
discovery response.

1   ➤   **Lack of access to capital**: The access of low-income households to capital to
2   invest in energy efficiency measures was measured by considering the
3   percentage of household income that households devote to overall shelter
4   costs. A common means of limiting access to capital is through a
5   consideration of available household funds after the payment of shelter
6   expenses. In 2008, low-income renters had gross rent burdens ranging from
7   nearly 50% to nearly 60%. New Hampshire's low-income households had
8   "owner-cost" burdens ranging from roughly 55% to roughly 65% of income.
9
10   ➤   **High implicit discount rates/payback periods**: The leading study on implicit
11   discount rates (or "hurdle rates" by income)[7] continues to be "Implicit
12   Discount Rates and Consumer Efficiency Choices." January 3, 1987.
13   Cambridge Systematics. Other studies over time, however, have reaffirmed
14   the Cambridge Systematics findings. See, TWH Response to Staff data
15   request #8.[8]
16
17   ➤   **High proportion of low-income renters**: There is a disproportionate impact
18   of tenure on low-income households. In 2008, for example, while households
19   with income below $5,000 were 1.9% of all households, they were 4.3% of
20   tenants, but only 1.0% of homeowners. While households with income below
21       $15,000 were 8.5% of all households, they were only 4.2% of homeowners
22   but were 19.9% of renters. While households with income below $20,000
23   were 12.3% of all households in 2008, they were 6.7% of homeowners but
24   27.0% of renters. The disparity in tenure between low-income and non-low-
25   income households increased from 2004 to 2008. See, TWH Response to
26   OCA data request #3
27
28   ➤   **High mobility rate of low-income renters**: The mobility of households in
29   New Hampshire is measured by the extent to which they lived in their same
30   home at the same time the previous year ("12 months ago"). In 2008, while
31   between one-quarter and one-third of all low-income households had moved
32   relative to their residence one-year prior (depending on ratio of income to
33   Federal Poverty Level), fewer than one-in-ten non-low-income households
34   had changed residences. See, TWH Response to OCA data request #3.
35
36   ➤   **Language barriers**: The "language barriers" of residential customers is
37   measured by reference to the "linguistic isolation" of New Hampshire
38   residents. "Linguistic isolation" is a term-of-art, measuring the extent to
39   which families have no person age 14 or older who speaks only English or no
40   person age 14 or older who speaks English "very well." In all years, and for
41   all income ranges, the extent of linguistic isolation in the low-income
42   households was significantly higher than the extent of linguistic isolation in

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[7] A "hurdle rate" the annual return demanded by a customer in order to prompt customer investment. A "hurdle rate" of 100%, for example, means that the customer wants his/her money returned in one year. A "hurdle rate" of 50% means that the customer wants his/her money returned in two years.

[8] See, Appendix D attached to this Rebuttal Testimony.

1 the higher income households. The discrepancy in the rate of linguistic

2 isolation between the highest and lowest income households has increased

3 from 2004 to 2008. See, TWH Response to OCA data request #3.

4

5 **Q. DOES STAFF HAVE ANY GROUNDS TO DISPUTE THE BASIS FOR**

6 **THE CONCLUSIONS PRESENTED IN YOUR EMPIRICAL ANALYSIS?**

7 A. No. The Way Home asked Staff to provide any written documents within the

8 custody or control of Staff regarding the extent of the "undesirable market

9 conditions" previously discussed. Staff had no documents to provide. (Staff

10 Response to TWH-1-12).

11

12 Moreover, when asked to provide any written comments by Staff on the June

13 2008 "Low-income Needs Assessment" prepared for the Commission, Staff

14 provided the final report from the Low-Income Needs Assessment Team, a Team

15 of which Staff was a member. (TWH-1-11). That report stated that "it was the

16 *consensus of this low income assessment team* that the actual number of low

17 income households in New Hampshire will continue to grow in future years. . ."

18 (TWH-1-11, Attachment, at 2, emphasis added). That Staff-provided document

19 stated further that "it was *the consensus of this low income assessment team* that

20 the actual funding required will continue to grow in future years due to various

21 factors. . ." (TWH-1-11, Attachment, at 3, emphasis added).

22

23 **Q. WHAT DO YOU CONCLUDE WITH RESPECT TO HOW CONSISTENT**

24 **THE STAFF FORMULA IS WITH COMMISSION POLICY?**

1   A.   I conclude that the Staff's low-income formula is fundamentally at odds with

2   previously adopted low-income energy efficiency policy in New Hampshire.

3   Low-income policy has been set out in documents to which Staff agreed by

4   consensus, in documents that the Staff explicitly agreed that it "endorse(d) the

5   findings and recommendations," and in a Working Group Report that the Staff

6   has recently used, itself, in support of decisionmaking on low-income program

7   issues.

8

9   New Hampshire policy is that low-income energy efficiency investments should

10   respond to the "undesirable market conditions" that prevent low-income

11   investment in energy efficiency measures. Despite the fact that those "undesirable

12   market conditions" have worsened in New Hampshire since the policy was first

13   adopted, Staff proposes a formula that would result in a substantial reduction in

14   low-income funding relative to the funding that has historically been provided.

15

16   It is to those funding impacts that I turn next. As I will describe in the next

17   section of my testimony, had Staff's low-income formula been in effect for each

18   year since 2005, the following results would have arisen:

19   ➤   The low-income energy efficiency budget would have been reduced by

20   20% for that time period;

21   ➤   Low-income bill savings would have been reduced by more $3.8

22   million in present value terms;

1		➤ Nearly 900 low-income households would have *not* received energy
2		efficiency services, representing more than one year of production
3		under the existing funding.
4		I will describe the basis for these findings in more detail in the next section.
5		
6		**Part 2. Impact of Staff Formula on Low-Income Funding.**
7	Q.	**WHAT IMPACT WOULD THE STAFF LOW-INCOME FORMULA**
8		**HAVE ON THE DELIVERY OF LOW-INCOME EFFICIENCY**
9		**MEASURES IN NEW HAMPSHIRE?**
10	A.	The Staff low-income formula would have resulted in a 20% reduction in the
11		funding for low-income energy efficiency investments had it been in effect for the
12		years 2005 through 2009. As a result, New Hampshire's CORE low-income
13		program would have served nearly 900 *fewer* households. In effect, an entire year
14		of production would have been lost had the Staff formula been in effect for these
15		years.[9]
16		
17	Q.	**PLEASE EXPLAIN THE BASIS FOR YOUR FINDINGS THAT THE**
18		**LOW-INCOME BUDGET WOULD HAVE BEEN REDUCED BY 20%**
19		**FOR THE TIME PERIOD 2005 THROUIGH 2009 AND THAT ONE YEAR**
20		**OF PRODUCTION WOULD HAVE BEEN LOST.**
21	A.	Schedule RDC-01R presents the actual low-income budget that was approved by
22		the Commission as reasonable for each year 2005 through 2009 inclusive. Along

1   with the dollar budget, Schedule RDC-01R presents the number of low-income

2   units that the budget would support and the projected life-time electricity savings

3   (in kWh) resulting from serving this number of units.

4

5   In contrast, Schedule RDC-02R presents what the budgets *would have been* had

6   the Staff low-income formula been in effect during each of those years. As can be

7   seen, had the Staff formula been in effect for the years 2005 through 2009, New

8   Hampshire would have experienced a substantial reduction in the dollars devoted

9   to low-income energy efficiency and the number of units treated. The following

10   impacts would have resulted had the Staff formula been in effect over this five-

11   year period:

12   ➢ low-income funding would have been reduced by 20% for this time period,

13   with the number of low-income units served through the CORE program

14   reduced by an equivalent proportion.

15   ➢ the low-income CORE budget would have been reduced by nearly $2.3

16   million over the five year span.

17   ➢ 876 fewer low-income households would have been served with energy

18   efficiency measures.

19

20 Q.   **CAN YOU PLACE THIS REDUCTION OF LOW-INCOME FUNDING BY**

21   **20% OVER A FIVE YEAR PERIOD IN THE CONTEXT OF CURRENT**

22   **PRODUCTION?**

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[9] In contrast to this reduction of nearly 900 units of low-income households served under the Staff formula, the annual CORE filings report that the production goals for each year were as follows: 2005: 984 units;

1 A. Yes. The consequence of adopting the Staff low-income funding formula would

2   be to reduce low-income funding by 20% or more (it would have resulted in a

3   40% reduction in 2005 and a 27% reduction in 2009). This reduction in funding

4   would occur for a program that already has a documented chronic shortage of

5   funding with which to begin. Schedule RDC-03R shows the *third quarter*

6   production for the CORE low-income efficiency programs, both in terms of

7   expenditures and units served. Schedule RDC-03R presents the percentage of

8   "actual" plus "in-process" production for each year 2005 to 2009 inclusive

9   relative to the "goals" articulated by the utilities in their annual CORE filings. As

10   Schedule RDC-03R shows, New Hampshire utilities have, since at least 2005,

11   virtually exhausted their low-income budgets by the end of the Third Quarter of

12   each year. In 2008, both the number of units served and the program expenditures

13   at the end of the Third Quarter were more than 100% of the *annual* budget goal.

14   In each year 2006 through 2009, the number of units served, as well as program

15   expenditures, approached or significantly exceeded 90% of the annual budget

16   goal by the end of the Third Quarter. In light of this history, particularly when the

17   stated "measure of success" in each annual CORE filing is "attaining the planned

18   participation and energy saving goals," the Staff formula, which would have had

19   the effect of *reducing* the budget by 20% or more during the period 2005 through

20   2009, cannot be justified.

21

22 Q. **TO WHAT EXTENT WOULD LOW-INCOME BILLS HAVE**

23   **INCREASED HAD THE STAFF FORMULA BEEN IN EFFECT?**

2006; 994 units; 2007: 968 units; 2008: 873; 2009: 691 units.

1   A.   The lifetime bill reductions to low-income customers would have been reduced by

2   more than $3.8 million in present value terms. What this means, in other words,

3   is that the Staff formula would have resulted in an increase in low-income bills of

4   more than $3.8 million.

5

6   Q.   **HOW DID YOU CALCULATE THAT DECREASE IN BILL**

7   **REDUCTIONS?**

8   A.   Had the Staff's low-income formula been in effect for 2005 through 2009, the

9   life-time savings to low-income households would have been reduced by 26

10   million kWh. Schedule RDC-04R provides the reduction in life-time kWh savings

11   that would have resulted had the Staff formula been in effect for the years 2005

12   through 2009 inclusive. The life-time savings for each year has been reduced by

13   the same proportion as the budget and the number of units have been reduced. I

14   have valued the life-time savings at the average price per kWh in the year in

15   which the measures would have been installed.[10]

16

17 Q.   **WHAT WOULD HAVE BEEN THE IMPACT OF REDUCING THE LOW-**

18   **INCOME BUDGET BY 20% DURING THE TIME PERIOD 2005**

19   **THROUGH 2009 AND ELIMINATING THE TREATMENT OF NEARLY**

20   **900 LOW-INCOME HOMES?**

---

[10] To value life-time savings in this fashion is simply to engage in the assumption that the discount rate and the inflation rate are either identical or are so similar that to treat them the same would not result in a substantively erroneous result.

1   A.   The adverse consequences to New Hampshire's low-income population, to New

2   Hampshire's electric utilities, to New Hampshire's business community, and to

3   the State as a whole, would have been considerable.

4   ➤ More low-income customers would have been payment-troubled during that

5   five year span. There would have been an increase in the number of shutoffs

6   for nonpayment; an increase in the number of unsuccessful deferred payment

7   plans; more money siphoned out of the low-income community for deposits,

8   disconnect/reconnect charges and other customer service fees; an increase in

9   the amount of uncollectibles; and an increase in both the number of customers

10   in arrears and in the level of arrears per customer (with a corresponding

11   increase in working capital expense).

12   ➤ There would have been an increased strain on the State's Electric Assistance

13   Program. Since low-income bills would have been larger, and nearly 900

14   additional low-income households would have been excluded from receiving

15   energy efficiency services altogether, there would have been fewer EAP

16   dollars to distribute; longer waiting lists; and a decrease in the beneficial

17   impacts that EAP generates for the State as a whole and for the participating

18   utilities.

19   ➤ There would have been increased social costs to the state as a whole. An

20   increased number of low-income persons would have been sick; more low-

21   income households would have been hungry (or been forced into making a

22   heat or eat decision); more low-income households would have experienced

23   housing affordability problems; more low-income children would have

1   experienced educational difficulties, both because of frequent mobility and

2   because of their poor living conditions at home.

3   ➢ There would have been decreased economic benefits to the State's business

4   community. The economic development impacts of efficiency would have

5   been reduced; fewer jobs and less economic activity associated with the

6   multiplier effect of low-income efficiency expenditures would have arisen;

7   employee productivity would have decreased, as more low-income workers

8   missed work due to illness or family obligations.

9   Each of these impacts is uniquely associated with low-income energy efficiency

10   expenditures. Each has been identified, quantified, and confirmed as not only

11   existing, but as offering substantial advantages to the low-income population

12   served by efficiency measures; to the utilities that provide service to that low-

13   income population; and to the business and social community of which the low-

14   income population is a part.[11]

15

16   Q.   **WHAT DO YOU CONCLUDE BASED ON THE ABOVE DATA AND**

17   **ANALYSIS?**

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[11] *See, e.g.,* Martin Schweitzer and Bruce Tonn (April 2002). Nonenergy Benefits From the Weatherization
Assistance Program: A Summary of Findings from the Recent Literature, Oak Ridge National Laboratory:
Oak Ridge (TN); Riggert, J. et al. (November 1999). *An Evaluation of the Non-energy Impacts of
Vermont's Weatherization Assistance Program,* at 55, TecMRKT Works: Arlington (VA); Lisa Skumatz
(March 2001). *Non-Energy Benefits (NEBS): Recognizing and Measuring All Net Program Benefits,*
Skumatz Economic Research Associates (SERA): Superior (CO). Lisa Skumatz and Chris Ann Dickerson
(1998). *Extra! Extra! Non-Energy Benefits Swamp Load Impacts for PG&E Program!,* Proceedings of
American Council for an Energy Efficient Economy 1998 Summer Studies Program 8.301, ACEEE:
Washington D.C.; Linda Berry and Martin Schweitzer (February 2003). *Metaevaluation of National
Weatherization Assistance Programs Based on State Studies: 1993 – 2002,* Oak Ridge National
Laboratory: Oak Ridge (TN).

1 A. The reduction in funding for low-income efficiency programs that would result

2   from Staff's proposed formula is inconsistent with current policy and current

3   conditions.

4

5   We know several things from documents that Staff has explicitly endorsed as well

6   as documents that were set forth as a consensus from a Working Group of which

7   Staff was a part:

8   ➢ Certain "undesirable market conditions" prevent low-income

9   households from investing in energy efficiency on their own;

10   ➢ The number of low-income households in New Hampshire is

11   increasing; and

12   ➢ The actual funding required for low-income efficiency will continue to

13   grow in future years.

14   Moreover, we know from an empirical review of the "undesirable market

15   conditions," which Staff has no basis to dispute, that those undesirable market

16   conditions are getting worse rather than better.

17

18   Despite these observations, Staff proposes a formula that would have resulted in a

19   20% reduction in low-income funding during the period 2005 through 2009 (had

20   the Staff formula been in effect during that time), an elimination of nearly 900

21   low-income households served, and a reduction of more than $3.8 million in bill

22   savings. The Staff formula cannot be justified.

23

1		**Part 3. Operational Problems with the Staff Formula.**
2	Q.	PLEASE EXPLAIN THE PURPOSE OF THIS SECTION OF YOUR
3		TESTIMONY.
4	A.	In this section of my testimony, I will explain several operational problems with
5		the Staff low-income formula. In particular, I note:

> The Staff formula sets no objectives and eliminates one of the primary
mechanisms used to measure the "success" of the low-income CORE
programs;

> The Staff formula uses, as one input, the percentage that low-income persons
are of the total population, thus under-stating what the low-income budget
ought to be;

> The Staff formula uses, as its starting point, the projected percentages that the
sales (kWh) from each of the residential and C&I sectors are to total sales
(kWh). The formula uses this percentage as the starting point even though that
percentage does not accurately reflect the conditions of all New Hampshire
utilities; and

> The Staff formula is contrary to the principles previously adopted by the
Commission on how to allocate the low-income budget between the
residential and C&I sectors.

A. The Lack of Staff Low-Income "Objectives."

22	Q.	IS THE STAFF FUNDING FORMULA BASED ON ANY SPECIFIC
23		GOALS OR OBJECTIVES?

1	A.	No. Staff does not set its formula by reference to any stated goals or objectives.
2		In particular, Staff does not consider either:
3		➢ Low-income participation rates; or
4		➢ The relationship of its funding proposal to the need to respond to identified
5		undesirable market conditions.
6		
7	Q.	**UPON WHAT DO YOU BASE YOUR CONCLUSION THAT STAFF**
8		**DOES NOT SET PARTICIPATION GOALS FOR ITS LOW-INCOME**
9		**FUNDING FORMULA?**
10	A.	Staff specifically disclaims the goal of achieving any particular participation rate
11		as an "objective" or "goal" in support of its low-income funding formula. Staff
12		states in response to discovery from The Way Home that "Staff's formula
13		approach does not address *participation* numbers. . ." (Staff Response to TWH-1-
14		3; TWH-1-6) (emphasis in original).
15		
16	Q.	**UPON WHAT DO YOU BASE YOUR CONCLUSION THAT STAFF**
17		**DOES NOT CONSIDER THE RELATIONSHIP OF ITS FUNDING**
18		**FORMULA TO UNDESIRABLE MARKET CONDITIONS THAT**
19		**PREVENT LOW-INCOME INVESTMENT IN ENERGY EFFICIENCY**
20		**MEASURES?**
21	A.	Staff specifically stated that it did not consider the impact of its proposed budget
22		on the "undesirable market conditions" previously recognized by the
23		Commission. (Staff Response to TWH-1-12).

1

2   **Q.**   **DOES THE LACK OF OBJECTIVES, AND THE LACK OF**

3   **RESPONSIVENESS TO UNDESIRABLE MARKET CONDITIONS,**

4   **FUNDAMENTALLY CHANGE THE APPROACH TO LOW-INCOME**

5   **ENERGY EFFICIENCY IN ANY OTHER MANNER?**

6   **A.**   Yes. The Staff low-income formula fundamentally changes the way in which the

7   "success" of New Hampshire's low-income programs is determined. In response

8   to discovery by The Way Home, Staff stated that "Staff's formula approach does

9   not address participation numbers. . ." (Staff Response to TWH-1-3; Staff

10   Response to TWH-1-6). The annual CORE filings, however, have stated in their

11   respective discussion of "measures of success & market transition strategy" that:

12   "success factors for this program include: attaining the planned participation and

13   energy savings goals. . ."[12] (2005 CORE Filing, at 12; 2006 CORE Filing, at 14;

14   2007 CORE Filing, at 16; 2008 CORE Filing, at 16; 2009 CORE Filing, at 21).

15

16   Given that the Staff's proposed formula is specifically based on the observation

17   that it "does not address participation numbers," it would no longer be possible to

18   measure success by determining whether the program "attains planned

19   participation. . .goals." Moving to the Staff formula would leave New

20   Hampshire's stakeholders –stakeholders would include the Commission, the

21   State's utilities, the Staff, low-income advocates, the Community Action

22   Agencies as the service delivery agencies, the Office of Consumer Advocate, and

1   others-- with no mechanism by which to judge the success of the low-income

2   program.

3

4   **B. Calculation of the Percentage of "Low-Income"**

5   Q.   **DOES THE STAFF CALCULATE A LOW-INCOME PERCENTAGE**

6   **THAT IS USED IN SETTING THE LOW-INCOME BUDGET?**

7   A.   Yes. One step in the Staff's formula is to multiply the Residential sector budget

8   by the "percent of NH population below Federal Poverty Guideline" to determine

9   the residential payment toward low-income efficiency. (See, Staff Response to

10   OCA-1-9, page 1 of 2). Staff bases its calculation on the percentage of *persons* in

11   the State that are low-income rather than on the percentage of *households* that are

12   low-income. When asked why Staff used persons rather than households, Staff

13   did not offer an empirical or policy basis. Instead, Staff responded that it used

14   persons because it could not access household data. (Staff Response to TWH

15   Data Request 1-14(c)).

16

17   Q.   **IS IT POSSIBLE TO DETERMINE THE NUMBER OF HOUSEHOLDS**

18   **THROUGH THE CENSUS BUREAU DATA BASE THAT STAFF USED**

19   **FOR ITS CALCULATIONS?**

20   A.   Yes. One of the data elements reported by the Census Bureau in the data base

21   Staff used involves the number of persons by "household relationship." One

22   "relationship" is that of the "householder." The "householder" is the head of

---

[12] No "market transition strategy" is recommended for low-income efficiency "based on the significant
need for these services in the state and the relatively small number who can be served in any given year due

1	household. There is one (and only one) "householder" for each household. The
2	number of "householders" thus provides the number of households. Should the
3	Staff formula be used in some fashion, which I do not recommend or endorse, the
4	low-income percentage that should be used to set the low-income budget is the
5	percentage of low-income households, not the percentage of low-income persons.
6	
7	**Q.** **WHAT DIFFERENCE DOES USING THE NUMBER OF LOW-INCOME**
8	**HOSEHOLDS, RATHER THAN THE NUMBER OF LOW-INCOME**
9	**PERSONS, MAKE?**
10	A. The percentage of households in the State that are low-income is higher than the
11	percentage of persons that are low-income. Schedule RDC-05R (page 1 of 2)
12	presents the percentage of low-income households in New Hampshire compared
13	to the percentage of low-income persons. Data is presented for the four years
14	2009 through 2006 inclusive. Consistent with the Staff's calculation, three-year
15	averages are used for 2007, 2008 and 2009. A two-year average is used for 2006.
16	As Schedule RDC-05R shows, the percentage of households that are low-income
17	is consistently between two and three percent higher than the percentage of
18	persons that are low-income. The closest the two numbers come is in 2008, when
19	the percentage of households was 2.11% higher than the percentage of persons
20	(20.5% vs. 18.4%). The greatest difference of the years studied was 2005, where
21	there was a 3% difference (21.5% vs. 18.5%).
22	

---

to budget constraints." (See e.g., 2005 CORE Filing, at 13).

1   Q.   **WHY IS THE PERCENTAGE OF HOUSEHOLDS THAT ARE LOW-**

2   **INCOME HIGHER THAN THE PERCENTAGE OF PERSONS THAT**

3   **ARE LOW-INCOME?**

4   A.   Low-income households are smaller in size (i.e., fewer persons per household)

5   than non-low-income households. The data is presented in Schedule RDC-05R

6   (page 2 of 2). As can be seen, New Hampshire households with income at or

7   below 150% of Federal Poverty Level have consistently had family sizes of fewer

8   than 2.0. In contrast, households with income above 200% of Federal Poverty

9   Level have consistently had family sizes of 2.5. Because of these differences in

10   family size, it is consistently the case that using the percentage of low-income

11   persons in the Staff formula will under-count the number of low-income

12   households.

13

14   Q.   **WHY IS IT APPROPRIATE TO USE THE PERCENTAGE OF LOW-**

15   **INCOME HOUSEHOLDS AND NOT THE PERCENTAGE OF LOW-**

16   **INCOME PERSONS?**

17   A.   Energy efficiency measures are offered on a household basis, not on an individual

18   person basis. Remember, Staff did not use the percentage of persons because it

19   was the correct thing to do from a policy perspective. Staff used the percentage of

20   persons simply because they were not able to extract the number of low-income

21   households from the data base it was using.

22

1   Q.   **WHAT DIFFERENCE WOULD USING THE CORRECT LOW-INCOME**

2   **PERCENTAGE HAVE IN THE STAFF FORMULA?**

3   A.   Holding all else equal in the Staff's response to OCA Data Request #9, using the

4   correct percentage of low-income households would increase the low-income

5   budget by more than 10% each year. Using the correct percentage of low-income

6   households would add $250,000 to the low-income budget. The impact of

7   making this one change is set forth in Schedule RDC-06R.[13]

8

9   **C. The Use of Residential and C&I Sales as a Budget Allocator.**

10   Q.   **HOW DOES STAFF DETERMINE THE ENERGY EFFICIENCY**

11   **BUDGETS FOR THE RESIDENTIAL AND C&I SECTORS IN ITS LOW-**

12   **INCOME FORMULA?**

13   A.   Under the rubric of establishing a "formula" by which to determine low-income

14   efficiency funding, Staff also proposes a major change in the underlying

15   allocation of efficiency funds to the residential and C&I sectors. Staff proposes to

16   use kWh sales as the allocation factor in determining the budget for the residential

17   and C&I sectors. (Staff Response to OCA-9). Rather than using the current

18   allocation of 48.47% to residential and 51.53% to C&I, Staff proposes to devote

19   60.45% of all efficiency funding to the C&I sector, while allocating the remaining

20   39.55% of efficiency funds to the residential sector.

21

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[13] In setting this change out in isolation from all other changes, I do not intend to endorse making the change in isolation.

| 1 | Q. | **WHAT IS THE IMPACT OF CHANGING THE ALLOCATION FACTOR** |

1　Q.　**WHAT IS THE IMPACT OF CHANGING THE ALLOCATION FACTOR**

2　　　**ON RESIDENTIAL FUNDING AS A WHOLE?**

3　A.　Staff's proposed change in the allocation factor would reduce residential funding

4　　　as a whole to $7,628,378. (Staff Response to OCA-1-9). This Staff funding can

5　　　be compared to the proposed residential budget of $9,349,535. (Utility CORE

6　　　Filing, at 88, September 30, 2009). The Staff formula, in other words, results n a

7　　　reduction of more than $1.7 million in residential efficiency funding from that

8　　　which would be available under the current funding structure ($9,349,535 -

9　　　$7,628,378 = $1,721,157). The Staff formula would result not only in a reduction

10　　　of the low-income budget, but would also result in a reduction of the total

11　　　residential budget by nearly 18.5%.

12

13　Q.　**IS THE STAFF PROPOSAL CONSISTENT WITH COMMISSION**

14　　　**POLICY?**

15　A.　No. The Staff formula fundamentally changes Commission policy toward low-

16　　　income energy efficiency funding in two ways.

17　　　➤ *First*, the Commission has said that "low-income energy efficiency programs

18　　　　will be funded out of the general energy efficiency budget of the electric

19　　　　utilities. Low income energy efficiency programs should reflect an agreed-

20　　　　upon set of core programs." (See, e.g., Order 23,574, at 17, issued November

21　　　　1, 2000). The Staff formula is in specific conflict with this principle. Rather

22　　　　than funding low-income energy efficiency programs out of the general

23　　　　energy efficiency budget of the electric utilities, the Staff formula funds the

1		low-income efficiency programs out of the sector budgets. The result is to
2		substantially reduce the low-income efficiency budget.
3		➤ *Second*, the Commission has said that "we find it in the public good to require
4		funding of the [low income] program across all franchises and all rate classes.
5		All customers shall contribute at the same rate, irrespective of their
6		distribution company or rate class." (Restructuring New Hampshire's Electric
7		Utility Industry: Final Plan, DR 96-150, at 97, issued February 28, 1997).[14]
8		The Staff formula is in conflict with this *Final Plan* in two ways. On the one
9		hand, under the Staff formula, not all customers contribute at the same rate
10		irrespective of their distribution company. On the other hand, under the Staff
11		formula, not all customers contribute at the same rate irrespective of their rate
12		class.
13		
14	Q.	**UPON WHAT DO YOU BASE YOUR CONCLUSION THAT, UNDER**
15		**THE STAFF FORMULA, NOT ALL CUSTOMERS CONTRIBUTE AT**
16		**THE SAME RATE IRRESPECTIVE OF THEIR DISTRIBUTION**
17		**COMPANY?**
18	A.	The contribution that the residential sector makes to total sales differs widely by
19		utility in New Hampshire. The data is set forth in Schedule RDC-07R. While the
20		overall statewide residential contribution to total sales has ranged from 40.2%
21		(2006) to 41.1% in 2008, the New Hampshire Electric Cooperative (NHEC) is
22		nearly the opposite. For NHEC, residential sales represent more than 60% of all

---

[14] While this specific language related to the EAP, the principles are equally applicable to the energy efficiency budget as well. See, Order 23,574, at 24.

1	sales for all three years. So, too, do National Grid sales vary from the statewide
2	average. In both 2007 and 2008, the National Grid residential/C&I sales split was
3	closer to 45%/55% than to 40%/60%. Use of the Staff formula would not result
4	in customers contributing at the same rate irrespective of their distribution
5	company.
6	
7	What happens in New Hampshire is that PSNH is so large that it dwarfs the
8	results of the other companies. The residential contribution from PSNH
9	customers, for example, was 38.4%, 39.1% and 39.2% in 2006, 2007 and 2008
10	respectively. The average residential contributions from the other three
11	companies (NHEC, Unitil and Granite State), without PSNH, would have been
12	45.5%, 46.6% and 46.9% respectively. The Staff proposal to use a statewide
13	average gives undue weight to the PSNH allocation and fails to comply with the
14	principle that customers make the same contribution irrespective of their
15	distribution company.
16	
17	Q.	**UPON WHAT DO YOU BASE YOUR CONCLUSION THAT, UNDER**
18		**THE STAFF FORMULA, NOT ALL CUSTOMERS CONTRIBUTE AT**
19		**THE SAME RATE IRRESPECTIVE OF THEIR RATE CLASS?**
20	A.	The Staff formula has the effect of reversing Commission policy and transferring
21		the substantial bulk of low-income efficiency funding to the residential customer
22		sector. As schedule RDC-08R shows, rather than having all customers contribute
23		at the same rate irrespective of their rate class, the Staff formula results in the

1   residential sector paying nearly $1.70 for every $1 paid by the C&I sector. When

2   viewed from the opposite perspective, the C&I sector pays only $0.60 for every

3      $1.00 paid by the residential sector. To have such a result fails to comply with the

4   principle that all customers contribute at the same rate irrespective of their rate

5   class.

6

7 Q.   **WHAT DO YOU RECOMMEND WITH RESPECT TO THE USE OF THE**

8   **ALLOCATION OF THE LOW-INCOME BUDGET BETWEEN THE**

9   **RESIDENTIAL AND C&I SECTORS?**

10 A.   In offering my recommendation, I note that the treatment of the low-income

11   budget differs from the treatment of the residential and C&I sector budgets. The

12   Final Report of the Energy Efficiency Work Group, for example, stated that

13   "energy efficiency program funds should be allocated *to the residential and C&I*

14   *sectors* in approximate proportion to their contribution to the fund. *However*, the

15   Group agreed that low-income programs should be funded by all customers."

16   (Final Report of the Energy Efficiency Working Group, DR 97-150, at 19, July 6,

17   1999). It is the division of the efficiency budget between the residential and C&I

18   sectors, not the division of the low-income budget, that is to be based on the

19   respective class sales.[15]

20

21   Given that observation, two roughly equal approaches would be justified in

22   allocating the low-income budget. On the one hand, the Commission could adopt

---

[15] Since the System Benefits Charge is the same per kWh, the respective class "contributions to the fund" would be the same as the respective class proportion of total sales.

1   the recommendation I set forth in my Direct Testimony. I recommended that the

2   low-income budget be allocated on a 50/50 basis between the residential and C&I

3   sectors. On the other hand, the Commission could adopt an allocation based on

4   the historic budget allocations. Use of a three-year average (2007, 2008, 2009) of

5   the historic budget allocations, for example, would yield an allocation of the low-

6   income budget between the residential and C&I sectors of 47.21% to the

7   residential sector and 52.79% to the C&I sector. The derivation of this three-year

8   average is set forth in Schedule RDC-09R.

9

10   Q.   **IS THERE ANY FUNDAMENTAL WAY IN WHICH YOUR BUDGET**

11   **FORMULA DIFFERS FROM THE STAFF FORMULA IN THE**

12   **CONSIDERATION OF ALLOCATING THE LOW-INCOME BUDGET**

13   **BETWEEN CUSTOMER CLASSES?**

14   A.   Yes. A critical difference exists between the Staff formula and my formula. In

15   my formula, the low-income budget is set independently of the allocations. In the

16   formula I recommend, in other words, the low-income budget is tied to the

17   objectives the Commission seeks to attain, not to what the specific level of sales

18   for the residential and C&I sectors happen to be in any given year. My

19   recommended allocation factor is simply that: a mechanism to use in allocating

20   the low-income budget between the residential and C&I sectors.

21

22   In contrast, in the Staff formula, the allocation factors between the residential and

23   C&I sectors are used to set the budget itself. For all the reasons I describe above,

1	to use the allocation factors in this manner is contrary to previous Commission
2	policy.
3	
4	**Q.** **WHAT BASIS EXISTS TO SUPPORT THE PRINCIPLE THAT THE**
5	**RESIDENTIAL AND C&I SECTORS SHOULD CONTRIBUTE AT THE**
6	**SAME RATE?**
7	**A.** Low-income efficiency generates direct benefits to all customer sectors, including
8	the C&I sector. Direct benefits include environmental improvement, economic
9	development, wage support, enhanced tax collection, improved housing
10	affordability, reduced mobility, improved employee health (and thus enhanced
11	employee productivity), and a host of other non-energy benefits that redound to
12	the benefit of all customer sectors. In addition to these non-energy benefits are
13	the direct utility benefits that arise from a reduction in working capital
14	requirements, reduced bad debt, reductions in the need for credit and collection
15	directed to efficiency recipients, and related utility operational efficiencies. Aside
16	from these utility benefits arising from the low-income CORE efficiency
17	investments, as the Commission has previously noted, the low-income CORE
18	efficiency investments also enhance the operational effectiveness and efficiency
19	of the state's Electric Assistance Program (EAP), which generates its own
20	benefits to all customer classes.
21	

1   Q.   **AGAINST THESE IMPACTS, IS THE STAFF FORMULA GROUNDED**

2   **IN SOME COMPELLING BASIS FOR MAKING THE FUNDAMENTAL**

3   **CHANGES IN LOW-INCOME EFFICIENCY POLICY?**

4   A.   No. The only justification offered for the way in which Staff proposes to

5   fundamentally change low-income efficiency funding is the assertion that "it is a

6   streamlined approach that is administratively easy to use each year and will save a

7   lot of time and expense. . ." (Cunningham Direct, at 23). No effort is made to

8   explain what is meant by "a lot" of time and expense. Nor is there any

9   explanation of why the Staff formula would generate these savings.

10

11   In fact, the Staff formula leaves a variety of issues unresolved:

12   ➢ Unresolved is the issue of how to establish sector level budgets outside the

13   process of setting the low-income budget.

14   ➢ Unresolved is the extent to which, if at all, the historic limits on the System

15   Benefits Charge to be used to support efficiency programs, which have been

16   legislatively repealed (HB395, 2009, Chapter 236, at 236:4, repealed RSA

17   374-F:4, VIII(b) and VIII(g)), will continue to be used to limit overall

18   efficiency budgets.

19   ➢ Unresolved is the manner by which utility-specific low-income budgets will

20   be established when utility residential/C&I allocations differ from the

21   Statewide average.

1   ➤ Unresolved is the determination of what specific income-eligibility guidelines

2   should be used each year to define "low-income" for purposes of establishing

3   program eligibility.

4   In short, the Staff formula does not provide a reasonable likelihood of reducing

5   the time and resources devoted to the consideration of low-income CORE energy

6   efficiency programs.

7

8   Q.   **CAN YOU SUMMARIZE THE RECOMMENDATIONS YOU MAKE**

9   **BASED ON YOUR REBUTTAL TESTIMONY?**

10   A.   Yes. Based on the data and analysis presented in my Direct and Rebuttal

11   Testimony, I recommend that the Staff formula for setting the low-income budget

12   should be disapproved as unreasonable. In support of this recommendation, I

13   reach the following conclusions:

14   ➤ the Staff low-income formula represents a fundamental departure from energy

15   efficiency policy;

16   ➤ had the Staff low-income formula been in operation for the years 2005 to

17   2009, the low-income budget would have been reduced by 20% for that time

18   period; the resulting reduction in low-income lifetime energy savings (kWh)

19   would have resulted in an increase in low-income bills of more than $3.8

20   million in present value terms; and nearly 900 low-income homes would have

21   received _no_ treatment. In effect, had the Staff low-income formula been

22   adopted in 2005, New Hampshire would have lost more than one year of low-

23   income efficiency effort.

1   ➢ the Staff low-income formula has a variety of operational problems. It relies

2   upon the percentage of total *persons* rather than upon the percentage of total

3   *households* in setting the low-income budget. It relies upon a statewide

4   average distribution of sales from the residential and commercial/industrial

5   (C&I) sectors even though there is considerable variability in that distribution

6   between individual companies.

7   ➢ the Staff low-income formula results in a fundamental shifting of cost-

8   responsibility for low-income energy efficiency program to the residential

9   sector.

10

11   **Q.**   **DOES THIS CONCLUDE YOUR TESTIMONY?**

12   A.   Yes it does.

Home Energy Assistance Annual CORE Program Goals: Statewide Budget, Units-to-be-Served, Lifetime Savings			
	Units to be Served	Budget	Life-time Savings
2005	984	$2,222,887	34,643,945
2006	994	$2,202,250	17,422,289
2007	968	$2,079,287	24,016,859
2008	873	$2,093,062	24,915,865
2009	691	$2,641,742	19,744,078
SOURCE: Annual CORE Energy Efficiency Filings, Home Energy Assistance (HEA) Program.			

Low-Income Budgets 2004 – 2009 Had Staff Formula Been in Effect Compared to Actual Low-Income Budgets						
	Budgets			Units to be Served		Pct Difference
	Actual /a/	Staff /b/	Difference	Actual /a/	Staff /c/	Difference	
2005	$2,222,887	$1,336,990	($885,897)	984	592	(392)	(40%)
2006	$2,202,250	$1,951,357	($250,893)	994	881	(113)	(11%)
2007	$2,079,287	$1,850,795	($228,492)	968	862	(106)	(11%)
2008	$2,093,062	$1,909,661	($183,401)	873	797	(76)	(9%)
2009	$2,641,742	$1,917,723	($724,019)	691	502	(189)	(27%)
Total	$11,239,228	$8,966,526	($2,272,702)	4,510	3,634	(876)	(20%)

SOURCE:

/a/ Annual CORE filings.
/b/ Schedule RDC-02R (page 2 of 2)
/c/ Staff budget divided by per unit production cost from annual CORE filings.

Derivation of Low-Income Budget for 2005 through 2009 Had Staff Formula been in Effect During those Years

	A	B	C	D	E	F	G	H	I
	Total CORE Budget /a/	Residential Sales Percent /b/	Residential Budget /c/	Low-Income Eligibility /d/	Low-Income Percent /e/	Low-Income Before C&I /f/	C&I Percent /g/	Low-income from C&I /h/	Total Low-Income Budget
2005	$17,878,026	40.0%	$7,151,210	150% FPL	11.685%	$835,619	60.0%	$501,371	$1,336,990
2006	$19,034,615	39.7%	$7,556,742	185% FPL	16.109%	$1,217,316	60.3%	$734,041	$1,951,357
2007	$17,951,874	40.0%	$7,180,750	185% FPL	16.109%	$1,156,747	60.0%	$694,048	$1,850,795
2008	$18,488,209	40.1%	$7,413,772	185% FPL	16.109%	$1,194,285	59.9%	$715,376	$1,909,661
2009	$18,163,114	41.3%	$7,501,366	185% FPL	16.109%	$1,208,395	58.7%	$709,328	$1,917,723

Sources:
/a/ Annual CORE filings
/b/ Energy Information Administration, U.S. Department of Energy
/c/ Column A x Column B
/d/ Community Action Agency Response to TWH Data Request #7
/e/ Staff response to TWH Data Request 3.
/f/ Column C x Column E
/g/ Energy Information Administration, U.S. Department of Energy
/h/ Column F x Column G
/i/ Column F plus Column H

Third Quarter Low-Income Efficiency Production Compared to Annual Goals		
	Units (Actual + In-Process to Goal)	Expenditures (Actual + In-Process to Goal)
2005	95.5%	99.9%
2006	88.4%	87.8%
2007	88.6%	98.2%
2008	104.4%	101.9%
2009	92.9%	84.4%
SOURCE: Quarterly CORE filings.		

Bill Impacts of Reduction in Low-Income Efficiency Budget Resulting from Proposed Staff Formula

Year	Life-time Savings /a/	Reduction /b/	Change in kWh Savings /c/	Price per kWh /d/	Change in Bill Reduction /e/
2005	34,643,945	(40%)	(13,801,246)	$0.1356	($1,871,449)
2006	17,422,289	(11%)	(1,980,602)	$0.1472	($291,545)
2007	24,016,859	(11%)	(2,629,945)	$0.1489	($391,599)
2008	24,915,865	(9%)	(2,169,079)	$0.1573	($341,196)
2009	19,744,078	(27%)	(5,400,334)	$0.1650	($891,055)
Total	120,743,036		(27,981,207)		($3,786,844)

SOURCES:

/a/ Annual CORE filings.
/b/ Schedule RDC-02R
/c/ Column A x Column B
/d/ Energy Information Administration, U.S. Department of Energy
/e/ Column C x Column D (presented in present value terms)

Percentage of Persons and Percentage of Households with Annual Income at or below 200% of Federal Poverty Level (2006 – 2009) (3-year average) /a/				
	2005	2006	2007	2008
Percent of persons	18.5%	18.7%	18.3%	18.4%
Percent of households	21.5%	21.5%	21.0%	20.5%
NOTES: /a/ 2006 uses a two-year average.				

Number of Persons in Family By Ratio of Annual Income to Federal Poverty Level (Householder Family) (2006 – 2009) (3-year average) /a/				
	2006	2007	2008	2009
Below 50%	1.87	1.81	1.77	1.83
50 – 75%	1.90	1.72	1.65	1.70
75 to 100%	1.73	1.84	1.92	2.02
100 to 125%	1.88	2.00	1.97	2.01
125 to 150%	1.81	1.80	1.78	1.89
150 to 175%	2.17	2.16	2.15	2.05
175 to 200%	2.23	2.20	2.07	2.14
200% and above	2.53	2.51	2.50	2.48
Total	2.41	2.39	2.38	2.38
NOTES:				
/a/ 2006 uses a two-year average.				

Budget Impact of Using Correct Low-Income Percentage in Staff Formula Holding All Other Components of Staff Formula Equal /a/		
	Staff /b/	Corrected Low-Income Percent
Residential budget	$7,628,378	$7,628,378
Low-income percent	18.41%	20.52%
Low-income budget before C&I	$1,404,384	$1,565,343
C&I percent	60.45%	60.45%
C&I funding calculation	$848,987	$946,250
Grand total low-income budget	$2,253,371	$2,511,253
Total CORE budget	$19,289,195	$19,289,195
Percent low-income to total	11.68%	13.02%
NOTES: /a/ By setting forth the change in the low-income percent in isolation from other changes, I do not intend to imply that I endorse making this change in isolation from other changes. /b/ Staff response to OCA-9.		

Residential and Commercial and Industrial (C&I) Sales by Company by Year (2006 – 2008) /a/

	PSNH		National Grid		NHEC		Unitil		Total	
	kWh Sales	Percent	kWh Sales	Percent	kWh Sales	Percent	kWh Sales	Percent	kWh Sales	Percent
Year 2006										
Residential	3,087,614,000	38.4%	298,084,000	39.8%	447,610,901	60.1%	501,061,000	40.3%	4,334,369,901	40.2%
C&I	4,946,595,000	61.6%	451,125,000	60.2%	296,708,602	39.9%	743,373,000	59.7%	6,437,801,602	59.8%
Total	8,034,209,000	100.0%	749,209,000	100.0%	744,319,503	100.0%	1,244,434,000	100.0%	10,772,171,503	100.0%
Year 2007										
Residential	3,175,726,000	39.1%	292,956,000	44.4%	447,610,901	60.1%	499,823,000	39.8%	4,416,105,901	40.9%
C&I	4,955,849,000	60.9%	366,663,000	55.6%	296,708,602	39.9%	757,243,000	60.2%	6,376,463,602	59.1%
Total	8,131,575,000	100.0%	659,619,000	100.0%	744,319,503	100.0%	1,257,056,000	100.0%	10,792,569,503	100.0%
Year 2008										
Residential	3,104,609,000	39.2%	284,404,000	44.5%	447,610,901	60.1%	488,783,000	40.0%	4,358,627,568	41.1%
C&I	4,821,260,000	60.8%	355,067,000	55.5%	296,708,602	39.9%	731,951,000	60.0%	6,339,750,602	58.9%
Total	7,925,869,000	100.0%	639,471,000	100.0%	744,319,503	100.0%	1,220,734,000	100.0%	10,698,378,170	100.0%

NOTES:

/a/ Source: DE 08-120, CORE Programs – kWh Sales for Three Year Period (2006 – 2008).

	A	B	C	D	E

Class Contributions to Low-Income Efficiency Budget					
	A	B	C	D	E
	Residential Payment /a/	C&I Payment /b/	Total LI Budget /c/	Residential Pyt for each $1 of C&I Pyt /d/	C&I Pyt for each $1 of Residential Pyt /e/
2005	$835,619	$501,371	$1,336,990	$1.67	$0.60
2006	$883,005	$532,452	$1,415,458	$1.66	$0.60
2007	$1,156,747	$694,048	$1,850,795	$1.67	$0.60
2008	$1,194,285	$715,376	$1,909,661	$1.67	$0.60
2009	$1,208,395	$709,328	$1,917,723	$1.70	$0.59

SOURCES:

/a/ Schedule RDC-02R
/b/ Schedule RDC-02R
/c/ Column A + Column B
/d/ Column A / Column B
/e/ Column B / Column A

Three-Year Average (2007, 2008, 2009) of Residential and C&I Efficiency Budget Allocations

Annual CORE Filing (page reference) /a/	Year	Budget			Percentages	
		Total	Residential	C&I	Residential	C&I
page 73	2007	$17,951,874	$8,042,474	$9,909,874	44.80%	55.20%
page 75	2008	$18,488,209	$8,397,143	$10,091,065	45.42%	54.58%
page 79	2009	$18,163,114	$9,339,802	$8,823,312	51.42%	48.58%
Three Year Average					47.21%	52.79%

NOTES:

/a/ Page references are for sector budgets only.

APPENDIX A

9. Refer to page 19 line 21 through page 20, line 9 and Schedule JJC-2 page 2 of 3. Is it correct that on JJC-2 page 2 of 3 that the "starting point" of Mr. Cunningham's calculation – the $9,349,535 Residential Sector Budget – already includes the proposed Home Energy Assistance (HEA) Budget of $2,870,141? If yes, what is the rationale for including the proposed "14%" HEA budget in the development of a new "formula" based approach to calculate a proposed HEA budget? If not, please explain.

Response:

Yes, it is correct that my starting point was the $9,349,535 Residential Sector Budget. Upon reflection, a more accurate starting point would be the budgeted kWh sales projection. See the attachment to this response showing the impact of the change in the "starting point". Other than the starting point, there are no changes to framework of Staff's recommended formula approach.

Recalculation of Starting Point - HEA Formula Approach

	Reference	Amount	Percent
Calculation of HEA Low Income Budget Allocation:			
Sector Level Budgets			
Residential Sector	(1)	$ 7,628,378	39.55%
C&I Sector	(1)	$ 11,660,817	60.45%
Total CORE Budget		$ 19,289,195	100.00%
Low Income Budget Before C&I Funding			
Residential Sector Budget		$ 7,628,378	
Percent of NH population below Federal Poverty Guideline	(2) (3)	18.41%	
Low Income Budget Before C&I Funding		$ 1,404,384	
C&I Funding Amount:			
Low Income Budget Before C&I Funding		$ 1,404,384	
C&I Percent		60.45%	
C&I Funding Calculation:		$ 848,987	
Grand Total HEA Low Income Budget Allocation		$ 2,253,371	
Percent HEA Budget Allocation to Total Budget:			
Low Income Budget Allocation		$ 2,253,371	
Total CORE Budget		$ 19,289,195	
Percent to Total Budget		11.68%	
Distribution of Remaining CORE Budget:			
Total CORE Budget		$ 19,289,195	
Less: HEA Low Income Budget Allocation		$ (2,253,371)	
Remaining CORE Budget		$ 17,035,824	
Residential Sector		$ 6,737,228	39.55%
C&I Sector		$ 10,298,596	60.45%

footnotes:
(1) Source: OCA Question 1-9, Attahment page 2 of 2
(2) Staff Recommendation based on 200 percent Income-To-Poverty level.

per US DOE Weatherization Program Notice 09-5, effective February 18, 2009:		
NH Population	1,306,991	
NH Population at 200% Income-To-Poverty level	240,671	
Percent 200% to total NH Population	18.41%	

(3) Source: www.census.gov/hhes/www/cpstc/cps_table_creator.html
(4) C&I Funding is required by Commission Order No. 23,574, dated November 1, 2000, page 6.

APPENDIX B

The Way Home Response to OCA Data Request #3

TWH RESPONSES TO DATA REQUESTS OF
THE OFFICE OF CONSUMER ADVOCATE

DE 09-170 2010 CORE Programs
Data Requests from OCA to Roger Colton
November 20, 2009

3. Refer to page 8, line 18. Please provide the empirical data referred to.

RESPONSE:

At page 8, line 18 of his Direct Testimony, Mr. Colton testified that "I know from a review of empirical data relating to low-income households in New Hampshire" that certain market barriers prevent low-income households from investing in energy efficiency measures. The "empirical data" reviewed included the following:

HIGH INITIAL CAPITAL COSTS

The "high initial capital costs" considers the extent to which low-income customers have funds to invest in energy efficiency, even if that investment is "cost-effective." If a household lacks the funds to invest in efficiency improvements in the first instance, the cost-effectiveness of those investments become irrelevant.

The barrier posed by high initial capital costs was considered by examining the discretionary income of New Hampshire households at different levels of the Federal Poverty Level. Discretionary income was determined for 2004, 2006 and 2008 for three (3) different New Hampshire metro areas (Manchester, Portsmouth/Rochester, Nashua) as well as for the "rural" part of the State. The *maximum* income at two different levels of the Federal Poverty Level were considered (150% of FPL; 200% of FPL). To the extent that low-income households live with income below the maximum, the "deficits" reported below are even greater. The income deficits were considered for four different household types (1-parent/1-child; 1-parent/2-children; 2-parents/1-child; 2-parents/2-children). These present households of 2-, 3- and 4-persons.

Table 1 below shows that from 2004 to 2006, low-income households both at 150% and at 200% of Federal Poverty Level experienced an increasing deficit in the availability of discretionary income to meet basic household expenses. The Table shows a further degradation from 2006 to 2008.

Table 2 presents the summary data. Table 2 shows for each geographic area and household type whether the discretionary income deficit increased or (decreased). A positive figure in a cell below indicates that the deficit in the more recent year was larger than in the previous year. Accordingly, these households have fewer dollars to invest in energy efficiency measures.

For each geographic area, each household type, and each level of Poverty Status, the income deficiency increased from 2004 to 2006 and increased further from 2006 to 2008.

LOW-INCOME RENTERS

The "tenure" of households considers whether such households own or rent their homes. Renters, particularly low-income renters, run into the problem of "split incentives" as previously identified by the New Hampshire Commission as an adverse market condition impeding investment in even cost-effective energy efficiency.

Table 3 sets forth, for 2004, 2006 and 2008, the number and percentage of owners and renters by income range. The income ranges are those reported each year by the American Community Survey (ACS). Table 3 shows that the market barriers created by renter status are overwhelmingly disproportionately the province of the poor and are becoming increasingly so. Table 3 shows that:

➢ In 2008, while between 90% and 95% of households with income $100,000 or more were homeowners, between 31% and 35% of households with less than $15,000 were.

➢ The homeownership rate decreased from 2004 to 2008 amongst low-income households. For households with income less than $5,000, homeownership went from 45% to 37%; for households with income between $5,000 and $10,000, the homeownership rate went from 36% to 31%; for households with income between $10,000 and $15,000, the homeownership rate went from 51% to 38%.

➢ The penetration of renters amongst households with income of $15,000 or less is more than twice the overall statewide average. While 28% of all New Hampshire households were renters in 2008, between 62% and 69% of households with income below $15,000 are. This is a significant increase from 2004.

Table 4 further shows the disproportionate impact of tenure on low-income households. In 2008,m for example, while households with income below $5,000 were 1.9% of all households, they were 4.3% of tenants, but only 1.0% of homeowners. While households with income below $15,000 were 8.5% of all households, they were only 4.2% of homeowners but were 19.9% of renters. While households with income below $20,000 were 12.3% of all households in 2008, they were 6.7% of homeowners but 27.0% of renters.

In contrast, while households with income over $75,000 represented 41.5% of all households, they were 51.8% of homeowners but only 16.1% of renters. As Table 4 indicates the disparity in tenure between low-income and non-low-income households increased from 2004 to 2008.

HIGH HURDLE RATES/IMPLICIT DISCOUNT RATES

A separate analysis of low-income hurdle rates (i.e., implicit discount rates) for low-income households in New Hampshire was not performed (See, Colton Direct Testimony, at 9). However, see Response of The Way Home to Staff data request #8.

ACCESS TO CAPITAL

The access of low-income households to capital to invest in energy efficiency measures is measured by considering the percentage of household income that households devote to overall shelter costs. A common means of limiting access to capital is through a consideration of available household funds after the payment of shelter expenses. Common limitations on access to capital are based on shelter burdens ranging from 30% to as much as 40% of household income.

Table 5 presents the gross rent as a percentage of income by ratio of income to Federal Poverty Level for 2004, 2006 and 2008. Table 5 further presents Selected Monthly Owner Costs (SMOC) as a percentage of income for the same FPL ranges and years.

Table 5 documents how (and why) low-income households cannot access traditional capital markets. In 2008, low-income renters, whether "low-income" is defined to include households at or below 200% of Federal Poverty Level or limited to those with income below 50% of Federal Poverty Level, have gross rent burdens ranging from nearly 50% to nearly 60%. New Hampshire's low-income households have "owner-cost" burdens ranging from roughly 55% to roughly 65% of income. In contrast, non-low-income households have both rent and owner-cost burdens of roughly 25% (below the line demarcating access to consumer capital).

Table 5 does not reveal either an increase or decrease in low-income access to capital. A low-income household with a rental cost burden of 60% is no less denied access to capital than is a low-income household with a rental cost burden of 70%.

Particularly in combination with the data in Tables 1 and 2, it is understandable why low-income households cannot invest in energy efficiency measures. While Tables 1 and 2 document that current income does not allow such investments out of discretionary income, Table 5 indicates why current income does not allow such investments out of access to capital markets.

LOW-INCOME MOBILITY

The mobility of households in New Hampshire is measured by the extent to which they lived in their same home at the same time the previous year ("12 months ago"). Table 6 indicates that frequent mobility is much more prevalent in the low-income population than it is within the non-low-income population. In 2008, while between one-quarter and one-third of all low-income households had moved relative to their residence one-year prior (depending on ratio of income to Federal Poverty Level), fewer than one-in-ten non-low-income households had changed residences.

The trend in mobility is certainly different for low-income households and non-low-income households. While the mobility rate for non-low-income New Hampshire residents dropped by nearly 25% from 2004 to 2008 (from 11.6% to 9.6%), the mobility rate for households with income below 50% of Federal Poverty Level and below 150% of FPL ticked-down, but the mobility rate of households with income below 100% of Federal Poverty Level and with income below 200% of FPL ticked upwards.

LANGUAGE BARRIERS

The "language barriers" of residential customers is measured by reference to the "linguistic isolation" of New Hampshire residents. "Linguistic isolation" is a term-of-art, measuring the extent to which families have no person age 14 or older who speaks only English or no person age 14 or older who speaks English "very well." Table 7 presents the data on linguistic isolation by year and ratio of income to Federal Poverty Level. As can be seen, in New Hampshire, linguistic isolation is a significant, and growing, problem, particularly amongst the lowest income households.

In 2008, nearly 8,200 persons with income at or below 200% of the Federal Poverty Level lived in linguistic isolation, an increase from 6,774 in 2004. The 6.6% rate of linguistic isolation amongst New Hampshire residents with income less than 50% of Federal Poverty Level in 2008 is an increase of more than 50% over the 4.2% rate in 2004. In all years, and for all income ranges, the extent of linguistic isolation in the low-income households was significantly higher than the extent of linguistic isolation in the higher income households. The discrepancy in the rate of linguistic isolation between the highest and lowest income households has increased from 2004 to 2008.

Table 1. Basic Family Budget Compared to Ratio of Income to Federal Poverty Level by Year (New Hampshire)

	2004					2006					2008				
	Cost of living	150% FPL	Deficit	200% FPL	Deficit	Cost of living	150% FPL	Deficit	200% FPL	Deficit	Cost of living	150% FPL	Deficit	200% FPL	Deficit
1-parent/1-child															
Manchester Metro	$57,869	$18,735	($39,134)	$24,980	($32,889)	$61,756	$19,800	($41,956)	$26,400	($35,356)	$65,954	$21,000	($44,954)	$28,000	($37,954)
Nashua Metro	$63,810	$18,735	($45,075)	$24,980	($38,830)	$68,096	$19,800	($48,296)	$26,400	($41,696)	$72,725	$21,000	($51,725)	$28,000	($44,725)
Portsmouth Metro	$59,521	$18,735	($40,786)	$24,980	($34,541)	$63,519	$19,800	($43,719)	$26,400	($37,119)	$67,838	$21,000	($46,838)	$28,000	($39,838)
Rural	$54,241	$18,735	($35,506)	$24,980	($29,261)	$57,884	$19,800	($38,084)	$26,400	($31,484)	$61,819	$21,000	($40,819)	$28,000	($33,819)
1-parent/2-children															
Manchester Metro	$57,869	$23,505	($34,364)	$31,340	($26,529)	$61,756	$24,900	($36,856)	$33,200	($28,556)	$65,954	$26,400	($39,554)	$35,200	($30,754)
Nashua Metro	$63,810	$23,505	($40,305)	$31,340	($32,470)	$68,096	$24,900	($43,196)	$33,200	($34,896)	$72,725	$26,400	($46,325)	$35,200	($37,525)
Portsmouth Metro	$59,521	$23,505	($36,016)	$31,340	($28,181)	$63,519	$24,900	($38,619)	$33,200	($30,319)	$67,838	$26,400	($41,438)	$35,200	($32,638)
Rural	$54,241	$23,505	($30,736)	$31,340	($22,901)	$57,884	$24,900	($32,984)	$33,200	($24,684)	$61,819	$26,400	($35,419)	$35,200	($26,619)
2-parent/1-child															
Manchester Metro	$57,869	$23,505	($34,364)	$31,340	($26,529)	$61,756	$24,900	($36,856)	$33,200	($28,556)	$65,954	$26,400	($39,554)	$35,200	($30,754)
Nashua Metro	$63,810	$23,505	($40,305)	$31,340	($32,470)	$68,096	$24,900	($43,196)	$33,200	($34,896)	$72,725	$26,400	($46,325)	$35,200	($37,525)
Portsmouth Metro	$59,521	$23,505	($36,016)	$31,340	($28,181)	$63,519	$24,900	($38,619)	$33,200	($30,319)	$67,838	$26,400	($41,438)	$35,200	($32,638)
Rural	$54,241	$23,505	($30,736)	$31,340	($22,901)	$57,884	$24,900	($32,984)	$33,200	($24,684)	$61,819	$26,400	($35,419)	$35,200	($26,619)
2-parent/2-children															
Manchester Metro	$57,869	$28,275	($29,594)	$37,700	($20,169)	$61,756	$30,000	($31,756)	$40,000	($21,756)	$65,954	$31,800	($34,154)	$42,400	($23,554)
Nashua Metro	$63,810	$28,275	($35,535)	$37,700	($26,110)	$68,096	$30,000	($38,096)	$40,000	($28,096)	$72,725	$31,800	($40,925)	$42,400	($30,325)
Portsmouth Metro	$59,521	$28,275	($31,246)	$37,700	($21,821)	$63,519	$30,000	($33,519)	$40,000	($23,519)	$67,838	$31,800	($36,038)	$42,400	($25,438)
Riral	$54,241	$28,275	($25,966)	$37,700	($16,541)	$57,884	$30,000	($27,884)	$40,000	($17,884)	$61,819	$31,800	($30,019)	$42,400	($19,419)

Table 2. Change in Deficit between Basic Family Needs Budget and Ratio of Income to Federal Poverty Level (NH) by Area and Family Type

	150% FPL		200% FPL	
	2006 vs. 2004	2008 vs. 2006	2006 vs. 2004	2008 vs. 2006
1-parent/1-child				
Manchester Metro	$2,822	$2,998	$2,467	$2,598
Nashua Metro	$3,221	$3,429	$2,866	$3,029
Portsmouth Metro	$2,933	$3,118	$2,578	$2,718
Rural	$2,578	$2,735	$2,223	$2,335
1-parent/2-children				
Manchester Metro	$2,492	$2,698	$2,027	$2,198
Nashua Metro	$2,891	$3,129	$2,426	$2,629
Portsmouth Metro	$2,603	$2,818	$2,138	$2,318
Rural	$2,248	$2,435	$1,783	$1,935
2-parent/1-child				
Manchester Metro	$2,492	$2,698	$2,027	$2,198
Nashua Metro	$2,891	$3,129	$2,426	$2,629
Portsmouth Metro	$2,603	$2,818	$2,138	$2,318
Rural	$2,248	$2,435	$1,783	$1,935
2-parent/2-children				
Manchester Metro	$2,162	$2,398	$1,587	$1,798
Nashua Metro	$2,561	$2,829	$1,986	$2,229
Portsmouth Metro	$2,273	$2,518	$1,698	$1,918
Rural	$1,918	$2,135	$1,343	$1,535

Table 3: Tenure by Income and Year (New Hampshire)

	2008				2006				2004			
	HO	Rent	Pct HO	Pct Rent	HO	Rent	Pct HO	Pct Rent	HO	Rent	Pct HO	Pct Rent
Owner occupied:	365,450	139,836	72%	28%	363,652	140,851	72%	28%	356,649	134,940	73%	27%
Less than $5,000	3,487	5,957	37%	63%	3,763	6,886	35%	65%	4,675	5,707	45%	55%
$5,000 to $9,999	4,176	9,106	31%	69%	4,433	11,076	29%	71%	7,475	13,320	36%	64%
$10,000 to $14,999	7,684	12,711	38%	62%	10,424	12,673	45%	55%	11,240	10,848	51%	49%
$15,000 to $19,999	9,213	9,913	48%	52%	9,864	10,623	48%	52%	12,433	9,584	56%	44%
$20,000 to $24,999	12,502	11,782	51%	49%	12,125	11,637	51%	49%	13,027	9,618	58%	42%
$25,000 to $34,999	22,858	19,194	54%	46%	27,069	20,875	56%	44%	29,293	20,505	59%	41%
$35,000 to $49,999	41,739	23,263	64%	36%	42,698	24,476	64%	36%	46,867	23,984	66%	34%
$50,000 to $74,999	74,549	25,478	75%	25%	80,645	25,711	76%	24%	82,627	25,925	76%	24%
$75,000 to $99,999	64,222	11,473	85%	15%	66,591	10,196	87%	13%	64,054	9,882	87%	13%
$100,000 to $149,999	73,464	8,363	90%	10%	66,536	5,321	93%	7%	54,629	4,566	92%	8%
$150,000 or more	51,556	2,596	95%	5%	39,504	1,377	97%	3%	30,329	1,001	97%	3%

Table 4: Relative Penetration of Tenure by Income Level (New Hampshire)

	2008					2006					2004				
	HO	Rent	Total	Pct HO	Pct Rent	HO	Rent	Total	Pct HO	Pct Rent	HO	Rent	Total	Pct HO	Pct Rent
Owner occupied:	365,450	139,836	505,286			363,652	140,851	504,503			356,649	134,940	491,589		
Less than $5,000	3,487	5,957	1.9%	1.0%	4.3%	3,763	6,886	2.1%	1.0%	4.9%	4,675	5,707	2.1%	1.3%	4.2%
$5,000 to $9,999	4,176	9,106	2.6%	1.1%	6.5%	4,433	11,076	3.1%	1.2%	7.9%	7,475	13,320	4.2%	2.1%	9.9%
$10,000 to $14,999	7,684	12,711	4.0%	2.1%	9.1%	10,424	12,673	4.6%	2.9%	9.0%	11,240	10,848	4.5%	3.2%	8.0%
$15,000 to $19,999	9,213	9,913	3.8%	2.5%	7.1%	9,864	10,623	4.1%	2.7%	7.5%	12,433	9,584	4.5%	3.5%	7.1%
$20,000 to $24,999	12,502	11,782	4.8%	3.4%	8.4%	12,125	11,637	4.7%	3.3%	8.3%	13,027	9,618	4.6%	3.7%	7.1%
$25,000 to $34,999	22,858	19,194	8.3%	6.3%	13.7%	27,069	20,875	9.5%	7.4%	14.8%	29,293	20,505	10.1%	8.2%	15.2%
$35,000 to $49,999	41,739	23,263	12.9%	11.4%	16.6%	42,698	24,476	13.3%	11.7%	17.4%	46,867	23,984	14.4%	13.1%	17.8%
$50,000 to $74,999	74,549	25,478	19.8%	20.4%	18.2%	80,645	25,711	21.1%	22.2%	18.3%	82,627	25,925	22.1%	23.2%	19.2%
$75,000 to $99,999	64,222	11,473	15.0%	17.6%	8.2%	66,591	10,196	15.2%	18.3%	7.2%	64,054	9,882	15.0%	18.0%	7.3%
$100,000 to $149,999	73,464	8,363	16.2%	20.1%	6.0%	66,536	5,321	14.2%	18.3%	3.8%	54,629	4,566	12.0%	15.3%	3.4%
$150,000 or more	51,556	2,596	10.7%	14.1%	1.9%	39,504	1,377	8.1%	10.9%	1.0%	30,329	1,001	6.4%	8.5%	0.7%
Column total			100.0%	100.0%	100.0%			100.0%	100.0%	100.0%			100.0%	100.0%	100.0%

Table 5. Shelter Costs as a Percentage of Income by Ratio of Income to Federal Poverty Level (Renter and Homeowner) (New Hampshire)

	2004		2006		2008	
	Gross Rent	Owner Costs	Gross Rent	Owner Costs	Gross Rent	Owner Costs
> 200% FPL	22.7%	21.6%	23.5%	23.7%	23.4%	24.7%
< 200% FPL	54.7%	50.2%	52.5%	51.5%	48.0%	55.8%
< 150% FPL	62.4%	59.0%	56.8%	59.9%	52.9%	61.5%
< 100% FPL	70.1%	68.0%	64.5%	69.0%	58.8%	67.2%
< 50% FPL	79.8%	71.1%	73.7%	66.9%	58.2%	65.4%

Table 6: Mobility Status (New Hampshire) by Ratio of Income to Federal Poverty Level by Year

	<50 FPL	<100 FPL	<150 FPL	<200 FPL	>200 FPL
2008					
Moved outside US	615	833	1,015	2,104	1,336
Moved inside US	12,665	29,162	41,804	57,584	96,071
Non-mover	27,392	66,435	121,614	192,183	912,434
Total	40,672	96,430	164,433	251,871	1,009,841
Pct	32.7%	31.1%	26.0%	23.7%	9.6%
2006					
Moved outside US	2,041	3,087	3,167	3,500	1,679
Moved inside US	14,768	27,548	40,706	54,236	121,180
Non-mover	27,369	69,707	118,165	187,277	896,263
Total	44,178	100,342	162,038	245,013	1,019,122
Pct	38.0%	30.5%	27.1%	23.6%	12.1%
2004					
Moved outside US	574	800	1,440	1,511	1,663
Moved inside US	13,549	26,130	41,399	53,274	114,395
Non-mover	25,741	66,714	112,547	184,833	886,455
Total	39,864	93,644	155,386	239,618	1,002,513
Pct	35.4%	28.8%	27.6%	22.9%	11.6%

Table 7: Linguistic Isolation by Ratio of Income to Federal Poverty Level (FPL) and Year

	<50% FPL	<100 FPL	<150 FPL	<200 FPL	>200 FPL
2008					
Yes	2,503	3,326	4,705	8,195	14,342
No	35,559	89,164	157,376	241,297	992,234
Total	38,062	92,490	162,081	249,942	1,006,576
Pct	6.6%	3.6%	2.9%	3.3%	1.4%
2006					
Yes	2,176	3788	5440	7689	6,918
No	39,346	91,519	151,979	230,703	985,976
Total	41,522	95,307	157,419	238,392	992,894
Pct	5.2%	4.0%	3.5%	3.2%	0.7%
2004					
Yes	1691	3177	5478	6774	10116
No	38,939	90,587	147,949	228,922	966,942
Total	40,630	93,764	153,427	235,696	977,058
Pct	4.2%	3.4%	3.6%	2.9%	1.0%

APPENDIX C

The Way Home Response to Staff Data Request #3

3. Reference page 6, line 14-16. Do you think "cost-effective opportunities that may otherwise be lost due to market barriers" only relate to low-income programs, or do you think cost effective opportunities refer to all programs? Please explain.

RESPONSE:

Market barriers impede the realization of cost-effective opportunities for energy efficiency investments for all customer classes. However, the low-income program is the only CORE program for which the following statement (or something similar) was made in the 2010 CORE program filing (2010 Core New Hampshire Energy Efficiency Programs, at page 26): "No market transition strategy is recommended at this time based on the significant need for these services in the state and the relatively small number who can be served in any given year due to budget constraints. This is consistent with the recommendation of the Energy Efficiency Working Group." (citing, Final Report of the Energy Efficiency Working Group, July 6, 1999, Docket No. DR-96-150, at page A34).

There can be no question but that the cost-effective opportunities that are lost due to market barriers overwhelmingly disproportionately adversely affect low-income households. The Commission cited the Working Group's discussion of "undesirable market conditions." (Order 23,574, at 17). Those "undesirable market conditions" are presented below along with an assessment of their applicability to "all programs":

> **High initial capital costs**: This market barrier is overwhelmingly applicable to low-income customers rather than generic to all programs. See, TWH Response to OCA data request #3.

> **Lack of access to capital**: This market barrier is overwhelmingly applicable to low-income customers rather than generic to all programs. See, TWH Response to OCA data request #3. Obviously there would be, however, customers who are near-poor (e.g., customers at 200-250% of Federal Poverty Level; customers at 200-300% of Federal Poverty Level), who would also be subject to a constraint on their access to capital. It is always difficult to draw a line such as this at where this constraint no longer exists, since where ever the line is drawn, there would be someone "just over" the line.

> **High implicit discount rates/payback periods**: This market barrier is overwhelmingly applicable to low-income customers rather than generic to all programs. See, TWH Response to Staff data request #8.

> **High proportion of low-income renters**: This market barrier is overwhelmingly applicable to low-income customers rather than generic to all programs. See, TWH Response to OCA data request #3

> **Split incentives between landlord and tenants**: This market barrier is overwhelmingly applicable to low-income customers rather than generic to all programs. See, TWH Response to OCA data request #3.

> **High mobility rate of low-income renters**: This market barrier is overwhelmingly applicable to low-income customers rather than generic to all programs. See, TWH Response to OCA data request #3.

> **Low education levels**: While a specific analysis of the change in New Hampshire educational levels between 2004 and 2008 was not performed for this proceeding, experience counsels that this market barrier is overwhelmingly applicable to low-income customers rather than generic to all programs.

> **Language barriers**: This market barrier is overwhelmingly applicable to low-income customers rather than generic to all programs. See, TWH Response to OCA data request #3.

As can be seen, references to "market barriers" that impede investment in low-income conservation are not references to some hypothetical or generic type of "market barrier." The Energy Efficiency Working Group identified specific market barriers (i.e., "undesirable market conditions") in its 1999 Report. The Commission, in its Order 23,574, specifically referenced that discussion of "undesirable market conditions." (Order 23,574, at 17). And, a specific empirical assessment was presented (Colton Direct, at 8 – 10) of the changes in those market conditions, which revealed that those changes were almost universally to the increased detriment of low-income customers. The factual basis for that specific empirical assessment was presented upon request. (TWH Response to OCA data request #3).

APPENDIX D

The Way Home Response to Staff Data Request #8

8. Reference page 9. With respect to your experience that leads you to conclude that low-income households today demand high implicit discount rates, please share your experience with non-low income families? Cite studies.

RESPONSE:

Mr. Colton believes the leading study on implicit discount rates (or "hurdle rates" by income) continues to be "Implicit Discount Rates and Consumer Efficiency Choices." January 3, 1987. Cambridge Systematics. Other studies over time, however, have reaffirmed the Cambridge Systematics findings. While it is not possible to provide _all_ such studies, illustrative work includes: (1) Gilbert Metcalf (1994). Energy Policy, "Economics and Rational Conservation Policy"; Marilyn Brown (2001). _Market Failures and Barriers as a Basis for Clean Energy Policies_, Oak Ridge National Laboratory; (3) Fiona Oliver and Danja van der Veldt (2004). _Consumers' Willingness to Pay for Climate Change_, Consumers Council of Canada; (4) Alan Salstad and James McMahon (2008). _Aspects of Consumers' and Firms' Energy Decision-Making: A Review and Recommendations for the National Energy Modeling System (NEMS)_, Lawrence Berkeley National Laboratory; (5) Steven Moss et al. (2008). _Market Segmentation and Energy Efficiency Program Design_, California Institute for Energy and Environment.

Mr. Colton's personal experience is limited to low-income households. His experience tends to confirm the conclusions of these various studies. Without limitation to other experience, one particular study of the delivery of energy efficiency measures to low-income households, the need for such delivery, and the barriers to such delivery, involves my evaluation of the Georgia REACH grant Colton (2006). _Georgia REACH Project Energize: Final Program Evaluation_, prepared for the Georgia Department of Human Resources. Additional work in which I have particularly considered the availability of energy efficiency to low-income households includes studies such as my 2008 Indiana "needs and resources study. Colton (2008). _Home Energy Affordability in Indiana: Current Needs and Future Potentials_, prepared for Indiana Community Action Association. The conclusions of that work were confirmed further by my work for and with the Tacoma Public Utilities resulting in a planning document for low-income interventions. Colton (2009). _An Outcomes Planning Approach to Serving TPU Low-Income Customers_, prepared for Tacoma Public Utilities.

Not all work results in written publications. My continuing work with Community Action of New Mexico (Albuquerque, NM), with the Low-Income Energy Network (Toronto, ONT), and with the Florida Low-income Energy Affordability Consortium (FLEAC) is supportive of the conclusions expressed in my testimony and the quantification presented by Cambridge Systematics.