

**STATE OF MAINE  
PUBLIC UTILITIES COMMISSION**

**Docket No. 2006-487**

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**Analysis of Central Maine Power Company Petition for a  
Certificate of Public Convenience and Necessity to  
Construct a 115 kV Transmission Line  
Between Saco and Old Orchard Beach**

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**Surrebuttal Testimony**

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**Prepared for:**

**The Maine Public Advocate**

**Eric Bryant, Senior Counsel**

**January 10, 2008**

1 **Exhibits**

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2 RMF-1 through RMF-6 Results of Independent Analysis of Peak Demand Savings  
3 from Targeted Energy Efficiency

4 RMF-7 ACEEE Report No. U-072, “Examining the Peak Demand  
5 Impacts of Energy Efficiency”, February 2007

6 RMF-8 Load Duration Curve, Saco Bay Area, Summer 2006

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

2 A. My name is Robert M. Fagan. I am a Senior Associate with Synapse Energy  
3 Economics, Inc., 22 Pearl Street, Cambridge, MA 02139.

4 **Q. Are you the same Mr. Fagan who submitted direct testimony on February  
5 27, 2007 with Mr. Lanzalotta?**

6 A. Yes.

7 **Q. On whose behalf are you testifying in this case?**

8 A. I am testifying on behalf of the Maine Public Advocate.

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

10 A. Synapse and Lanzalotta were retained by the Maine Public Advocate (“OPA”) to  
11 evaluate Central Maine Power Company’s (“CMP” or “the Company”) request  
12 for a Certificate of Public Convenience and Necessity to construct a 115 kV  
13 transmission line from Saco Bay to Old Orchard Beach. This surrebuttal  
14 testimony addresses the May 4, 2007 rebuttal testimony of CMP. I address  
15 CMP’s additional analysis of conservation and DSM, as contained in Mr. David  
16 Conroy’s rebuttal testimony Attachment A, Section III, pages 9 through 14. Mr.  
17 Lanzalotta will be addressing other aspects of CMP’s rebuttal testimony.

18 **Q. Please summarize your testimony.**

19 A. CMP’s additional “order of magnitude” evaluation of conservation and DSM as  
20 presented in Mr. David Conroy’s rebuttal testimony is both flawed and  
21 incomplete. First, it significantly underestimates the peak demand savings  
22 potential from targeted end-use energy efficiency programs. Second, it  
23 completely excludes the potential to reduce peak demand with end-use “demand  
24 response” measures. Lastly, it ignores any potential to reduce peak demand on  
25 the critical 34.5 kV sub-transmission system elements and/or the 12 kV  
26 distribution system with local peaking generation, either traditional or third-party-  
27 owned generation connected at 12 kV or 34.5 kV, or “behind the meter”  
28 distributed generation. Each of these alternatives, or some combination of them,

1 together with a 34.5 kV reinforcement plan could prove to be a more cost-  
2 effective way of ensuring reliable electricity delivery for Saco area consumers  
3 than CMP's proposed solution.

4 **Q. Please summarize your key conclusions.**

5 A. 1. The Saco area achievable potential for peak period demand reduction solely  
6 from targeted energy efficiency programs exceeds CMP's characterization of the  
7 resource base by at least an order of magnitude, i.e. the achievable savings in  
8 2015 is on the order of tens of MW rather than a single MW as CMP asserts.

9 2. The actual peak demand savings possible from targeted conservation and DSM  
10 programs are highly dependent on the nature of the energy efficiency measure  
11 mix, and the degree of success in marketing the targeted program.

12 3. CMP has not analyzed the additional potential for targeted demand response to  
13 alleviate a portion of peak period loading concerns on the 34.5 kV system.  
14 CMP's review of any demand response was limited to fractional MW peak  
15 demand savings claimed from possible future AMI technologies. Ignoring the  
16 potential for targeted demand response is particularly disconcerting given  
17 developments in New England to create additional monetary incentives for  
18 demand response resources through the forward capacity market.

19 4. CMP has not conducted a sufficient analysis of the potential for local  
20 generation – either “behind the meter” or directly connected to CMP's  
21 distribution or sub-transmission system – to support reliable operations and  
22 alleviate a portion of peak period loading concerns on the 34.5 kV system.

23 5. In total, CMP's efforts to analyze demand side alternatives including energy  
24 efficiency and demand response, and local generation as complements to 34.5 kV  
25 system reinforcement are deficient.

26 6. While CMP may no longer have the direct responsibility for energy efficiency,  
27 demand response, or installation of generation, it would be imprudent not to  
28 directly, carefully and comprehensively consider them as possible pieces of the

1 solution, especially when combined with alternative 34.5 kV reinforcement  
2 options such as Mr. Lanzalotta describes in his testimony.

3 **Q. What is CMP’s estimate of peak demand savings available from targeted**  
4 **conservation and DSM programs?**

5 A. CMP’s estimate of peak demand savings from targeted conservation and DSM is  
6 less than 1 MW by 2015, or less than 1% of projected 2015 summer peak load.<sup>1</sup>

7 **Q. How does CMP compute this estimate?**

8 A. CMP’s starting point is a table of estimated peak savings from the MPUC staff  
9 report in Docket No. 2002-665, reproduced as Table 1) in Mr. Conroy’s rebuttal  
10 testimony at page 11. Those peak demand savings, which ramp up from 82 kW in  
11 the first year to 424 kW in the eighth year, are projected over the period 2003 to  
12 2010. Mr. Conroy then scales up these savings by first increasing them to account  
13 for regional sales growth rate between 2003 and 2008, and then using the ratio of  
14 Saco area annual GWh consumption to the York area annual consumption. He  
15 shifts the start year to 2008, and assumes this eight-year peak demand savings will  
16 accrue from 2008 through 2015. This results in an estimate of peak demand  
17 savings from targeted conservation and DSM in the Saco area of 179 kW to 903  
18 kW (0.179 to 0.903 MW) between 2008 and 2015, reflected in Mr. Conroy’s  
19 Table 5) on page 12 of his testimony.

20 **Q. Does Mr. Conroy explain how the original peak demand values presented in**  
21 **his Table 1 were computed?**

22 A. Yes, at a high level. He states that CMP’s approach relies upon MPUC Staff  
23 analysis in the Southern York County case. He states that Staff depended upon  
24 the 2002 Optimal Report<sup>2</sup>, which projected kWh savings by technology and  
25 customer class over a ten-year period. He states at page 9 that “Staff identified

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<sup>1</sup> Conroy, Rebuttal Testimony, p. 10.

<sup>2</sup> “The Achievable Potential for Electric Efficiency Savings in Maine”, prepared for the Maine Public Advocate, October 22, 2002. Prepared by Optimal Energy, Inc. and Vermont Energy Investment Corporation.

1 which technologies could reduce summer peak load and then converted kWh  
2 savings to summer peak kW utilizing technology-specific load curves.”<sup>3</sup>

3 **Q. Did the Optimal Report project savings by technology and customer class**  
4 **over a ten-year period?**

5 A. Not exactly. They projected over a ten-year period and by aggregate customer  
6 sector – residential and commercial/industrial. However, within each of these  
7 sectoral segmentations they reported savings on broad aggregations of  
8 technology, not technology-specific. The aggregations included for the  
9 residential sector 1) “new construction”, 2) “lighting, appliances, electronic  
10 products”, 3) “low income”; and for the commercial/industrial sectors, 4) “new  
11 construction”, 5) “equipment replacement and electronic products”, and 6)  
12 “retrofit”.

13 As can be seen by inspection of this listing, these are not technology-  
14 specific categories, as each aggregation includes technology for multiple end uses  
15 or multiple efficiency technologies.

16 **Q. Why is this important?**

17 A. This is important because estimates of annual energy savings to peak demand  
18 savings conversions are usually dependent on a specific technology, in addition to  
19 dependence on other factors such as climate.

20 **Q. Does he include these “technology-specific load curves” or provide any**  
21 **additional explanation?**

22 A. No. Mr. Conroy is relying upon the results of the kWh to kW conversion and  
23 scaling conducted by Staff and presented in the Staff report in Docket No. 2002-  
24 665. In response to ODR-04-13<sup>4</sup>, the data provided does not support the values  
25 listed in Mr. Conroy’s Table 1) of his rebuttal testimony, but instead provides  
26 detailed data on avoided energy costs and end use data. These data (i.e.,

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<sup>3</sup> Conroy, Rebuttal Testimony, page 9.

1 Attachment 1 and Attachment 2 to ODR-04-13) do not in any observable way  
2 support the conversion factors implied by the data in Mr. Conroy's Table 1).

3 **Q. Does Mr. Conroy directly analyze the potential impact of targeted**  
4 **conservation using kWh-to-kW savings conversion or scaling based on the**  
5 **Optimal Report and the ratio of Saco area load to CMP load?**

6 A. No.

7 **Q. Did you conduct an "order of magnitude" potential peak demand savings**  
8 **impact using the Optimal Report and technology-specific conversion factors?**

9 A. Yes. While it was beyond the OPA's resources to conduct a full-scale evaluation  
10 of the potential for peak savings in the Saco Bay area, I was able to use the  
11 information in the Optimal report and from a public source on peak demand  
12 savings from energy efficiency programs to develop an independent "order of  
13 magnitude" range of estimates of peak demand savings from the effect of energy  
14 efficiency program activity. The final results of my analysis are contained in  
15 Exhibits RMF-1 through RMF-6, which contain estimates of peak MW savings in  
16 the Saco Bay area over the period 2008-2017 as a result of targeted energy  
17 conservation and DSM. There are six scenarios, premised on two different  
18 "scaling" methods (i.e., scaling the savings from the statewide level reported by  
19 Optimal to the Saco Bay area) and three different aggregate "Watts per kWh"  
20 conversion factors (medium, low, high) representing the extent to which programs  
21 would "target" peak demand savings measures. For each of these six scenarios, I  
22 report a range of savings based on the success of the programs, i.e., under  
23 different "market penetration" rates. These market penetration rates are applied to  
24 the "achievable potential" originally reported by Optimal.

25 **Q. Please explain your analysis.**

26 A. I started with the Optimal Report's table of maximum achievable potential energy  
27 savings, in cumulative MWH by year, for the period 2003 to 2012. This is Table

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<sup>4</sup> OD-04-13 asked "Provide information from Efficiency Maine on how the conversion was done to come

1 1 of the Optimal Report. Table 1 shows a “maximum achievable potential” from  
2 the combination of the residential and commercial/industrial sectors ranging from  
3 54,251 MWh/year in 2003 to 1,615,918 MWh/year in 2012.

4 I then moved the start of the programs to 2008 and scaled the savings up  
5 by using the average regional growth rate for the residential sector (3.86%) and  
6 the combined commercial/industrial sectors (12.05%). These numbers were  
7 computed directly from Mr. Conroy’s Table 2) GWh sales levels for 2003 (actual)  
8 and 2008 (projected).<sup>5</sup> This resulted in a “maximum achievable potential” from  
9 the combination of the residential and commercial/industrial sectors ranging from  
10 59,223 MWh/year in 2008 to 1,786,252 MWh/year in 2017.

11 Next, I reduced these levels using a 78% factor, equal to the ratio of CMP  
12 sales to statewide sales, as noted in the Commission Staff Report 2002-162.<sup>6</sup> To  
13 the extent that CMP sales growth since 2002 has outpaced the sales growth of the  
14 utilities in the rest of the state, this step is conservative. The actual potential  
15 savings in the CMP territory would be greater if CMP sales growth has been  
16 greater than sales growth in the rest of the state.

17 Next, I scaled the savings to the Saco Bay area using two different  
18 methods. I used Mr. Conroy’s Table 7 reported 2006 sales for CMP and Saco  
19 Bay, for the residential and small and medium non-residential sectors. CMP sales  
20 were 5,814.2 GWh and Saco Bay area sales were 228.4 GWh. This resulted in a  
21 ratio of 0.0393 (Saco to CMP). I also used the ratio of Saco Bay area peak  
22 demand in 2006 (89.2 MW)<sup>7</sup> and CMP’s reported 2006 peak load, 1,682 MW.<sup>8</sup>  
23 This resulted in a ratio of 0.0530.

24 Using the energy ratio to scale the maximum achievable savings in CMP’s  
25 service territory resulted in a range of savings of 1,815 MWh/year (2008) to

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up with the numbers in Table 1 of Conroy Rebuttal, Attachment A page 11.” Dated August 2, 2007.

<sup>5</sup> Conroy, Rebuttal Testimony, page 11.

<sup>6</sup> “Overall, however, each utility’s energy efficiency potential as a proportion of overall State potential reasonably matches the utility’s share of kWh sales levels. ...the CMP service territory accounts for the largest share of electricity sales in the state (78%)...”. Page 22.

<sup>7</sup> Conroy, Rebuttal Testimony, page 17.



1 54,732 MWh/year (2017). Using the peak demand ratio to scale the maximum  
2 achievable savings in CMP’s service territory resulted in a range of savings of  
3 2,450 MWh/year (2008) to 73,888 MWh/year (2017).

4 I then applied a range of aggregated, technology-specific Watts per kWh  
5 (or kW per MWh) conversion factors to create a range of estimates for the  
6 maximum achievable summer peak demand savings based on the maximum  
7 achievable annual MWh energy savings.

8 **Q. Please define and explain the range of “technology-specific Watts per kWh”**  
9 **conversion factors you used.**

10 A. I used technology-specific conversion data from the ACEEE Report “Examining  
11 the Peak Demand Impacts of Energy Efficiency: A Review of Program  
12 Experience and Industry Practices”<sup>9</sup> to inform my estimate of a range of aggregate  
13 conversion values. I include this report as Exhibit RMF-7.

14 These aggregate conversion values represent the summer peak demand  
15 savings, in kW, that can be expected, on average, from a measure that saves a  
16 certain level of kWh in a year. The following table, reproduced from that report,  
17 illustrates technology-specific peak demand savings expressed per unit of annual  
18 energy saved, based on a range of programs evaluated:

19 **Peak Demand Savings Expressed per Unit Energy Savings for Selected Measures**

Measure	Peak Demand Savings per Energy Savings (W/kWh), Median Values
Energy Star room air A/C	1.59
Energy-efficient central A/C	1.29
Energy Star refrigerators	0.14
Compact fluorescent light bulbs	0.10

<sup>8</sup> <http://www.cmpco.com/about/company/demo.html>.

<sup>9</sup> Dan York, Ph.D., Martin Kushler, Ph.D., & Patti White, M.A., ACEEE report No. U072, “Examining the Peak Demand Impacts of Energy Efficiency”, February 2007.

Energy-efficient packaged roof-top HVAC units 5-12 tons	0.74
Energy-efficient chillers 150-300 tons centrifugal	0.59
Premium efficiency motors – 25 hp	0.26
Premium efficiency motors – 200 hp	0.18
T-8 fluorescent lamps with electronic ballasts	0.31

1 Source: Dan York, Ph.D., Martin Kushler, Ph.D., & Patti White, M.A., ACEEE report No. U072,  
2 “Examining the Peak Demand Impacts of Energy Efficiency”, February 2007, Table 7, page 31.

3 The factors I used can be interpreted as estimates of weighted averages of  
4 the conversion factors applicable to technologies that would be chosen in a  
5 targeted energy conservation and DSM program for the Saco Bay area. I  
6 presumed that any targeted programs would include significant attention to peak  
7 demand savings measures such as air conditioning. I also note that for seasonal  
8 businesses with no winter or shoulder season use, some measures – such as  
9 compact fluorescent lamps – would be likely to exhibit greater peak demand  
10 savings per unit of annual energy savings.

11 I defined three ranges of aggregate conversion factors: low peak demand  
12 effect (0.25 W/kWh), medium peak demand effect (0.50 W/kWh), and high peak  
13 demand effect (0.75 W/kWh) to create a range of “order of magnitude” estimates  
14 of the likely peak demand effects of a targeted program.

15 **Q. What is the last analytical step you conducted?**

16 A. I estimated the peak demand savings under four different scenarios of “market  
17 penetration” or relative success in achieving the “maximum” achievable savings  
18 reported by Optimal. I used 10%, 25%, 50%, and 75%. I applied each of these  
19 factors to the peak demand savings for each year, for each of six scenarios of  
20 program savings. I note that this is conservative, as Optimal had already applied a  
21 maximum 75% participation rate to compute the “maximum achievable”  
22 potential.<sup>10</sup>

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<sup>10</sup> Optimal Report, page 11.

1 **Q. What are your results?**

2 A. Exhibits RMF-1 through RMF-6 report the full range of peak demand savings,  
3 and illustrate the degree of sensitivity such savings exhibit to two key factors,  
4 both of which are highly controllable: 1) the type of measure, i.e. its ability to  
5 have an impact on peak demand (demonstrated by the aggregate kw per MWh  
6 metric), influenced by the nature of the “targeting” done with any program; and 2)  
7 the success of any targeted program in reaching consumers. Without a clear plan  
8 on CMP’s part, it is difficult to assess the likely outcome of any targeted program;  
9 therefore I present results that show the range of possible outcomes. I summarize  
10 the total peak demand savings from all sectors for two years, 2010 and 2015,  
11 under different “scaling” assumptions (i.e., how to translate statewide savings into  
12 Saco area savings) and under 25%, 50% and 75% market penetration<sup>11</sup> levels, and  
13 using different kw per MWh conversion values, in the table below.

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<sup>11</sup> Note that these “market penetration” levels are applied to the achievable savings computed by Optimal. Those achievable savings were already reduced from the technical potential level.

1 **Summary of Summer Peak Savings Values – MW**

**Summer Peak MW Savings from Targeted Energy Conservation and DSM**

Summary Results - Saco Bay, All Sectors

Scenarios	Scale Ratio Saco to CMP	kw per MWh	25% Penetration		50% Penetration		75% Penetration	
			2010	2015	2010	2015	2010	2015
1 Energy Ratio - Med Peak Savings Effect	0.0393	0.50	0.98	5.08	1.95	10.16	2.93	15.24
2 Energy Ratio - Low Peak Savings Effect	0.0393	0.25	0.49	2.54	0.98	5.08	1.46	7.62
3 Energy Ratio - High Peak Savings Effect	0.0393	0.75	1.46	7.62	2.93	15.24	4.39	22.87
4 Peak Ratio - Med Peak Savings Effect	0.0530	0.50	1.32	6.86	2.64	13.72	3.95	20.58
5 Peak Ratio - Low Peak Savings Effect	0.0530	0.25	0.66	3.43	1.32	6.86	1.98	10.29
2 6 Peak Ratio - High Peak Savings Effect	0.0530	0.75	1.98	10.29	3.95	20.58	5.93	30.87

3 **Source: Exhibit RMF-1 through RMF-6**

1 **Q. How do these results differ from the evaluation conducted by CMP?**

2 A. CMP reported maximum peak savings of less than 1 MW, i.e. 903 kW, by 2015.  
3 As the above table indicates, using even the most conservative assumptions a  
4 peak savings of more than 2.5 MW is possible by 2015 (Scenario 2), with a range  
5 of savings that extends to more than 20 MW by 2015 under 50% penetration  
6 (Scenario 6). Furthermore, Exhibit RMF-6 and the table above illustrate that with  
7 high penetration levels (75%) and programs that truly targeted peak demand  
8 reducing measures such that program average conversion factors reached 0.75 kW  
9 demand savings per annual MWH, *up to 31 MW of the Saco area peak load could*  
10 *be saved by 2015 through energy efficiency measures alone* (Scenario 6, last  
11 column).

12 **Q. Do these results take into account the potential peak demand savings that**  
13 **may be available from demand response resources or generation sources?**

14 A. No. These peak demand savings arise from the three areas of energy efficiency  
15 potential described in the Optimal report: new construction, product/appliance/  
16 equipment replacement, and low income retrofit.<sup>12</sup> They exclude additional peak  
17 savings that might be seen from, for example:

- 18 • industrial load shifting;
- 19 • cycling of industrial or commercial equipment such as refrigeration, air  
20 conditioning, water heating, air compressors, or other process equipment;
- 21 • residential air conditioning or electric water heater cycling programs;
- 22 • behind-the meter generation at industrial or commercial facilities; and
- 23 • other generation at existing generation substations or other substations in the  
24 Saco area.

25 **Q. Are demand response resources economically viable for the Saco area?**

26 A. Yes, they likely are. With the commencement of ISO NE's forward capacity  
27 market, demand response resources can now receive capacity credit in New

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<sup>12</sup> Optimal report, page 7.

1 England. This makes them more economically attractive to pursue. Also, with  
2 high energy prices in Maine and New England, especially during peak periods,  
3 customers with the potential to provide demand response will see more attractive  
4 economics. Perhaps most importantly, targeted demand response can quickly  
5 provide any additional “breathing room” that may be necessary to allow more  
6 comprehensive energy efficiency programs to ramp up.

7 **Q. What is “targeted demand response”?**

8 A. Targeted demand response resources refer to resources in the Saco Bay area that  
9 exhibit the most attractive economics, the promise of relatively rapid penetration,  
10 and the relative certainty of resource response during critical peak periods. It  
11 refers to actively targeting the most attractive alternatives, recognizing in  
12 particular that economies of scale likely exist for larger customers with flexibility  
13 to either shift load or cycle certain end uses. As with energy efficiency programs,  
14 it refers to actively seeking participation from customers through some form of  
15 utility or third-party program that may need to include direct incentives. It does  
16 not depend upon marketplace response to price signals as the sole or even primary  
17 means to achieve demand response, in recognition of often relatively inelastic  
18 short-term demand for electricity absent a planned response exhibited by  
19 dispatchable<sup>13</sup> load.

20 Without the accompanying ability to automatically turn off electricity-  
21 using equipment when desired, i.e., some measure of “dispatchability” that  
22 confers certainty of demand response – more sophisticated real-time metering  
23 technology is less likely to deliver demand response with any particular certainty  
24 during critical times, especially with smaller customers, relative to targeted  
25 demand response with dispatchable load.

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<sup>13</sup> Dispatchable load means any connected load that can be reduced through a signal initiated by a CMP or other system operator. It does not necessarily imply “real time” control (although it could), as it could come about following a “signal” sent as much as a day or two ahead of time.

1 **Q. Are there larger customers in the Saco Bay area that might be particularly**  
2 **well-suited to certain demand response options?**

3 A. Yes. As noted in the discovery response to OPA 3-17, there are over 100 area  
4 customers with peak demands exceeding 100 kW, and 33 customers whose peak  
5 demand exceeds 200 kW. Many of these facilities are likely to be candidates for  
6 certain demand response measures.

7 **Q. Is this the only customer cohort that could be well-suited to demand**  
8 **response?**

9 A. No. Certain smaller industrial customers could very well have the ability to shift  
10 load, and both industrial and commercial customers with air conditioning load, for  
11 example, could be prime sources of demand response resources that target air  
12 conditioning cycling programs. Residential air conditioning or electric water  
13 heater cycling programs also have the potential to serve as critical demand  
14 response resources.

15 **Q. How frequently during the summer months does CMP need demand**  
16 **response, peak demand reductions or local area generation in order to**  
17 **reduce the need for their proposed transmission reinforcement?**

18 A. Relatively infrequently. Exhibit RMF-8 is a load duration curve for the Saco Bay  
19 area. As shown, in 2006 the last 10 MW of the area's supply was needed for only  
20 37 hours, over a period of just 6 days. The last 18 MW – 24% of the peak load on  
21 the 34.5 kV distribution system – was needed for only 184 hours, over 23 days.

22 **Q. Is there anything else about the region that is noteworthy?**

23 A. Yes. Based on Mr. Conroy's Table 4), it appears that the Saco Bay area has a  
24 considerably greater proportion of large customers than the York area. Mr.  
25 Conroy stated that "a scaled version of the Southern York County analysis is  
26 reasonable because the make-up of the loads in the two southern coastal areas is  
27 similar"<sup>14</sup>. However, the fact that the Saco area appears to have a greater

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<sup>14</sup> Conroy Rebutttal Testimony, page 10.

1 concentration of larger load customer (including 11 manufacturing customers  
2 with peak demand greater than 200 kW) could mean that a greater potential exists  
3 in the Saco area relative to the Southern York area for demand response measures  
4 in industrial facilities.

5 **Q. Did CMP analyze any local or behind-the-meter distributed generation**  
6 **alternatives to the proposed reinforcement?**

7 A. Yes. CMP considered the installation of up to four 2 MW trailer mounted diesel  
8 units at Scarborough, Dunstan and Old Orchard Beach substations.<sup>15</sup>

9 **Q. Was this an adequate analysis to determine the potential for local generation**  
10 **to make a contribution towards reliable area operation using a 34.5 kV**  
11 **reinforcement option instead of the proposed 115 kV supply alternative?**

12 A. No. The potential for local generation to make a contribution towards reliable  
13 operation includes both consideration of new generation, such as trailer-mounted  
14 diesel units, and also consideration of improving the likelihood of peak period  
15 availability of existing generation at existing sites. It should also consider the  
16 possibility that additional “back-up” generation resources might be most  
17 economically located at the existing generation sites themselves, rather than at  
18 existing non-generation substations.

19 Furthermore, such analysis should incorporate the probability that multiple  
20 resources – energy efficiency, demand response, and generation – could be  
21 available for any given summer period peak load event, and should recognize that  
22 the total run time per year, on average, for such generation may be well below  
23 500 hours. As noted, review of the load duration curve for Saco Bay for 2006  
24 (Exhibit RMF-8) shows that the last 18 MW of incremental supply (24% of total  
25 load) was needed for only 184 hours.

26 **Q. In general, could local generation options be economically viable?**

27 A. Yes. For the same reasons given for demand response resources (FCM existence,

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<sup>15</sup> Conroy, Rebuttal Testimony, page 34.



1 high energy prices), some local or behind-the-meter generation resources might  
2 be economically viable and should be analyzed more carefully than CMP has  
3 done.

4 **Q. Is there anything in particular about options for generation-based reliability**  
5 **improvements that is noteworthy?**

6 A. Yes. There currently exist three private generation sites in the Saco Bay area  
7 (MERC, Cataract, Skelton) whose output, to the extent available during peak  
8 periods, would greatly contribute towards meeting peak demands in the area.  
9 CMP has not investigated either the potential for “firming” up the supply at these  
10 sites during peak periods<sup>16</sup>, or the potential to consider these sites (already built to  
11 support up to 35.9 MW of generation output in total)<sup>17</sup> for installation of “back-  
12 up” generation.

13 **Q. What conclusions do you draw from your analysis?**

14 A. I draw the following key conclusions:

- 15 1. The Saco area achievable potential for peak period demand reduction solely from  
16 targeted energy efficiency programs far exceeds CMP’s characterization of the  
17 resource base. CMP’s characterization of the energy efficiency resource base  
18 underestimates the peak savings potential by at least an order of magnitude.
- 19 2. The actual peak demand savings possible from targeted conservation and DSM  
20 programs are highly dependent on the nature of the energy efficiency measure  
21 mix, and the degree of success in marketing the targeted program.
- 22 3. CMP has not analyzed the additional potential for targeted demand response to  
23 alleviate a portion of peak period loading concerns on the 34.5 kV system.  
24 CMP’s review of any demand response was limited to fractional MW peak  
25 demand savings claimed from possible future AMI technologies.<sup>18</sup> Ignoring the  
26 potential for targeted demand response is particularly disconcerting given

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<sup>16</sup> Two of the three sites are modeled at zero output in CMP’s proposal.

<sup>17</sup> Exhibit 7 to CMP Petition, page 4.

1           developments in New England to create additional monetary incentives for  
2           demand response resources through the forward capacity market.

3           4. CMP has not conducted a sufficient analysis of the potential for local generation –  
4           either “behind the meter” or directly connected to CMP’s distribution or sub-  
5           transmission system – to support reliable operations and alleviate a portion of  
6           peak period loading concerns on the 34.5 kV system. This deficiency of analysis  
7           is unsupportable because by law CMP is not precluded from considering local  
8           general options to support efficient and reliable operation.<sup>19</sup>

9           5. In total, CMP’s efforts to analyze demand side alternatives including energy  
10          efficiency and demand response, and local generation as complements to 34.5 kV  
11          reinforcement are deficient, even from just an “order of magnitude” perspective.

12          6. While CMP may no longer have the direct responsibility for energy efficiency,  
13          demand response, or installation of generation, it would be imprudent not to  
14          directly, carefully and comprehensively consider them as possible pieces of the  
15          solution, especially when combined with alternative 34.5 kV reinforcement  
16          options such as Mr. Lanzalotta describes in his testimony.

17   **Q.    Does this conclude your testimony?**

18    A.    Yes.

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<sup>18</sup> Conroy Testimony, Table 7, page 12.

<sup>19</sup> From 35-A MRSA §3204(6). 6. Generation assets permitted. On or after March 1, 2000, notwithstanding any other provision in this chapter, the commission may allow an investor-owned transmission and distribution utility to own, have a financial interest in or otherwise control generation and generation-related assets to the extent that the commission finds that ownership, interest or control is necessary for the utility to perform its obligations as a transmission and distribution utility in an efficient manner.