

**CENTRAL MAINE POWER COMPANY  
 RESPONSE TO COMPETITIVE ENERGY SERVICES' DATA REQUEST NO. 1  
 DOCKET No. 2008-255**

**September 11, 2008**

**CES-01-04**

**Q.** Please provide in excel format the historical 90/10 load trends, the differential applied and the equivalent 90/10 monthly load projection that are referred to on Page 3 of 9, paragraph 4.

**A.** A regression analysis was performed to establish the relationship between daily peak load and weather conditions. The data file is provided as Attachment 1 to this response. Load data for each day between January 8, 2004 and August 31, 2006 was used in the analysis. The explanatory variables were as follows:

**NONWKD** = Non-weekday dummy (1 if the daytype is a weekend day or a holiday, otherwise 0)

**HDD** = Number of heating degree days, Portland, ME, where  $HDD = 65^\circ - \text{Average Daily Temperature}$ .

**THICDD** = Number of cooling degree days adjusted for humidity, Portland, ME, where  $THICDD = \{(.4 * \text{Average Dry Bulb Temperature}) + (.4 * \text{Average Dew Point Temperature}) + 15\} - 65^\circ$ .

**LRGCUST** = A dummy variable for a large customer that was a CMP customer in 2004 and 2005, but not in 2006 ( $LRGCUST = 1$  in 2006, otherwise 0)

**\_CONST** = An intercept term.

The resulting equation is shown below:

Forecast Model for PEAK  
 Regression(5 regressors, 0 lagged errors)

Term	Coefficient	Std. Error	t-Statistic	Significance
NONWKD	-83.123214	5.515435	-15.071018	1.000000
HDD	3.365746	0.166862	20.170822	1.000000
THICDD	43.706256	1.563392	27.956049	1.000000
LRGCUST	-41.421676	5.890770	-7.031623	1.000000
_CONST	1250.634730	5.029477	248.660990	1.000000

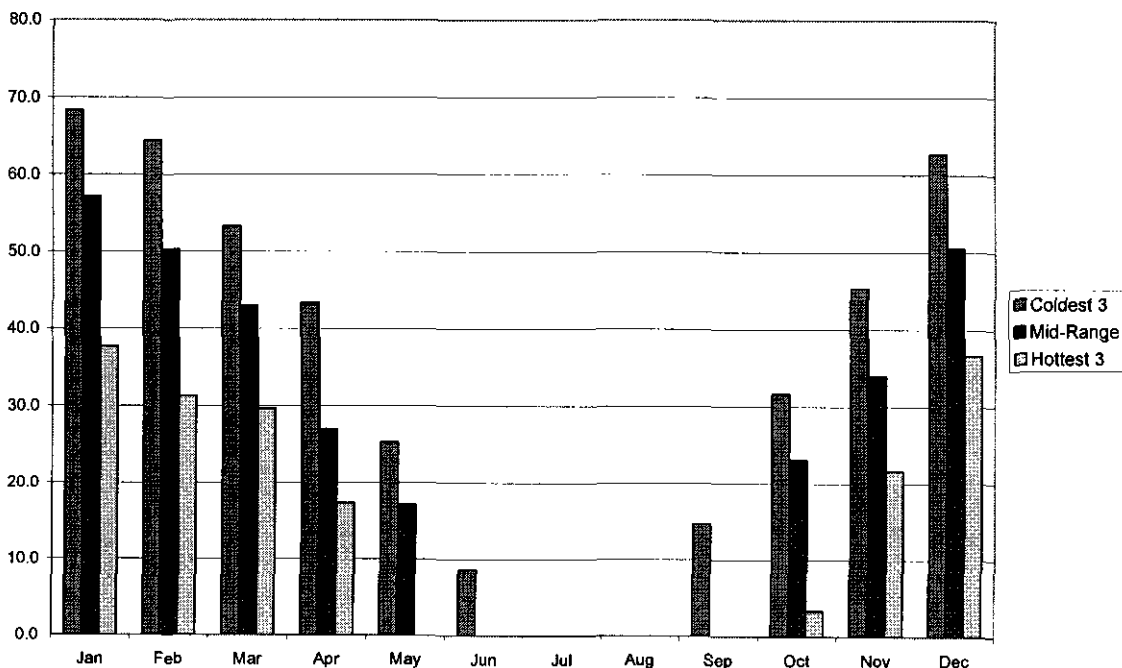
Within-Sample Statistics

Sample size 967	Number of parameters 5
Mean 1306	Standard deviation 117.2
R-square 0.547	Adjusted R-square 0.5451
Durbin-Watson 0.5901	Ljung-Box(18)=7069 P=1
Forecast error 79.08	BIC 80.29
MAPE 0.05062	RMSE 78.87
MAD 64.93	

The coefficients to HDD and THICDD were used in combination with information on extreme weather conditions to calculate extreme peaks in CMP's Fall 2006 forecast.

The following chart shows the variation in temperature conditions (heating degree days) on the day of CMP's monthly peaks that are associated with heating load. Considering the historic period running from January 1976 through August 2006, average temperature data for monthly peak days was sorted. The three coldest days were used to establish the extreme temperature condition. CMP's winter peak load is most likely to occur in December. The average temperature expected is 15°, or 50 HDD. An extreme weather condition is anticipated to occur approximately once in 10 years, wherein the average temperature will be 2°, or 63 HDD. Based upon the regression analysis presented above, the sensitivity of load to heating degree days is 3.37 MW/HDD. Thus, extreme weather would increase CMP's load by about 44 MW in December; that is,  $(63 - 50) * 3.37$ . Similar sensitivities were developed for each heating month.

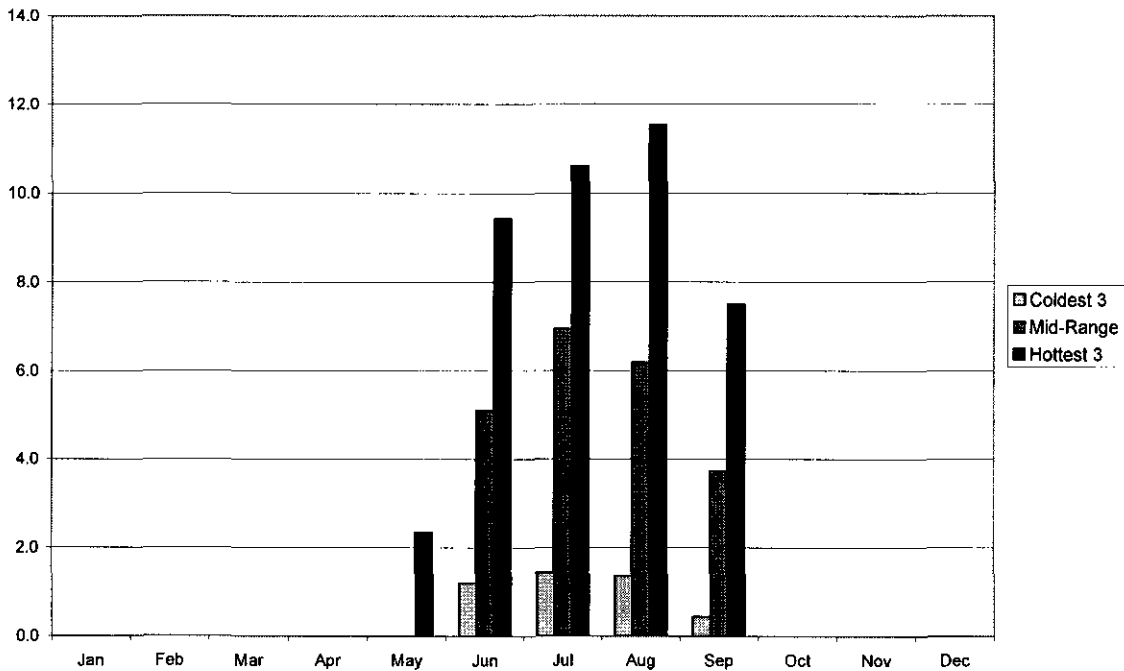
**Variance in HDD on Monthly Peak Days, 1976-2006**



Similarly the next chart shows the variation in temperature conditions (cooling degree days adjusted for humidity) on the day of CMP's monthly peaks that are associated with cooling load. Considering the historic period running from January 1982 through August 2006, average cooling degree day data adjusted for humidity (THICDD) for monthly peak days was sorted. The three hottest days were used to establish the extreme temperature condition. CMP's summer peak load is most likely to occur in August. The average temperature expected is 76°

with a dewpoint of 64°, or 6.2 THICDD. An extreme weather condition is anticipated to occur approximately once in 10 years, wherein the average temperature will be 84° with a dewpoint of 70°, or 11.5 THICDD. Based upon the regression analysis presented above, the sensitivity of load to heating degree days is 43.71 MW/THICDD. Thus, extreme weather would increase CMP's load by about 233 MW; that is,  $(11.5 - 6.2) * 43.71$ . Similar sensitivities were developed for each cooling month.

### Variance in THICDD on Monthly Peak Days, 1982-2006



On an annual basis, as new data becomes available, CMP updates its weather sensitivity analysis and its assumptions related to extreme temperature conditions.

**Response Prepared and Submitted By:**

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**Attachment(s):**

1. Data file used to develop the sensitivity of load to weather conditions