Division Data Request 2-1

Request:

Please provide all supporting documentation for all of the load forecasts used in the analysis and in the pre-filed testimony. This should include the following:

- A description of the models with a discussion of all variables included in any regression analyses, and a discussion of variables that may have been modeled at some point and were later discarded.
- A listing of the coefficients and descriptive statistics from the modeling phase of the load forecasts.
- A complete data set of the independent variables that were included in the projection phase of the load forecasts.

Response:

The Company load forecasts used in the analysis and in the pre-filed testimony consist of National Grid's 2001, 2003 and 2004 Power Supply Area (PSA) forecasts for Western Rhode Island.

These forecasts are based on an econometric model relating historical Western Rhode Island monthly peak demands, at time of the Company peak, to observed peak-day weather conditions and regional economic variables. The peak-day weather conditions are taken as actual minimum and maximum temperatures on the day of the peak and the day prior to the peak, collected from the National Weather Service's Providence weather station. This temperature data is used to generate the following weather explanatory variables in the model: MaxCDD65 = (maximum temperature on the day of the peak – 65), or 0 if maximum temperature is less than or equal to 65; CumMinCDD = (.7 * minimum temperature on day of the peak - 60) + (.3 * minimum temperature on day prior to the peak - 60), or 0 if minimum temperature is less than or equal to 60; MaxHDD55 = (55 – maximum temperature on the day of the peak), or 0 if maximum temperature is greater than or equal to 55. The regional economic variables are Rhode Island total employment and number of households. These variables are combined, with employment weighted 60% and households weighted 40%, to create a monthly economic index variable, EconIndex (2005=1.00), which is used as an explanatory variable in the model. In addition, monthly binary variables are used to account for seasonality and unusual data points so as to improve model statistics.

This econometric model was developed by Regional Economics Research, Incorporated (RER), an energy forecasting consultant to which National Grid outsourced all of its load forecasting needs until 2003. The only change to the specification of this model was in 2002 when RER changed the weather variables such that they interacted with the economic index variable in an attempt to capture increasing sensitivity of load to weather over time and improve model statistics. Specifically, the variable MaxCDD65

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was replaced with MaxCDD65Trend = MaxCDD65 * EconIndex; CumMinCDD was replaced with CumMinCDDTrend = CumMinCDD * EconIndex; and MaxHDD55 was replaced with MaxHDD55Trend = MaxHDD55 * EconIndex; CumMinHDDTrend = CumMinHDDTrend * EconIndex where CumMinHDD =(50 - minimum temperature on day of the peak), or 0 if minimum temperature is greater than or equal to 50. Also, in the 2002 PSA Forecast, RER dropped several of the binary variables that were used in the 2001 PSA Forecast.

National Grid continued to employ RER's 2002 model specification for the 2003 PSA Forecast. For the 2004 PSA Forecast, the variable CumMinHDDTrend was dropped due to lack of significance and monthly indicator variables were added to improve model fit. No other variables were modeled at some point and later discarded

Forecast results are obtained from the model based on extreme weather assumptions and projections of Rhode Island employment and population provided by Moody's Economy.com, an independent economic forecasting firm. Extreme weather assumptions are set equal to maximum temperatures that have occurred over the last 15 years.

The model predicts monthly Western Rhode Island coincident peaks, that is, peaks at time of the Narragansett Electric Company peak. The summer coincident peak forecast is taken as the highest predicted monthly peak. This occurs in July based on the historical monthly weather pattern. The non-coincident summer peak forecast is obtained by multiplying the coincident peak forecast by a three year average of actual non-coincident peaks to coincident peaks. The forecast extends 15 years.

The 2001 PSA Forecast was developed by RER and provided to National Grid on April 6, 2001. RER's documentation included estimated model coefficients and descriptive statistics for the independent variables. These are provided below as Attachment 1. RER's documentation did not include a data set of the independent variables that were included in the projection phase of the load forecasts. However, the historical portion of this data set can be approximated from the data sets provided for the 2003 and 2004 PSA forecasts provided below.

The 2003 Western Rhode Island PSA estimated model coefficients, descriptive statistics and complete data set of independent variables used in the projection phase of the load forecast is provided below as Attachment 2. These results and the printed output were generated using RER's MetrixND statistical modeling software. The same information for the 2004 Western Rhode Island PSA model is provided below as Attachment 3.

Division Data Request 2-1 (continued)

Spot loads are added to the base line model results. In addition, a load factor adjustment is made to the model results to account for trends in Narragansett Electric Company load factor not reflected in the estimated model coefficients. Load factor is calculated as the ratio of average load to peak load, where average load equals the Company's annual MWh deliveries divided by the number of hours in the year; and peak load equals the Company's annual summer MW peak. Thus, when peak load increases more rapidly than annual energy (MWh deliveries), load factor falls.

There has been a long-term declining trend in load factor as illustrated on Attachment 4. One reason for this downward trend has been increasing residential air conditioning saturation which is illustrated on Attachment 5. Another reason is the Rhode Island housing boom, during which Rhode Island experienced the highest rate of home price appreciation of any state in the US, and the resulting change in the pattern of load growth.

For example, from 1995 to 2000, Narragansett Electric Company's residential energy sales increased only 1.5% per year, commercial sales increased 2.7% per year and industrial sales increased 0.8% per year. In contrast, from 2000 to 2005, the Company's residential energy sales increased 3.7% per year, commercial energy sales increased 2.9% per year and industrial energy sales *decreased* 3.0% per year. Thus, the share of residential and commercial load is increasing and the share of industrial load is decreasing. In 2005, industrial made up just 15% of the Company's total energy sales. This trend in the pattern of load growth has caused load factor to decline. The reason is that residential load is the most weather-sensitive and has the lowest load factor. Commercial load is also more weather-sensitive and has a lower load factor. Industrial load is the least weather-sensitive and has the highest load factor. Over time, Rhode Island's industrial load is expected to continue growing more slowly than residential and commercial load implying that load factor will continue to decline.

The declining trend in load factor is not fully reflected in the PSA model coefficients. The reason is that these coefficients estimate the average relationship between peak load and the independent variables (temperature and employment/households) over the entire historical estimation period. Thus, the estimated coefficients do not adequately capture increased sensitivity of load to weather and the economic drivers over time. As a result, the model-produced results can lead to rising load factor over time. To correct for this, the sum of the Western Rhode Island and other Company PSA forecasts are compared to the Company's energy sales forecast. Load is added to the sum of the PSA forecasts, if necessary, to prevent load factor from rising at the Company level. For the 2003 PSA Forecast, these adjustments are allocated back to the PSA's based on each PSA's share in total Company Peak. For the 2004 PSA Forecast, these adjustments are allocated based on each PSA's share of historical Company peak growth.

Division Data Request 2-1 (continued)

The Company's energy forecast is developed from econometric models relating Narragansett Electric Company MWh deliveries to several key economic variables not available at the PSA level. These variables include load and customer growth by class of service; trends in usage per customer; electricity price; real per capita income; commercial and industrial employment and output; and appliance efficiency trends.

This load factor adjustment to the Western Rhode Island PSA forecast, as well as the addition of known spot loads, has improved forecast accuracy and helped guard against an under forecast. For example, the 2001 PSA Forecast, which did not include these adjustments, predicted Western Rhode Island peak loads under extreme weather conditions of 841 MW in 2005. This was 47 MW, or 5.3%, below the actual 2005 peak of 888 MW, which occurred under weather conditions slightly less than extreme. On the other hand, the 2003 and 2004 PSA forecasts, which include these adjustments, predicted 2005 peaks of 905 MW and 888 MW, respectively, a significant forecast improvement.

Prepared by or under the supervision of: Alfred P. Morrissey, Ph.D.

Project:	**\\Sbserver\company\NEES\PSA2001\Projects\Narragansett_Jan2001.NDM**
Model:	**WesternNeco**
Dependent Variable:	**WesternNeco_CP**
Date:	**April 04, 2001**
Time:	**11:18 AM**
Estimation Begin Date:	**1994:1**
Estimation End Date:	**2000:9**
Forecast Period End Date:	**2015:12**

Variable	Coefficient	StdErr	T-Stat	P-Value
CONST	-752.868	147.909	-5.090	0%
MaxHDD55	1.565	0.283	5.529	0%
MaxCDD65	4.326	0.488	8.872	0%
CumMinCDD	4.244	1.151	3.688	0%
econ_index	1241.021	145.378	8.537	0%
March	-26.464	8.352	-3.169	0%
April	-75.340	9.153	-8.231	0%
May	-101.919	10.996	-9.268	0%
June	-25.788	9.023	-2.858	1%
September	-54.425	9.589	-5.676	0%
October	-35.831	10.983	-3.262	0%
May94	-55.076	21.202	-2.598	1%
Jul96	-73.630	20.543	-3.584	0%
Aug97	-73.602	22.191	-3.317	0%
Oct98	-56.830	22.180	-2.562	1%
Newload2000	11.853	9.346	1.268	21%

Regression Statistics	
Iterations	1
Adjusted Observations	80
Deg. of Freedom for Error	64
R-Squared	0.945
Adjusted R-Squared	0.932
Durbin-Watson Statistic	1.769
Durbin-H Statistic	0.000
AIC	6.113
BIC	6.589
F-Statistic	73.675
Prob (F-Statistic)	0.000
Log-Likelihood	-342.03
Model Sum of Squares	418184
Sum of Squared Errors	24218
Mean Squared Error	378.40
Std. Error of Regression	19.45
Mean Abs. Dev. (MAD)	13.92
Mean Abs. % Err. (MAPE)	2.62%
Ljung-Box Statistic	28.54
Prob (Ljung-Box)	0.238

Forecast Statistics	
Forecast Observations	0
Mean Abs. Dev. (MAD)	0.00
Mean Abs. % Err. (MAPE)	0.00%
Avg. Forecast Error	0.00
Mean % Error	0.00%
Root Mean-Square Error	0.000
Theil's Inequality Coefficient	0.000
-- Bias Proportion	0.00%
-- Variance Proportion	0.00%
-- Covariance Proportion	0.00%

Variable	Coefficient	Mean	Elast
MaxHDD55	1.565	10.075	0.029
MaxCDD65	4.326	9.275	0.075
CumMinCDD	4.244	2.171	0.017
econ_index	1241.021	1.008	2.339
March	-26.464	0.088	-0.004
April	-75.340	0.087	-0.012
May	-101.919	0.087	-0.017

\\Sbserver\company\NEES\PSA2001\Projects\Narragansett_Jan2001.NDM - WesternNeco - Page 2

Variable	Coefficient	Mean	Elast
June	-25.788	0.087	-0.004
September	-54.425	0.075	-0.008
October	-35.831	0.075	-0.005
May94	-55.076	0.013	-0.001
Jul96	-73.630	0.013	-0.002
Aug97	-73.602	0.013	-0.002
Oct98	-56.830	0.013	-0.001
Newload2000	11.853	0.113	0.002

Project: G:\DFcastNE\Psa2003\Psa2003\Models\Narragansett_2003.NDM
Model: WesternCP
Dependent Variable: D_Narragansett.Western_CP
Date: May 15, 2006
Time: 04:31 PM
Estimation Begin Date: 1995:1
Estimation End Date: 2002:10
Forecast Period End Date: 2020:12

Variable	Coefficient	StdErr	T-Stat	P-Value
CONST	-702.945	116.142	-6.052	0%
Months.April	-50.930	12.082	-4.215	0%
Months.May	-61.744	13.383	-4.614	0%
RI_Weather.MaxCDD65Trend	4.694	0.593	7.918	0%
RI_Weather.CumMinCDDTrend	8.816	1.452	6.072	0%
RI_Weather.MaxHDD55Trend	2.398	0.874	2.744	1%
RI_Weather.CumMinHDDTrend	0.468	0.962	0.487	63%
RI_Econ_Trans.EconIndex	1248.873	123.201	10.137	0%

Regression Statistics	
Iterations	1
Adjusted Observations	93
Deg. of Freedom for Error	85
R-Squared	0.886
Adjusted R-Squared	0.876
Durbin-Watson Statistic	1.444
Durbin-H Statistic	0.000
AIC	6.945
BIC	7.163
F-Statistic	94.216
Prob (F-Statistic)	0.000
Log-Likelihood	-442.11
Model Sum of Squares	630719
Sum of Squared Errors	81289
Mean Squared Error	956.35
Std. Error of Regression	30.92
Mean Abs. Dev. (MAD)	21.91
Mean Abs. % Err. (MAPE)	3.94%
Ljung-Box Statistic	37.88
Prob (Ljung-Box)	0.036

Forecast Statistics	
Forecast Observations	0
Mean Abs. Dev. (MAD)	0.00
Mean Abs. % Err. (MAPE)	0.00%
Avg. Forecast Error	0.00
Mean % Error	0.00%
Root Mean-Square Error	0.000
Theil's Inequality Coefficient	0.000
-- Bias Proportion	0.00%
-- Variance Proportion	0.00%
-- Covariance Proportion	0.00%

Variable	Coefficient	Mean	Elast
Months.April	-50.930	0.086	-0.008
Months.May	-61.744	0.086	-0.009
RI_Weather.MaxCDD65Trend	4.694	9.744	0.082
RI_Weather.CumMinCDDTrend	8.816	2.165	0.034
RI_Weather.MaxHDD55Trend	2.398	9.204	0.039
RI_Weather.CumMinHDDTrend	0.468	10.368	0.009
RI_Econ_Trans.EconIndex	1248.873	0.946	2.107

Year	Month	Western CP	April	May	MaxCDD65Trend	CumMinCDDTrend	MaxHDD55Trend	CumMinHDDTrend	EconIndex
1995	1	536.00	0.00	0.00	0.00	0.00	28.93	27.21	0.90
1995	2	551.00	0.00	0.00	0.00	0.00	37.10	34.65	0.90
1995	3	489.00	0.00	0.00	0.00	0.00	20.83	22.73	0.91
1995	4	399.00	1.00	0.00	0.00	0.00	19.94	19.13	0.91
1995	5	426.00	0.00	1.00	19.05	0.00	0.00	0.00	0.91
1995	6	597.00	0.00	0.00	25.43	7.45	0.00	0.00	0.91
1995	7	636.00	0.00	0.00	27.27	14.64	0.00	0.00	0.91
1995	8	651.00	0.00	0.00	25.48	7.46	0.00	0.00	0.91
1995	9	479.00	0.00	0.00	19.13	0.82	0.00	0.00	0.91
1995	10	454.00	0.00	0.00	0.00	0.00	1.82	4.47	0.91
1995	11	507.00	0.00	0.00	0.00	0.00	16.42	12.14	0.91
1995	12	552.00	0.00	0.00	0.00	0.00	27.40	28.77	0.91
1996	1	508.00	0.00	0.00	0.00	0.00	20.11	21.75	0.91
1996	2	535.24	0.00	0.00	0.00	0.00	34.75	39.23	0.91
1996	3	490.60	0.00	0.00	0.00	0.00	20.13	20.68	0.92
1996	4	426.40	1.00	0.00	0.00	0.00	15.57	17.49	0.92
1996	5	520.10	0.00	1.00	24.74	0.00	0.00	0.00	0.92
1996	6	518.00	0.00	0.00	12.84	4.49	0.00	0.00	0.92
1996	7	561.00	0.00	0.00	21.10	10.09	0.00	0.00	0.92
1996	8	579.00	0.00	0.00	18.36	4.96	0.00	0.00	0.92
1996	9	552.00	0.00	0.00	19.29	3.58	0.00	0.00	0.92
1996	10	463.00	0.00	0.00	0.00	0.00	0.00	9.65	0.92
1996	11	505.00	0.00	0.00	0.00	0.00	20.24	14.17	0.92
1996	12	509.00	0.00	0.00	0.00	0.00	11.05	11.05	0.92
1997	1	518.50	0.00	0.00	0.00	0.00	19.35	23.22	0.92
1997	2	497.80	0.00	0.00	0.00	0.00	19.37	26.85	0.92
1997	3	492.00	0.00	0.00	0.00	0.00	0.00	3.33	0.92
1997	4	458.00	1.00	0.00	0.00	0.00	5.55	13.13	0.92
1997	5	412.10	0.00	1.00	0.00	0.00	0.00	3.70	0.93
1997	6	606.50	0.00	0.00	22.24	2.50	0.00	0.00	0.93
1997	7	658.20	0.00	0.00	25.05	9.37	0.00	0.00	0.93
1997	8	534.80	0.00	0.00	22.30	0.00	0.00	0.00	0.93
1997	9	520.60	0.00	0.00	14.88	3.26	0.00	0.00	0.93
1997	10	478.10	0.00	0.00	0.00	0.00	6.52	9.03	0.93
1997	11	517.50	0.00	0.00	0.00	0.00	13.98	16.22	0.93
1997	12	540.70	0.00	0.00	0.00	0.00	16.80	24.08	0.93

Data

Year	Month	Western_CP	April	May	MaxCDD65Trend	CumMinCDDTrend	MaxHDD55Trend	CumMinHDDTrend	EconIndex
1998	1	527.10	0.00	0.00	0.00	0.00	19.62	23.26	0.93
1998	2	527.70	0.00	0.00	0.00	0.00	18.70	15.34	0.94
1998	3	513.90	0.00	0.00	0.00	0.00	26.21	26.12	0.94
1998	4	466.20	1.00	0.00	0.00	0.00	0.00	1.69	0.94
1998	5	497.30	0.00	1.00	18.76	0.00	0.00	0.00	0.94
1998	6	628.50	0.00	0.00	23.48	7.23	0.00	0.00	0.94
1998	7	664.00	0.00	0.00	26.32	9.40	0.00	0.00	0.94
1998	8	649.70	0.00	0.00	23.53	2.16	0.00	0.00	0.94
1998	9	523.00	0.00	0.00	12.25	5.28	0.00	0.00	0.94
1998	10	470.20	0.00	0.00	11.32	0.00	0.00	1.13	0.94
1998	11	509.00	0.00	0.00	0.00	0.00	8.50	12.74	0.94
1998	12	544.00	0.00	0.00	0.00	0.00	15.12	14.74	0.94
1999	1	577.10	0.00	0.00	0.00	0.00	35.00	29.61	0.95
1999	2	546.00	0.00	0.00	0.00	0.00	25.57	19.04	0.95
1999	3	528.20	0.00	0.00	0.00	0.00	22.76	29.11	0.95
1999	4	444.80	1.00	0.00	0.00	0.00	0.00	7.97	0.95
1999	5	441.00	0.00	1.00	3.80	0.00	0.00	1.71	0.95
1999	6	663.00	0.00	0.00	22.84	7.61	0.00	0.00	0.95
1999	7	736.00	0.00	0.00	23.82	13.05	0.00	0.00	0.95
1999	8	637.00	0.00	0.00	17.17	5.44	0.00	0.00	0.95
1999	9		0.00	0.00	14.32	9.07	0.00	0.00	0.95
1999	10	483.20	0.00	0.00	0.00	0.00	0.96	12.71	0.96
1999	11	546.60	0.00	0.00	0.00	0.00	17.23	15.12	0.96
1999	12	561.10	0.00	0.00	0.00	0.00	11.50	20.31	0.96
2000	1	606.10	0.00	0.00	0.00	0.00	33.59	39.44	0.96
2000	2	582.20	0.00	0.00	0.00	0.00	24.99	21.24	0.96
2000	3	518.80	0.00	0.00	0.00	0.00	6.74	26.09	0.96
2000	4	489.40	1.00	0.00	0.00	0.00	13.50	7.81	0.96
2000	5	564.10	0.00	1.00	25.10	0.68	0.00	0.00	0.97
2000	6	685.70	0.00	0.00	24.18	7.64	0.00	0.00	0.97
2000	7	633.70	0.00	0.00	23.24	1.36	0.00	0.00	0.97
2000	8	694.60	0.00	0.00	21.34	6.79	0.00	0.00	0.97
2000	9	663.20	0.00	0.00	20.40	5.44	0.00	0.00	0.97
2000	10	525.42	0.00	0.00	0.00	0.00	12.65	15.08	0.97
2000	11	541.09	0.00	0.00	0.00	0.00	14.62	12.18	0.97
2000	12	584.34	0.00	0.00	0.00	0.00	23.42	21.37	0.98

Data

Year	Month	Western_CP	April	May	MaxCDD65Trend	CumMinCDDTrend	MaxHDD55Trend	CumMinHDDTrend	EconIndex
2001	1	575.04	0.00	0.00	0.00	0.00	27.34	25.39	0.98
2001	2	566.57	0.00	0.00	0.00	0.00	28.33	29.89	0.98
2001	3	547.59	0.00	0.00	0.00	0.00	23.46	25.02	0.98
2001	4	493.80	1.00	0.00	0.00	0.00	9.78	15.74	0.98
2001	5	563.39	0.00	1.00	24.46	0.68	0.00	0.00	0.98
2001	6	699.94	0.00	0.00	21.54	7.34	0.00	0.00	0.98
2001	7	749.73	0.00	0.00	30.36	9.11	0.00	0.00	0.98
2001	8	809.65	0.00	0.00	33.32	15.39	0.00	0.00	0.98
2001	9	638.10	0.00	0.00	17.65	4.02	0.00	0.00	0.98
2001	10	499.10	0.00	0.00	14.71	0.00	0.00	3.04	0.98
2001	11	524.90	0.00	0.00	0.00	0.00	0.00	5.69	0.98
2001	12	581.00	0.00	0.00	0.00	0.00	18.66	19.74	0.98
2002	1	566.50	0.00	0.00	0.00	0.00	18.67	13.07	0.98
2002	2	575.70	0.00	0.00	0.00	0.00	24.57	27.62	0.98
2002	3	555.20	0.00	0.00	0.00	0.00	18.68	21.83	0.98
2002	4	549.90	1.00	0.00	26.56	0.00	0.00	0.69	0.98
2002	5	530.90	0.00	1.00	13.78	0.00	0.00	0.00	0.98
2002	6	723.20	0.00	0.00	25.60	2.76	0.00	0.00	0.98
2002	7	818.10	0.00	0.00	28.56	10.05	0.00	0.00	0.98
2002	8	823.60	0.00	0.00	32.52	6.41	0.00	0.00	0.99
2002	9	698.90	0.00	0.00	22.67	1.18	0.00	0.00	0.99
2002	10	603.70	0.00	0.00	19.73	3.75	0.00	0.00	0.99
Forecast									
2002	11	617.49	0.00	0.00	0.00	0.00	15.79	31.67	0.99
2002	12	678.92	0.00	0.00	0.00	0.00	18.75	19.84	0.99
2003	1	685.46	0.00	0.00	0.00	0.00	18.76	13.13	0.99
2003	2	669.03	0.00	0.00	0.00	0.00	24.69	27.75	0.99
2003	3	641.09	0.00	0.00	0.00	0.00	18.77	21.93	0.99
2003	4	550.67	1.00	0.00	0.00	0.00	0.00	0.69	0.99
2003	5	657.01	0.00	1.00	27.67	4.05	0.00	0.00	0.99
2003	6	782.13	0.00	0.00	29.66	9.98	0.00	0.00	0.99
2003	7	861.21	0.00	0.00	33.62	16.61	0.00	0.00	0.99
2003	8	827.25	0.00	0.00	32.64	13.25	0.00	0.00	0.99
2003	9	775.26	0.00	0.00	27.70	9.99	0.00	0.00	0.99
2003	10	600.36	0.00	0.00	0.00	0.00	0.00	0.00	0.99
2003	11	627.10	0.00	0.00	0.00	0.00	15.84	31.77	0.99

Data

Year	Month	Western_CP	April	May	MaxCDD65Trend	CumMinCDDTrend	MaxHDD55Trend	CumMinHDDTrend	EconIndex
2003	12	688.53	0.00	0.00	0.00	0.00	18.81	19.90	0.99
2004	1	694.87	0.00	0.00	0.00	0.00	18.83	13.18	0.99
2004	2	678.09	0.00	0.00	0.00	0.00	24.80	27.87	0.99
2004	3	649.72	0.00	0.00	0.00	0.00	18.86	22.04	0.99
2004	4	558.82	1.00	0.00	0.00	0.00	0.00	0.70	0.99
2004	5	665.63	0.00	1.00	27.85	4.08	0.00	0.00	0.99
2004	6	790.87	0.00	0.00	29.86	10.05	0.00	0.00	1.00
2004	7	870.13	0.00	0.00	33.88	16.74	0.00	0.00	1.00
2004	8	835.71	0.00	0.00	32.91	13.36	0.00	0.00	1.00
2004	9	783.17	0.00	0.00	27.95	10.08	0.00	0.00	1.00
2004	10	607.10	0.00	0.00	0.00	0.00	0.00	0.00	1.00
2004	11	633.74	0.00	0.00	0.00	0.00	16.00	32.10	1.00
2004	12	695.24	0.00	0.00	0.00	0.00	19.02	20.12	1.00
2005	1	701.70	0.00	0.00	0.00	0.00	19.03	13.32	1.00
2005	2	684.91	0.00	0.00	0.00	0.00	25.05	28.16	1.00
2005	3	656.48	0.00	0.00	0.00	0.00	19.05	22.26	1.00
2005	4	565.47	1.00	0.00	0.00	0.00	0.00	0.70	1.00
2005	5	672.97	0.00	1.00	28.10	4.12	0.00	0.00	1.00
2005	6	798.62	0.00	0.00	30.13	10.14	0.00	0.00	1.00
2005	7	878.39	0.00	0.00	34.17	16.88	0.00	0.00	1.00
2005	8	843.88	0.00	0.00	33.18	13.47	0.00	0.00	1.01
2005	9	791.15	0.00	0.00	28.17	10.16	0.00	0.00	1.01
2005	10	614.22	0.00	0.00	0.00	0.00	0.00	0.00	1.01
2005	11	641.09	0.00	0.00	0.00	0.00	16.12	32.33	1.01
2005	12	703.01	0.00	0.00	0.00	0.00	19.15	20.26	1.01
2006	1	709.51	0.00	0.00	0.00	0.00	19.16	13.41	1.01
2006	2	692.65	0.00	0.00	0.00	0.00	25.21	28.34	1.01
2006	3	664.07	0.00	0.00	0.00	0.00	19.17	22.40	1.01
2006	4	572.84	1.00	0.00	0.00	0.00	0.00	0.71	1.01
2006	5	681.02	0.00	1.00	28.27	4.14	0.00	0.00	1.01
2006	6	807.04	0.00	0.00	30.31	10.20	0.00	0.00	1.01
2006	7	887.27	0.00	0.00	34.36	16.98	0.00	0.00	1.01
2006	8	852.59	0.00	0.00	33.36	13.55	0.00	0.00	1.01
2006	9	799.57	0.00	0.00	28.32	10.22	0.00	0.00	1.01
2006	10	621.66	0.00	0.00	0.00	0.00	0.00	0.00	1.01
2006	11	648.69	0.00	0.00	0.00	0.00	16.20	32.49	1.01

Data

Year	Month	Western_CP	April	May	MaxCDD65Trend	CumMinCDDTrend	MaxHDD55Trend	CumMinHDDTrend	EconIndex
2006	12	710.97	0.00	0.00	0.00	0.00	19.24	20.35	1.01
2007	1	717.42	0.00	0.00	0.00	0.00	19.25	13.47	1.01
2007	2	700.37	0.00	0.00	0.00	0.00	25.34	28.48	1.01
2007	3	671.54	0.00	0.00	0.00	0.00	19.27	22.51	1.01
2007	4	580.01	1.00	0.00	0.00	0.00	0.00	0.71	1.01
2007	5	688.73	0.00	1.00	28.42	4.16	0.00	0.00	1.01
2007	6	814.99	0.00	0.00	30.46	10.26	0.00	0.00	1.02
2007	7	895.54	0.00	0.00	34.54	17.07	0.00	0.00	1.02
2007	8	860.58	0.00	0.00	33.54	13.62	0.00	0.00	1.02
2007	9	807.19	0.00	0.00	28.47	10.27	0.00	0.00	1.02
2007	10	628.28	0.00	0.00	0.00	0.00	0.00	0.00	1.02
2007	11	655.36	0.00	0.00	0.00	0.00	16.28	32.67	1.02
2007	12	717.86	0.00	0.00	0.00	0.00	19.35	20.47	1.02
2008	1	724.32	0.00	0.00	0.00	0.00	19.36	13.55	1.02
2008	2	707.17	0.00	0.00	0.00	0.00	25.48	28.64	1.02
2008	3	678.19	0.00	0.00	0.00	0.00	19.37	22.64	1.02
2008	4	586.45	1.00	0.00	0.00	0.00	0.00	0.71	1.02
2008	5	695.73	0.00	1.00	28.58	4.18	0.00	0.00	1.02
2008	6	822.29	0.00	0.00	30.63	10.31	0.00	0.00	1.02
2008	7	903.21	0.00	0.00	34.74	17.16	0.00	0.00	1.02
2008	8	868.06	0.00	0.00	33.73	13.70	0.00	0.00	1.02
2008	9	814.40	0.00	0.00	28.63	10.33	0.00	0.00	1.02
2008	10	634.63	0.00	0.00	0.00	0.00	0.00	0.00	1.02
2008	11	661.82	0.00	0.00	0.00	0.00	16.38	32.86	1.02
2008	12	724.60	0.00	0.00	0.00	0.00	19.46	20.58	1.02
2009	1	731.16	0.00	0.00	0.00	0.00	19.46	13.63	1.02
2009	2	713.99	0.00	0.00	0.00	0.00	25.62	28.80	1.02
2009	3	684.94	0.00	0.00	0.00	0.00	19.48	22.76	1.03
2009	4	593.05	1.00	0.00	0.00	0.00	0.00	0.72	1.03
2009	5	702.99	0.00	1.00	28.73	4.21	0.00	0.00	1.03
2009	6	829.95	0.00	0.00	30.80	10.37	0.00	0.00	1.03
2009	7	911.35	0.00	0.00	34.92	17.25	0.00	0.00	1.03
2009	8	876.09	0.00	0.00	33.90	13.77	0.00	0.00	1.03
2009	9	822.22	0.00	0.00	28.78	10.38	0.00	0.00	1.03
2009	10	641.58	0.00	0.00	0.00	0.00	0.00	0.00	1.03
2009	11	668.98	0.00	0.00	0.00	0.00	16.46	33.02	1.03

Data

Year	Month	Western_CP	April	May	MaxCDD65Trend	CumMinCDDTrend	MaxHDD55Trend	CumMinHDDTrend	EconIndex
2009	12	732.15	0.00	0.00	0.00	0.00	19.55	20.68	1.03
2010	1	738.64	0.00	0.00	0.00	0.00	19.56	13.69	1.03
2010	2	721.29	0.00	0.00	0.00	0.00	25.75	28.94	1.03
2010	3	691.98	0.00	0.00	0.00	0.00	19.57	22.87	1.03
2010	4	599.79	1.00	0.00	0.00	0.00	0.00	0.72	1.03
2010	5	710.23	0.00	1.00	28.87	4.23	0.00	0.00	1.03
2010	6	837.40	0.00	0.00	30.94	10.42	0.00	0.00	1.03
2010	7	919.08	0.00	0.00	35.08	17.34	0.00	0.00	1.03
2010	8	883.54	0.00	0.00	34.06	13.83	0.00	0.00	1.03
2010	9	829.32	0.00	0.00	28.91	10.43	0.00	0.00	1.03
2010	10	647.74	0.00	0.00	0.00	0.00	0.00	0.00	1.03
2010	11	675.16	0.00	0.00	0.00	0.00	16.54	33.17	1.03
2010	12	738.52	0.00	0.00	0.00	0.00	19.64	20.78	1.03
2011	1	745.00	0.00	0.00	0.00	0.00	19.65	13.76	1.03
2011	2	727.52	0.00	0.00	0.00	0.00	25.87	29.08	1.03
2011	3	698.05	0.00	0.00	0.00	0.00	19.67	22.98	1.04
2011	4	605.64	1.00	0.00	0.00	0.00	0.00	0.73	1.04
2011	5	716.56	0.00	1.00	29.01	4.25	0.00	0.00	1.04
2011	6	843.96	0.00	0.00	31.10	10.47	0.00	0.00	1.04
2011	7	925.95	0.00	0.00	35.26	17.42	0.00	0.00	1.04
2011	8	890.21	0.00	0.00	34.24	13.90	0.00	0.00	1.04
2011	9	835.71	0.00	0.00	29.06	10.48	0.00	0.00	1.04
2011	10	653.34	0.00	0.00	0.00	0.00	0.00	0.00	1.04
2011	11	680.84	0.00	0.00	0.00	0.00	16.62	33.35	1.04
2011	12	744.41	0.00	0.00	0.00	0.00	19.75	20.89	1.04
2012	1	750.89	0.00	0.00	0.00	0.00	19.76	13.83	1.04
2012	2	733.31	0.00	0.00	0.00	0.00	26.00	29.23	1.04
2012	3	703.69	0.00	0.00	0.00	0.00	19.77	23.10	1.04
2012	4	611.09	1.00	0.00	0.00	0.00	0.00	0.73	1.04
2012	5	722.47	0.00	1.00	29.16	4.27	0.00	0.00	1.04
2012	6	850.11	0.00	0.00	31.25	10.52	0.00	0.00	1.04
2012	7	932.38	0.00	0.00	35.43	17.51	0.00	0.00	1.04
2012	8	896.47	0.00	0.00	34.40	13.97	0.00	0.00	1.04
2012	9	841.73	0.00	0.00	29.20	10.53	0.00	0.00	1.04
2012	10	658.62	0.00	0.00	0.00	0.00	0.00	0.00	1.04
2012	11	686.20	0.00	0.00	0.00	0.00	16.70	33.50	1.04

Data

Year	Month	Western_CP	April	May	MaxCDD65Trend	CumMinCDDTrend	MaxHDD55Trend	CumMinHDDTrend	EconIndex
2012	12	749.99	0.00	0.00	0.00	0.00	19.84	20.98	1.04
2013	1	756.49	0.00	0.00	0.00	0.00	19.84	13.89	1.04
2013	2	738.85	0.00	0.00	0.00	0.00	26.12	29.36	1.04
2013	3	709.12	0.00	0.00	0.00	0.00	19.86	23.20	1.05
2013	4	616.36	1.00	0.00	0.00	0.00	0.00	0.73	1.05
2013	5	728.22	0.00	1.00	29.28	4.29	0.00	0.00	1.05
2013	6	856.11	0.00	0.00	31.38	10.57	0.00	0.00	1.05
2013	7	938.71	0.00	0.00	35.58	17.58	0.00	0.00	1.05
2013	8	902.66	0.00	0.00	34.55	14.03	0.00	0.00	1.05
2013	9	847.71	0.00	0.00	29.32	10.58	0.00	0.00	1.05
2013	10	663.89	0.00	0.00	0.00	0.00	0.00	0.00	1.05
2013	11	691.58	0.00	0.00	0.00	0.00	16.77	33.64	1.05
2013	12	755.62	0.00	0.00	0.00	0.00	19.92	21.07	1.05
2014	1	762.11	0.00	0.00	0.00	0.00	19.92	13.95	1.05
2014	2	744.36	0.00	0.00	0.00	0.00	26.22	29.47	1.05
2014	3	714.47	0.00	0.00	0.00	0.00	19.94	23.29	1.05
2014	4	621.51	1.00	0.00	0.00	0.00	0.00	0.73	1.05
2014	5	733.78	0.00	1.00	29.40	4.30	0.00	0.00	1.05
2014	6	861.87	0.00	0.00	31.51	10.61	0.00	0.00	1.05
2014	7	944.73	0.00	0.00	35.72	17.65	0.00	0.00	1.05
2014	8	908.50	0.00	0.00	34.68	14.08	0.00	0.00	1.05
2014	9	853.30	0.00	0.00	29.44	10.62	0.00	0.00	1.05
2014	10	668.78	0.00	0.00	0.00	0.00	0.00	0.00	1.05
2014	11	696.53	0.00	0.00	0.00	0.00	16.83	33.77	1.05
2014	12	760.75	0.00	0.00	0.00	0.00	19.99	21.15	1.05
2015	1	767.27	0.00	0.00	0.00	0.00	20.00	14.00	1.05
2015	2	749.46	0.00	0.00	0.00	0.00	26.32	29.59	1.05
2015	3	719.47	0.00	0.00	0.00	0.00	20.01	23.38	1.05
2015	4	626.37	1.00	0.00	0.00	0.00	0.00	0.74	1.05
2015	5	739.08	0.00	1.00	29.51	4.32	0.00	0.00	1.05
2015	6	867.41	0.00	0.00	31.63	10.65	0.00	0.00	1.05
2015	7	950.56	0.00	0.00	35.86	17.72	0.00	0.00	1.05
2015	8	914.21	0.00	0.00	34.82	14.14	0.00	0.00	1.06
2015	9	858.82	0.00	0.00	29.55	10.66	0.00	0.00	1.06
2015	10	673.65	0.00	0.00	0.00	0.00	0.00	0.00	1.06
2015	11	701.50	0.00	0.00	0.00	0.00	16.90	33.90	1.06

Data

Year	Month	Western_CP	April	May	MaxCDD65Trend	CumMinCDDTrend	MaxHDD55Trend	CumMinHDDTrend	EconIndex
2015	12	765.96	0.00	0.00	0.00	0.00	20.07	21.23	1.06
2016	1	772.47	0.00	0.00	0.00	0.00	20.08	14.05	1.06
2016	2	754.57	0.00	0.00	0.00	0.00	26.42	29.70	1.06
2016	3	724.45	0.00	0.00	0.00	0.00	20.09	23.47	1.06
2016	4	631.17	1.00	0.00	0.00	0.00	0.00	0.74	1.06
2016	5	744.28	0.00	1.00	29.62	4.34	0.00	0.00	1.06
2016	6	872.81	0.00	0.00	31.75	10.69	0.00	0.00	1.06
2016	7	956.22	0.00	0.00	35.99	17.78	0.00	0.00	1.06
2016	8	919.72	0.00	0.00	34.94	14.19	0.00	0.00	1.06
2016	9	864.11	0.00	0.00	29.66	10.70	0.00	0.00	1.06
2016	10	678.28	0.00	0.00	0.00	0.00	0.00	0.00	1.06
2016	11	706.20	0.00	0.00	0.00	0.00	16.96	34.02	1.06
2016	12	770.85	0.00	0.00	0.00	0.00	20.14	21.31	1.06
2017	1	777.37	0.00	0.00	0.00	0.00	20.15	14.10	1.06
2017	2	759.40	0.00	0.00	0.00	0.00	26.52	29.81	1.06
2017	3	729.18	0.00	0.00	0.00	0.00	20.16	23.55	1.06
2017	4	635.75	1.00	0.00	0.00	0.00	0.00	0.74	1.06
2017	5	749.26	0.00	1.00	29.73	4.35	0.00	0.00	1.06
2017	6	878.01	0.00	0.00	31.86	10.73	0.00	0.00	1.06
2017	7	961.68	0.00	0.00	36.12	17.85	0.00	0.00	1.06
2017	8	925.05	0.00	0.00	35.07	14.24	0.00	0.00	1.06
2017	9	869.25	0.00	0.00	29.76	10.74	0.00	0.00	1.06
2017	10	682.81	0.00	0.00	0.00	0.00	0.00	0.00	1.06
2017	11	710.81	0.00	0.00	0.00	0.00	17.02	34.14	1.06
2017	12	775.66	0.00	0.00	0.00	0.00	20.21	21.38	1.06
2018	1	782.19	0.00	0.00	0.00	0.00	20.22	14.15	1.06
2018	2	764.15	0.00	0.00	0.00	0.00	26.61	29.91	1.06
2018	3	733.81	0.00	0.00	0.00	0.00	20.23	23.64	1.06
2018	4	640.23	1.00	0.00	0.00	0.00	0.00	0.75	1.07
2018	5	754.13	0.00	1.00	29.83	4.37	0.00	0.00	1.07
2018	6	883.08	0.00	0.00	31.97	10.76	0.00	0.00	1.07
2018	7	967.00	0.00	0.00	36.24	17.91	0.00	0.00	1.07
2018	8	930.24	0.00	0.00	35.18	14.29	0.00	0.00	1.07
2018	9	874.25	0.00	0.00	29.86	10.77	0.00	0.00	1.07
2018	10	687.20	0.00	0.00	0.00	0.00	0.00	0.00	1.07
2018	11	715.27	0.00	0.00	0.00	0.00	17.07	34.25	1.07

Project: G:\DFcastNE\Psa2004\Models\Narragansett_2004.NDM
Model: WesternCP
Dependent Variable: D_Narragansett.Western_CP
Date: May 15, 2006
Time: 05:32 PM
Estimation Begin Date: 1995:1
Estimation End Date: 2003:8
Forecast Period End Date: 2020:12

Variable	Coefficient	StdErr	T-Stat	P-Value
CONST	-732.461	90.236	-8.117	0%
Months.April	-48.632	10.242	-4.748	0%
Months.May	-85.244	10.957	-7.780	0%
RI_Weather.MaxCDD65Trend	5.228	0.501	10.436	0%
RI_Weather.CumMinCDDTrend	7.383	1.326	5.568	0%
RI_Weather.MaxHDD55Trend	2.375	0.352	6.745	0%
RI_Econ_Trans.EconIndex	1298.087	95.845	13.544	0%
Months.Sep95	-74.285	27.184	-2.733	1%
Months.Jul96	-77.276	27.067	-2.855	1%
Months.Sep98	-62.811	26.424	-2.377	2%
Months.Oct98	-73.389	26.659	-2.753	1%
Months.Oct01	-116.833	26.955	-4.334	0%
Months.Apr02	-82.488	30.021	-2.748	1%
Months.Jun03	89.790	27.360	3.282	0%

Regression Statistics	
Iterations	1
Adjusted Observations	102
Deg. of Freedom for Error	88
R-Squared	0.933
Adjusted R-Squared	0.923
Durbin-Watson Statistic	1.076
Durbin-H Statistic	0.000
AIC	6.637
BIC	6.998
F-Statistic	94.441
Prob (F-Statistic)	0.000
Log-Likelihood	-469.23
Model Sum of Squares	825104
Sum of Squared Errors	59141
Mean Squared Error	672.06
Std. Error of Regression	25.92
Mean Abs. Dev. (MAD)	18.37
Mean Abs. % Err. (MAPE)	3.24%
Ljung-Box Statistic	47.55
Prob (Ljung-Box)	0.003

Forecast Statistics	
Forecast Observations	0
Mean Abs. Dev. (MAD)	0.00
Mean Abs. % Err. (MAPE)	0.00%
Avg. Forecast Error	0.00
Mean % Error	0.00%
Root Mean-Square Error	0.000
Theil's Inequality Coefficient	0.000
-- Bias Proportion	0.00%
-- Variance Proportion	0.00%
-- Covariance Proportion	0.00%

Variable	Coefficient	Mean	Elast
Months.April	-48.632	0.088	-0.008
Months.May	-85.244	0.088	-0.013
RI_Weather.MaxCDD65Trend	5.228	9.641	0.089
RI_Weather.CumMinCDDTrend	7.383	2.110	0.027
RI_Weather.MaxHDD55Trend	2.375	9.454	0.040
RI_Econ_Trans.EconIndex	1298.087	0.946	2.162
Months.Sep95	-74.285	0.010	-0.001
Months.Jul96	-77.276	0.010	-0.001
Months.Sep98	-62.811	0.010	-0.001
Months.Oct98	-73.389	0.010	-0.001
Months.Oct01	-116.833	0.010	-0.002

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Variable	Coefficient	Mean	Elast
Months.Apr02	-82.488	0.010	-0.001
Months.Jun03	89.790	0.010	0.002

Data

Year	Month	Western_CP	April	May	MaxCDD65Trend	CumMinCDDTrend	MaxHDD55Trend	EconIndex	Sep95	Jul96	Sep98	Oct98	Oct01	Apr02	Jun03
1995	1	536.00	0.00	0.00	0.00	0.00	28.85	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1995	2	551.00	0.00	0.00	0.00	0.00	37.00	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1995	3	489.00	0.00	0.00	0.00	0.00	20.78	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1995	4	399.00	1.00	0.00	0.00	0.00	19.89	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1995	5	426.00	0.00	1.00	19.01	0.00	0.00	0.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1995	6	597.00	0.00	0.00	25.37	7.43	0.00	0.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1995	7	636.00	0.00	0.00	27.21	14.60	0.00	0.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1995	8	651.00	0.00	0.00	25.42	7.45	0.00	0.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1995	9	479.00	0.00	0.00	19.09	0.82	0.00	0.91	1.00	0.00	0.00	0.00	0.00	0.00	0.00
1995	10	454.00	0.00	0.00	0.00	0.00	1.82	0.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1995	11	507.00	0.00	0.00	0.00	0.00	16.39	0.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1995	12	552.00	0.00	0.00	0.00	0.00	27.35	0.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	1	508.00	0.00	0.00	0.00	0.00	20.07	0.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	2	535.24	0.00	0.00	0.00	0.00	34.67	0.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	3	490.60	0.00	0.00	0.00	0.00	20.08	0.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	4	426.40	1.00	0.00	0.00	0.00	15.52	0.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	5	520.10	0.00	1.00	24.66	0.00	0.00	0.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	6	518.00	0.00	0.00	12.79	4.48	0.00	0.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	7	561.00	0.00	0.00	21.02	10.06	0.00	0.91	0.00	1.00	0.00	0.00	0.00	0.00	0.00
1996	8	579.00	0.00	0.00	18.29	4.94	0.00	0.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	9	552.00	0.00	0.00	19.21	3.57	0.00	0.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	10	463.00	0.00	0.00	0.00	0.00	0.00	0.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	11	505.00	0.00	0.00	0.00	0.00	20.14	0.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	12	509.00	0.00	0.00	0.00	0.00	10.99	0.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	1	518.50	0.00	0.00	0.00	0.00	19.25	0.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	2	497.80	0.00	0.00	0.00	0.00	19.27	0.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	3	492.00	0.00	0.00	0.00	0.00	0.00	0.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	4	458.00	1.00	0.00	0.00	0.00	5.52	0.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	5	412.10	0.00	1.00	0.00	0.00	0.00	0.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	6	606.50	0.00	0.00	22.12	2.49	0.00	0.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	7	658.20	0.00	0.00	24.91	9.32	0.00	0.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	8	534.80	0.00	0.00	22.16	0.00	0.00	0.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	9	520.60	0.00	0.00	14.79	3.24	0.00	0.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	10	478.10	0.00	0.00	0.00	0.00	6.48	0.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	11	517.50	0.00	0.00	0.00	0.00	13.90	0.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	12	540.70	0.00	0.00	0.00	0.00	16.69	0.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1998	1	527.10	0.00	0.00	0.00	0.00	19.50	0.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1998	2	527.70	0.00	0.00	0.00	0.00	18.59	0.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1998	3	513.90	0.00	0.00	0.00	0.00	26.05	0.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1998	4	466.20	1.00	0.00	0.00	0.00	0.00	0.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1998	5	497.30	0.00	1.00	18.65	0.00	0.00	0.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1998	6	628.50	0.00	0.00	23.34	7.19	0.00	0.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1998	7	664.00	0.00	0.00	26.17	9.35	0.00	0.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1998	8	649.70	0.00	0.00	23.39	2.15	0.00	0.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1998	9	523.00	0.00	0.00	12.18	5.25	0.00	0.94	0.00	0.00	1.00	0.00	0.00	0.00	0.00
1998	10	470.20	0.00	0.00	11.25	0.00	0.00	0.94	0.00	0.00	0.00	1.00	0.00	0.00	0.00
1998	11	509.00	0.00	0.00	0.00	0.00	8.45	0.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1998	12	544.00	0.00	0.00	0.00	0.00	15.04	0.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1999	1	577.10	0.00	0.00	0.00	0.00	34.80	0.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1999	2	546.00	0.00	0.00	0.00	0.00	25.42	0.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Data

Year	Month	Western_CP	April	May	MaxCDD65Trend	CumMinCDDTrend	MaxHDD55Trend	EconIndex	Sep95	Jul96	Sep98	Oct98	Oct01	Apr02	Jun03
1999	3	528.20	0.00	0.00	0.00	0.00	22.62	0.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1999	4	444.80	1.00	0.00	0.00	0.00	0.00	0.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1999	5	441.00	0.00	1.00	3.78	0.00	0.00	0.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1999	6	663.00	0.00	0.00	22.68	7.56	0.00	0.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1999	7	736.00	0.00	0.00	23.65	12.96	0.00	0.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1999	8	637.00	0.00	0.00	17.04	5.40	0.00	0.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1999	9		0.00	0.00	14.22	9.00	0.00	0.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1999	10	483.20	0.00	0.00	0.00	0.00	0.95	0.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1999	11	546.60	0.00	0.00	0.00	0.00	17.09	0.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1999	12	561.10	0.00	0.00	0.00	0.00	11.40	0.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2000	1	606.10	0.00	0.00	0.00	0.00	33.32	0.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2000	2	582.20	0.00	0.00	0.00	0.00	24.79	0.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2000	3	518.80	0.00	0.00	0.00	0.00	6.69	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2000	4	489.40	1.00	0.00	0.00	0.00	13.40	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2000	5	564.10	0.00	1.00	24.92	0.67	0.00	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2000	6	685.70	0.00	0.00	24.01	7.59	0.00	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2000	7	633.70	0.00	0.00	23.08	1.35	0.00	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2000	8	694.60	0.00	0.00	21.20	6.74	0.00	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2000	9	663.20	0.00	0.00	20.27	5.40	0.00	0.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2000	10	525.42	0.00	0.00	0.00	0.00	12.57	0.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2000	11	541.09	0.00	0.00	0.00	0.00	14.53	0.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2000	12	584.34	0.00	0.00	0.00	0.00	23.28	0.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2001	1	575.04	0.00	0.00	0.00	0.00	27.19	0.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2001	2	566.57	0.00	0.00	0.00	0.00	28.19	0.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2001	3	547.59	0.00	0.00	0.00	0.00	23.35	0.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2001	4	493.80	1.00	0.00	0.00	0.00	9.74	0.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2001	5	563.39	0.00	1.00	24.37	0.68	0.00	0.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2001	6	699.94	0.00	0.00	21.47	7.32	0.00	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2001	7	749.73	0.00	0.00	30.28	9.08	0.00	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2001	8	809.65	0.00	0.00	33.24	15.35	0.00	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2001	9	638.10	0.00	0.00	17.62	4.01	0.00	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2001	10	499.10	0.00	0.00	14.69	0.00	0.00	0.98	0.00	0.00	0.00	0.00	1.00	0.00	0.00
2001	11	524.90	0.00	0.00	0.00	0.00	0.00	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2001	12	581.00	0.00	0.00	0.00	0.00	18.65	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2002	1	566.50	0.00	0.00	0.00	0.00	18.65	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2002	2	575.70	0.00	0.00	0.00	0.00	24.54	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2002	3	555.20	0.00	0.00	0.00	0.00	18.66	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2002	4	549.90	1.00	0.00	26.52	0.00	0.00	0.98	0.00	0.00	0.00	0.00	0.00	1.00	0.00
2002	5	530.90	0.00	1.00	13.75	0.00	0.00	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2002	6	723.20	0.00	0.00	25.54	2.75	0.00	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2002	7	818.10	0.00	0.00	28.49	10.02	0.00	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2002	8	823.60	0.00	0.00	32.43	7.96	0.00	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2002	9	698.90	0.00	0.00	22.61	0.00	0.00	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2002	10	603.70	0.00	0.00	19.66	0.69	0.00	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2002	11	560.66	0.00	0.00	0.00	0.00	15.73	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2002	12	605.50	0.00	0.00	0.00	0.00	25.57	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2003	1	625.45	0.00	0.00	0.00	0.00	35.43	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2003	2		0.00	0.00	0.00	0.00	34.47	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2003	3	603.00	0.00	0.00	0.00	0.00	17.74	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2003	4	541.44	1.00	0.00	0.00	0.00	17.76	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Data

Year	Month	Western_CP	April	May	MaxCDD65Trend	CumMinCDDTrend	MaxHDD55Trend	EconIndex	Sep95	Jul96	Sep98	Oct98	Oct01	Apr02	Jun03
2003	5	470.44	0.00	1.00	7.90	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2003	6	773.99	0.00	0.00	23.71	1.38	0.00	0.99	0.00	0.00	0.00	0.00	0.00	0.00	1.00
2003	7	791.52	0.00	0.00	24.72	8.40	0.00	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2003	8	810.29	0.00	0.00	24.74	7.62	0.00	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Forecast															
2003	9	771.82	0.00	0.00	27.73	10.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2003	10	591.68	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2003	11	613.91	0.00	0.00	0.00	0.00	10.91	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2003	12	664.47	0.00	0.00	0.00	0.00	25.81	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2004	1	670.19	0.00	0.00	0.00	0.00	35.76	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2004	2	657.02	0.00	0.00	0.00	0.00	34.79	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2004	3	634.39	0.00	0.00	0.00	0.00	17.91	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2004	4	553.63	1.00	0.00	0.00	0.00	17.92	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2004	5	651.35	0.00	1.00	27.89	4.08	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2004	6	792.22	0.00	0.00	29.91	10.07	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2004	7	833.25	0.00	0.00	32.92	13.37	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2004	8	795.30	0.00	0.00	32.94	8.09	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2004	9	785.03	0.00	0.00	27.97	10.09	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2004	10	603.22	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2004	11	625.55	0.00	0.00	0.00	0.00	11.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2004	12	676.45	0.00	0.00	0.00	0.00	26.03	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2005	1	682.31	0.00	0.00	0.00	0.00	36.07	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2005	2	669.14	0.00	0.00	0.00	0.00	35.09	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2005	3	646.40	0.00	0.00	0.00	0.00	18.06	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2005	4	565.46	1.00	0.00	0.00	0.00	18.08	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2005	5	664.47	0.00	1.00	28.14	4.12	0.00	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2005	6	805.95	0.00	0.00	30.17	10.16	0.00	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2005	7	847.47	0.00	0.00	33.22	13.49	0.00	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2005	8	809.28	0.00	0.00	33.24	8.16	0.00	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2005	9	799.02	0.00	0.00	28.23	10.18	0.00	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2005	10	615.63	0.00	0.00	0.00	0.00	0.00	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2005	11	638.26	0.00	0.00	0.00	0.00	11.11	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2005	12	689.74	0.00	0.00	0.00	0.00	26.27	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2006	1	695.09	0.00	0.00	0.00	0.00	36.39	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2006	2	681.23	0.00	0.00	0.00	0.00	35.40	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2006	3	657.74	0.00	0.00	0.00	0.00	18.21	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2006	4	575.99	1.00	0.00	0.00	0.00	18.22	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2006	5	675.47	0.00	1.00	28.35	4.15	0.00	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2006	6	816.74	0.00	0.00	30.39	10.23	0.00	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2006	7	857.92	0.00	0.00	33.44	13.58	0.00	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2006	8	818.86	0.00	0.00	33.45	8.21	0.00	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2006	9	807.93	0.00	0.00	28.39	10.24	0.00	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2006	10	622.93	0.00	0.00	0.00	0.00	0.00	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2006	11	645.14	0.00	0.00	0.00	0.00	11.16	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2006	12	696.31	0.00	0.00	0.00	0.00	26.40	1.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2007	1	701.80	0.00	0.00	0.00	0.00	36.56	1.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2007	2	687.98	0.00	0.00	0.00	0.00	35.57	1.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2007	3	664.49	0.00	0.00	0.00	0.00	18.30	1.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2007	4	582.68	1.00	0.00	0.00	0.00	18.31	1.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2007	5	682.95	0.00	1.00	28.49	4.17	0.00	1.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Data

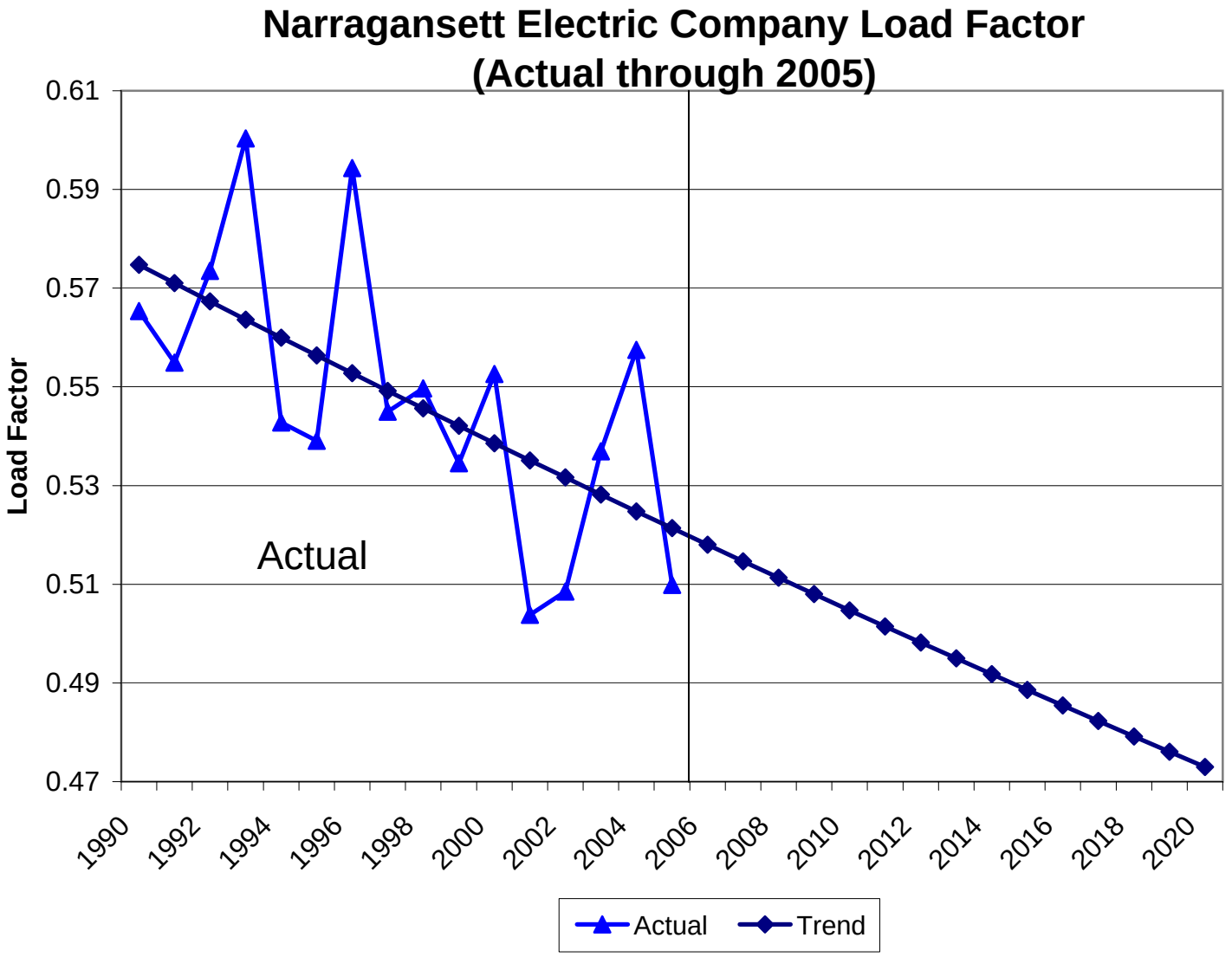
Year	Month	Western_CP	April	May	MaxCDD65Trend	CumMinCDDTrend	MaxHDD55Trend	EconIndex	Sep95	Jul96	Sep98	Oct98	Oct01	Apr02	Jun03
2007	6	824.63	0.00	0.00	30.54	10.28	0.00	1.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2007	7	866.13	0.00	0.00	33.61	13.65	0.00	1.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2007	8	827.00	0.00	0.00	33.63	8.25	0.00	1.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2007	9	816.12	0.00	0.00	28.54	10.30	0.00	1.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2007	10	630.25	0.00	0.00	0.00	0.00	0.00	1.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2007	11	652.69	0.00	0.00	0.00	0.00	11.22	1.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2007	12	704.25	0.00	0.00	0.00	0.00	26.54	1.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	1	709.85	0.00	0.00	0.00	0.00	36.77	1.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	2	696.05	0.00	0.00	0.00	0.00	35.77	1.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	3	672.51	0.00	0.00	0.00	0.00	18.40	1.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	4	590.60	1.00	0.00	0.00	0.00	18.41	1.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	5	691.75	0.00	1.00	28.66	4.20	0.00	1.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	6	833.86	0.00	0.00	30.72	10.34	0.00	1.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	7	875.71	0.00	0.00	33.81	13.73	0.00	1.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	8	836.44	0.00	0.00	33.83	8.30	0.00	1.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	9	825.59	0.00	0.00	28.72	10.36	0.00	1.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	10	638.66	0.00	0.00	0.00	0.00	0.00	1.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	11	661.33	0.00	0.00	0.00	0.00	11.29	1.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	12	713.30	0.00	0.00	0.00	0.00	26.71	1.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	1	718.87	0.00	0.00	0.00	0.00	37.00	1.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	2	704.90	0.00	0.00	0.00	0.00	35.99	1.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	3	681.15	0.00	0.00	0.00	0.00	18.52	1.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	4	598.96	1.00	0.00	0.00	0.00	18.53	1.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	5	700.89	0.00	1.00	28.83	4.22	0.00	1.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	6	843.26	0.00	0.00	30.91	10.41	0.00	1.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	7	885.28	0.00	0.00	34.01	13.81	0.00	1.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	8	845.70	0.00	0.00	34.03	8.35	0.00	1.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	9	834.71	0.00	0.00	28.89	10.42	0.00	1.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	10	646.62	0.00	0.00	0.00	0.00	0.00	1.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	11	669.35	0.00	0.00	0.00	0.00	11.36	1.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	12	721.55	0.00	0.00	0.00	0.00	26.86	1.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	1	727.08	0.00	0.00	0.00	0.00	37.21	1.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	2	712.97	0.00	0.00	0.00	0.00	36.19	1.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	3	689.02	0.00	0.00	0.00	0.00	18.62	1.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	4	606.58	1.00	0.00	0.00	0.00	18.63	1.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	5	709.20	0.00	1.00	28.99	4.25	0.00	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	6	851.81	0.00	0.00	31.07	10.46	0.00	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	7	893.99	0.00	0.00	34.20	13.89	0.00	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	8	854.12	0.00	0.00	34.21	8.40	0.00	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	9	843.01	0.00	0.00	29.04	10.48	0.00	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	10	653.86	0.00	0.00	0.00	0.00	0.00	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	11	676.64	0.00	0.00	0.00	0.00	11.42	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	12	729.04	0.00	0.00	0.00	0.00	27.00	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	1	734.64	0.00	0.00	0.00	0.00	37.40	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	2	720.50	0.00	0.00	0.00	0.00	36.38	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	3	696.46	0.00	0.00	0.00	0.00	18.72	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	4	613.88	1.00	0.00	0.00	0.00	18.73	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	5	717.27	0.00	1.00	29.14	4.27	0.00	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	6	860.22	0.00	0.00	31.24	10.52	0.00	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	7	902.67	0.00	0.00	34.38	13.96	0.00	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Data

Year	Month	Western_CP	April	May	MaxCDD65Trend	CumMinCDDTrend	MaxHDD55Trend	EconIndex	Sep95	Jul96	Sep98	Oct98	Oct01	Apr02	Jun03
2011	8	862.63	0.00	0.00	34.39	8.44	0.00	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	9	851.49	0.00	0.00	29.20	10.53	0.00	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	10	661.36	0.00	0.00	0.00	0.00	0.00	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	11	684.30	0.00	0.00	0.00	0.00	11.48	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	12	737.02	0.00	0.00	0.00	0.00	27.15	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	1	742.66	0.00	0.00	0.00	0.00	37.61	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	2	728.44	0.00	0.00	0.00	0.00	36.58	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	3	704.28	0.00	0.00	0.00	0.00	18.82	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	4	621.52	1.00	0.00	0.00	0.00	18.83	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	5	725.68	0.00	1.00	29.30	4.29	0.00	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	6	868.96	0.00	0.00	31.41	10.57	0.00	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	7	911.64	0.00	0.00	34.57	14.04	0.00	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	8	871.39	0.00	0.00	34.58	8.49	0.00	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	9	860.20	0.00	0.00	29.36	10.59	0.00	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	10	669.03	0.00	0.00	0.00	0.00	0.00	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	11	692.10	0.00	0.00	0.00	0.00	11.54	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	12	745.12	0.00	0.00	0.00	0.00	27.30	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	1	750.69	0.00	0.00	0.00	0.00	37.81	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	2	736.31	0.00	0.00	0.00	0.00	36.78	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	3	711.92	0.00	0.00	0.00	0.00	18.92	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	4	628.89	1.00	0.00	0.00	0.00	18.93	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	5	733.69	0.00	1.00	29.46	4.31	0.00	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	6	877.17	0.00	0.00	31.57	10.63	0.00	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	7	919.97	0.00	0.00	34.74	14.11	0.00	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	8	879.41	0.00	0.00	34.76	8.53	0.00	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	9	868.06	0.00	0.00	29.50	10.64	0.00	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	10	675.86	0.00	0.00	0.00	0.00	0.00	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	11	698.95	0.00	0.00	0.00	0.00	11.60	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	12	752.13	0.00	0.00	0.00	0.00	27.43	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	1	757.67	0.00	0.00	0.00	0.00	37.99	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	2	743.16	0.00	0.00	0.00	0.00	36.95	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	3	718.60	0.00	0.00	0.00	0.00	19.01	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	4	635.35	1.00	0.00	0.00	0.00	19.01	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	5	740.73	0.00	1.00	29.59	4.33	0.00	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	6	884.41	0.00	0.00	31.71	10.68	0.00	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	7	927.33	0.00	0.00	34.90	14.17	0.00	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	8	886.52	0.00	0.00	34.91	8.57	0.00	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	9	875.06	0.00	0.00	29.63	10.69	0.00	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	10	681.96	0.00	0.00	0.00	0.00	0.00	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	11	705.09	0.00	0.00	0.00	0.00	11.65	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	12	758.44	0.00	0.00	0.00	0.00	27.54	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2015	1	764.04	0.00	0.00	0.00	0.00	38.15	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2015	2	749.49	0.00	0.00	0.00	0.00	37.11	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2015	3	724.85	0.00	0.00	0.00	0.00	19.09	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2015	4	641.49	1.00	0.00	0.00	0.00	19.10	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2015	5	747.52	0.00	1.00	29.72	4.35	0.00	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2015	6	891.49	0.00	0.00	31.85	10.72	0.00	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2015	7	934.63	0.00	0.00	35.05	14.23	0.00	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2015	8	893.68	0.00	0.00	35.06	8.61	0.00	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2015	9	882.20	0.00	0.00	29.76	10.74	0.00	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00

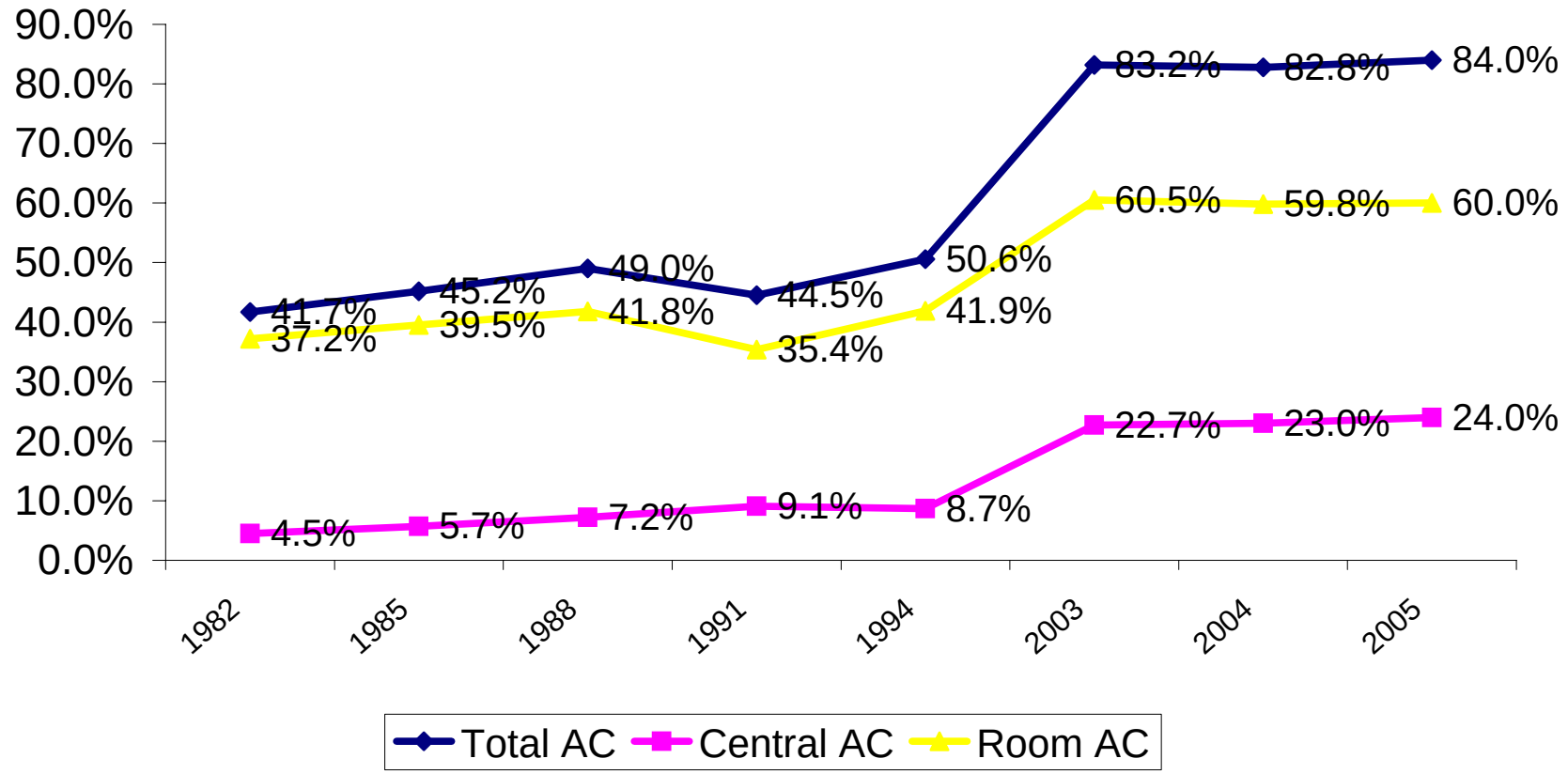
Data

Year	Month	Western_CP	April	May	MaxCDD65Trend	CumMinCDDTrend	MaxHDD55Trend	EconIndex	Sep95	Jul96	Sep98	Oct98	Oct01	Apr02	Jun03
2015	10	688.27	0.00	0.00	0.00	0.00	0.00	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2015	11	711.54	0.00	0.00	0.00	0.00	11.70	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2015	12	765.16	0.00	0.00	0.00	0.00	27.67	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2016	1	770.72	0.00	0.00	0.00	0.00	38.32	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2016	2	756.06	0.00	0.00	0.00	0.00	37.27	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2016	3	731.26	0.00	0.00	0.00	0.00	19.17	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2016	4	647.69	1.00	0.00	0.00	0.00	19.18	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2016	5	754.30	0.00	1.00	29.85	4.37	0.00	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2016	6	898.46	0.00	0.00	31.99	10.77	0.00	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2016	7	941.73	0.00	0.00	35.20	14.29	0.00	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2016	8	900.54	0.00	0.00	35.21	8.64	0.00	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2016	9	888.96	0.00	0.00	29.89	10.78	0.00	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2016	10	694.17	0.00	0.00	0.00	0.00	0.00	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2016	11	717.48	0.00	0.00	0.00	0.00	11.75	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2016	12	771.27	0.00	0.00	0.00	0.00	27.78	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2017	1	776.39	0.00	0.00	0.00	0.00	38.47	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2017	2	761.20	0.00	0.00	0.00	0.00	37.40	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2017	3	735.86	0.00	0.00	0.00	0.00	19.23	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2017	4	651.73	1.00	0.00	0.00	0.00	19.23	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2017	5	758.24	0.00	1.00	29.92	4.38	0.00	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2017	6	902.04	0.00	0.00	32.06	10.79	0.00	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2017	7	944.88	0.00	0.00	35.27	14.32	0.00	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2017	8	903.11	0.00	0.00	35.27	8.66	0.00	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2017	9	891.00	0.00	0.00	29.92	10.79	0.00	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2017	10	695.51	0.00	0.00	0.00	0.00	0.00	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2017	11	718.40	0.00	0.00	0.00	0.00	11.76	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2017	12	771.75	0.00	0.00	0.00	0.00	27.79	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2018	1	776.87	0.00	0.00	0.00	0.00	38.48	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2018	2	761.68	0.00	0.00	0.00	0.00	37.41	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2018	3	736.33	0.00	0.00	0.00	0.00	19.24	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2018	4	652.19	1.00	0.00	0.00	0.00	19.24	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2018	5	758.75	0.00	1.00	29.93	4.38	0.00	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2018	6	902.57	0.00	0.00	32.07	10.80	0.00	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2018	7	945.43	0.00	0.00	35.28	14.33	0.00	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2018	8	903.64	0.00	0.00	35.28	8.66	0.00	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2018	9	891.53	0.00	0.00	29.93	10.80	0.00	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2018	10	695.98	0.00	0.00	0.00	0.00	0.00	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2018	11	718.88	0.00	0.00	0.00	0.00	11.76	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2018	12	772.25	0.00	0.00	0.00	0.00	27.80	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00



Narragansett Electric Company
RIPUC Docket No. 3732
Responses to the Division's Second Set of Data Requests
Attachment 4 to Response to Division Data Request 2-1

Narragansett Electric Company
Residential Air Conditioning Saturation
(1982-2005)



Narragansett Electric Company
RIPUC Docket No. 3732
Responses to the Division's Second Set of Data Requests
Attachment 5 to Response to Division Data Request 2-1

Division Data Request 2-2

Request:

In the pre-filed testimony for Melissa Scott on page 11, there is reference to a Cumulative Present Worth Revenue Requirement. This is also included in the Transmission Supply Study by Melissa Scott dated October 2003. Please provide complete data and analysis for the determination of the CPWRRs for the various alternatives. Also, please discuss the determination of the variables that went into this analysis. For example, are O&M and/or A&G costs included in the analysis? What depreciation, discount and interest rates were used?

Response:

Completed economic analysis worksheets for each alternative that was considered in the October, 2003 Transmission Study are attached. A summary of the capital cost estimates that were inserted into the spreadsheets can be found in Appendix 9 of the October, 2003 Transmission Study.

The variables used in the analysis include 1) an inflation rate of 3% to calculate the capital costs of future investments, 2) an interest rate to calculate the present worth of future investments, and 3) present worth revenue requirement factors to calculate the annual revenue requirements. The October 2003 Transmission Study used the analysis as only one means of economic comparison. A comparison of total capital costs for each project was also used.

The economic analysis worksheets contain CPWRR factors for capital costs with O&M and for capital costs without O&M. The CPWRR factors that include O&M assume an annual O&M charge that is a percentage of the capital cost, i.e. 6.6%. The economic assumptions for revenue requirements that were used by the computer program that generated the CPWRR factors are also attached.

As discussed in my pre-filed testimony, a parameter was inadvertently left out of the economic spreadsheet. This parameter was the interest rate. With the interest rate of 7.97% included, the CPWRR for the capacitor alternative became the lowest and the proposed alternative became the second lowest. A re-evaluation of the capacitor alternative with the latest loads and forecasts revealed that the capacitor alternative is no longer technically adequate and thus the proposed alternative is once again the least cost of the feasible alternatives.

Prepared by or under the supervision of: Melissa Scott, P.E.

ECONOMIC ANALYSIS WORKSHEET VERSION 6.7 10/27/99 Last code change (correction) by R Galgano, spring98

Cells in green are where the user may enter or edit data.

This spreadsheet is intended to calculate Revenue Requirements for only one plan at a time.

ENTER GENERAL PARAMETERS BELOW (Areas in Green)

TITLE	
BASE YEAR	2003
INFLATION RATE	0.03
COMPANY	TNELCO

PLAN 1 (1 thru 10)

(Company = NEPCO,MELCO,TNELCO,GSECO)

NE TIME O&M)

PLAN NUMBER 1 TITLE: 0

BASE YEAR	2003
FLATION RATE	0.03
TEREST RATE	0
COMPANY (NEPCO,MELCO,NELCO,GSECO)	TNELCO

YEAR	2003 CAPITAL COST WITH O&M	ESCALATED COST WITH O&M	PW COST REF-BASE YR WITH O&M	PWRR FACTOR WITH O&M	YEAR	2003 CAPITAL COST WITHOUT O&M	ESCALATED COST WITHOUT O&M	PW COST REF-BASE YR WITHOUT O&M	PWRR FACTOR WITHOUT O&M	1 PWRR 2003	2 PWRR 2004	3 PWRR 2005	4 PWRR 2006	5 PWRR 2007	6 PWRR 2008	7 PWRR 2009	8 PWRR 2010	9 PWRR 2011	10 PWRR 2012	11 PWRR 2013
2003	2100	2100	2100	0.1835	2003	0	0	0	0.1211	385.2639										
2004	0	0	0	0.2134	2004	0	0	0	0.1539	448.2387	0									
2005	0	0	0	0.1954	2005	0	0	0	0.1387	410.4072	0	0								
2006	1300	1420.5451	1420.5451	0.1792	2006	7900	8632.5433	8632.5433	0.1250	376.2234	0	0	1305.866024							
2007	0	0	0	0.1644	2007	0	0	0	0.1128	345.2631	0	0	1632.130703	0						
2008	0	0	0	0.1511	2008	0	0	0	0.1018	317.2092	0	0	1474.660219	0	0					
2009	0	0	0	0.1389	2009	0	0	0	0.0919	291.7761	0	0	1333.581514	0	0	0				
2010	0	0	0	0.1279	2010	0	0	0	0.0831	268.6551	0	0	1206.889763	0	0	0	0			
2011	0	0	0	0.1179	2011	0	0	0	0.0751	247.5795	0	0	1093.118743	0	0	0	0	0		
2012	0	0	0	0.1087	2012	0	0	0	0.0679	228.2994	0	0	990.9443972	0	0	0	0	0	0	
2013	0	0	0	0.1003	2013	0	0	0	0.0614	210.6111	0	0	898.9407176	0	0	0	0	0	0	0
2014	0	0	0	0.0926	2014	0	0	0	0.0554	194.3865	0	0	815.8741244	0	0	0	0	0	0	0
2015	0	0	0	0.0855	2015	0	0	0	0.0500	179.4975	0	0	740.565565	0	0	0	0	0	0	0
2016	0	0	0	0.0790	2016	0	0	0	0.0452	165.8307	0	0	672.1175828	0	0	0	0	0	0	0
2017	0	0	0	0.0730	2017	0	0	0	0.0407	153.2853	0	0	609.9169394	0	0	0	0	0	0	0
2018	0	0	0	0.0675	2018	0	0	0	0.0367	141.7668	0	0	553.3935592	0	0	0	0	0	0	0
2019	0	0	0	0.0625	2019	2000	3209.412878	3209.412878	0.0331	131.187	0	0	502.0563705	0	0	0	0	0	0	0
2020	0	0	0	0.0578	2020	0	0	0	0.0298	121.4661	0	0	455.4314578	0	0	0	0	0	0	0
2021	0	0	0	0.0536	2021	0	0	0	0.0269	112.5327	0	0	413.1009622	0	0	0	0	0	0	0
2022	0	0	0	0.0497	2022	0	0	0	0.0242	104.3196	0	0	374.6771841	0	0	0	0	0	0	0
2023	0	0	0	0.0462	2023	0	0	0	0.0219	96.9339	0	0	339.8040039	0	0	0	0	0	0	0
2024	0	0	0	0.0431	2024	0	0	0	0.0199	90.5016	0	0	308.1655142	0	0	0	0	0	0	0
2025	0	0	0	0.0404	2025	0	0	0	0.0182	84.7518	0	0	279.4659137	0	0	0	0	0	0	0
2026	0	0	0	0.0378	2026	0	0	0	0.0167	79.4115	0	0	254.2265425	0	0	0	0	0	0	0
2027	0	0	0	0.0355	2027	0	0	0	0.0153	74.4471	0	0	233.0937487	0	0	0	0	0	0	0
2028	0	0	0	0.0333	2028	0	0	0	0.0141	69.8313	0	0	214.7793164	0	0	0	0	0	0	0
2029	0	0	0	0.0312	2029	0	0	0	0.0129	65.5368	0	0	198.0022417	0	0	0	0	0	0	0
2030	0	0	0	0.0293	2030	0	0	0	0.0118	61.5405	0	0	182.6189402	0	0	0	0	0	0	0
2031	0	0	0	0.0275	2031	0	0	0	0.0109	57.8193	0	0	168.5246196	0	0	0	0	0	0	0
2032	0	0	0	0.0259	2032	0	0	0	0.0100	54.3501	0	0	155.5972221	0	0	0	0	0	0	0
SUBTOTAL	3400			2.651868		9900			1.626398	5568.9228	0	0	17407.54389	0	0	0	0	0	0	0
TOTAL INVESTMENT	13300																			

Narragansett Electric Company
RIPUC Docket No. 3732
Responses to the Division's Second Set of Data Requests
Attachment 1 to Response to Division Data Request 2-2
Page 1 of 2

	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS
24	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	PLAN	PLAN
25	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	1	1
26	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	TOTAL PWRR	TOTAL CPWRR
28	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------
29																					385.2639	385.3
30																					448.2387	833.5
31																					410.4072	1243.9
32																					1682.089424	2926.0
33																					1977.393803	4903.4
34																					1791.869419	6695.3
35																					1625.357614	8320.6
36																					1475.544863	9796.2
37																					1340.698243	11136.9
38																					1219.243797	12356.1
39																					1109.551818	13465.7
40	0																				1010.260624	14475.9
41	0	0																			920.063065	15396.0
42	0	0	0																		837.9482828	16233.9
43	0	0	0	0																	763.2022394	16997.1
44	0	0	0	0	0																695.1603592	17692.3
45	0	0	0	0	0	388.6053395															1021.84871	18714.1
46	0	0	0	0	0	494.0666467	0														1070.964204	19785.1
47	0	0	0	0	0	445.0364462	0	0													970.6701083	20755.8
48	0	0	0	0	0	401.1830286	0	0	0												880.1798127	21636.0
49	0	0	0	0	0	361.8677208	0	0	0	0											798.6056248	22434.6
50	0	0	0	0	0	326.625158	0	0	0	0	0										725.2922722	23159.9
51	0	0	0	0	0	295.0349071	0	0	0	0	0	0									659.2526208	23819.1
52	0	0	0	0	0	266.6444407	0	0	0	0	0	0	0								600.2824833	24419.4
53	0	0	0	0	0	241.0622107	0	0	0	0	0	0	0	0							548.6030594	24968.0
54	0	0	0	0	0	217.9127156	0	0	0	0	0	0	0	0	0						502.523332	25470.5
55	0	0	0	0	0	196.9135271	0	0	0	0	0	0	0	0	0	0					460.4525688	25931.0
56	0	0	0	0	0	177.8688711	0	0	0	0	0	0	0	0	0	0	0				422.0283114	26353.0
57	0	0	0	0	0	160.5990204	0	0	0	0	0	0	0	0	0	0	0	0			386.94294	26739.9
58	0	0	0	0	0	144.9499232	0	0	0	0	0	0	0	0	0	0	0	0	0		354.8972453	27094.8
59	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------
60	0	0	0	0	0	4118.369956	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
61																						
62																				27094.83665		

ECONOMIC ANALYSIS WORKSHEET VERSION 6.7 10/27/99 Last code change (correction) by R Galgano, spring98

Cells in green are where the user may enter or edit data.

This spreadsheet is intended to calculate Revenue Requirements for only one plan at a time.

ENTER GENERAL PARAMETERS BELOW (Areas in Green)

TITLE		PLAN 1	(1 thru 10)
BASE YEAR	2003		
INFLATION RATE	0.03		
COMPANY	TNELCO	(Company = NEPCO,MELCO,TNELCO,GSECO)	

NE TIME O&M)

TO FIND ALL GREEN CELLS ---------->

PLAN NUMBER 1 TITLE: 0

BASE YEAR 2003
FLATION RATE 0.03
TEREST RATE 0
COMPANY (NEPCO,MELCO,NELCO,GSECO) TNELCO

YEAR	2003 CAPITAL COST WITH O&M	ESCALATED COST WITH O&M	PW COST REF-BASE YR WITH O&M	PWRR FACTOR WITH O&M	YEAR	2003 CAPITAL COST WITHOUT O&M	ESCALATED COST WITHOUT O&M	PW COST REF-BASE YR WITHOUT O&M	PWRR FACTOR WITHOUT O&M	1 PWRR 2003	2 PWRR 2004	3 PWRR 2005	4 PWRR 2006	5 PWRR 2007	6 PWRR 2008	7 PWRR 2009	8 PWRR 2010	9 PWRR 2011	10 PWRR 2012	11 PWRR 2013
2003	0	0	0	0.1835	2003	4200	4200	4200	0.1211	508.5486										
2004	0	0	0	0.2134	2004	0	0	0	0.1539	646.5606	0									
2005	0	0	0	0.1954	2005	0	0	0	0.1387	582.3972	0	0								
2006	1300	1420.5451	1420.5451	0.1792	2006	7,900	8632.5433	8632.5433	0.1250	525.0084	0	0	1305.866024							
2007	0	0	0	0.1644	2007	0	0	0	0.1128	473.5584	0	0	1632.130703	0						
2008	0	0	0	0.1511	2008	0	0	0	0.1018	427.4382	0	0	1474.660219	0	0					
2009	0	0	0	0.1389	2009	0	0	0	0.0919	386.0976	0	0	1333.581514	0	0	0				
2010	0	0	0	0.1279	2010	0	0	0	0.0831	348.9444	0	0	1206.889763	0	0	0	0			
2011	0	0	0	0.1179	2011	0	0	0	0.0751	315.4662	0	0	1093.118743	0	0	0	0	0		
2012	0	0	0	0.1087	2012	0	0	0	0.0679	285.1716	0	0	990.9443972	0	0	0	0	0	0	
2013	0	0	0	0.1003	2013	0	0	0	0.0614	257.691	0	0	898.9407176	0	0	0	0	0	0	0
2014	0	0	0	0.0926	2014	0	0	0	0.0554	232.7682	0	0	815.8741244	0	0	0	0	0	0	0
2015	0	0	0	0.0855	2015	0	0	0	0.0500	210.168	0	0	740.565565	0	0	0	0	0	0	0
2016	0	0	0	0.0790	2016	0	0	0	0.0452	189.6888	0	0	672.1175828	0	0	0	0	0	0	0
2017	0	0	0	0.0730	2017	0	0	0	0.0407	171.1332	0	0	609.9169394	0	0	0	0	0	0	0
2018	0	0	0	0.0675	2018	0	0	0	0.0367	154.329	0	0	553.3935592	0	0	0	0	0	0	0
2019	0	0	0	0.0625	2019	2000	3209.412878	3209.412878	0.0331	139.1166	0	0	502.0563705	0	0	0	0	0	0	0
2020	0	0	0	0.0578	2020	0	0	0	0.0298	125.349	0	0	455.4314578	0	0	0	0	0	0	0
2021	0	0	0	0.0536	2021	0	0	0	0.0269	112.896	0	0	413.1009622	0	0	0	0	0	0	0
2022	0	0	0	0.0497	2022	0	0	0	0.0242	101.6358	0	0	374.6771841	0	0	0	0	0	0	0
2023	0	0	0	0.0462	2023	0	0	0	0.0219	91.7868	0	0	339.8040039	0	0	0	0	0	0	0
2024	0	0	0	0.0431	2024	0	0	0	0.0199	83.622	0	0	308.1655142	0	0	0	0	0	0	0
2025	0	0	0	0.0404	2025	0	0	0	0.0182	76.6038	0	0	279.4659137	0	0	0	0	0	0	0
2026	0	0	0	0.0378	2026	0	0	0	0.0167	70.1988	0	0	254.2265425	0	0	0	0	0	0	0
2027	0	0	0	0.0355	2027	0	0	0	0.0153	64.3482	0	0	233.0937487	0	0	0	0	0	0	0
2028	0	0	0	0.0333	2028	0	0	0	0.0141	59.01	0	0	214.7793164	0	0	0	0	0	0	0
2029	0	0	0	0.0312	2029	0	0	0	0.0129	54.1338	0	0	198.0022417	0	0	0	0	0	0	0
2030	0	0	0	0.0293	2030	0	0	0	0.0118	49.6818	0	0	182.6189402	0	0	0	0	0	0	0
2031	0	0	0	0.0275	2031	0	0	0	0.0109	45.6162	0	0	168.5246196	0	0	0	0	0	0	0
2032	0	0	0	0.0259	2032	0	0	0	0.0100	41.9034	0	0	155.5972221	0	0	0	0	0	0	0
SUBTOTAL	1300			2.651868		14100			1.626398	6830.8716	0	0	17407.54389	0	0	0	0	0	0	0
TOTAL INVESTMENT	15400																			

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	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS
26	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	PLAN	PLAN
27	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	1	1
28	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	TOTAL	TOTAL
29																					PWRR	CPWRR
30	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
31																					508.5486	508.5
32																					646.5606	1155.1
33																					582.3972	1737.5
34																					1830.874424	3568.4
35																					2105.689103	5674.1
36																					1902.098419	7576.2
37																					1719.679114	9295.8
38																					1555.834163	10851.7
39																					1408.584943	12260.3
40																					1276.115997	13536.4
41																					1156.631718	14693.0
42	0																				1048.642324	15741.7
43	0	0																			950.733565	16692.4
44	0	0	0																		861.8063828	17554.2
45	0	0	0	0																	781.0501394	18335.2
46	0	0	0	0	0																707.7225592	19043.0
47	0	0	0	0	0	388.6053395															1029.77831	20072.7
48	0	0	0	0	0	494.0666467	0														1074.847104	21147.6
49	0	0	0	0	0	445.0364462	0	0													971.0334083	22118.6
50	0	0	0	0	0	401.1830286	0	0	0												877.4960127	22996.1
51	0	0	0	0	0	361.8677208	0	0	0	0											793.4585248	23789.6
52	0	0	0	0	0	326.625158	0	0	0	0	0										718.4126722	24508.0
53	0	0	0	0	0	295.0349071	0	0	0	0	0	0									651.1046208	25159.1
54	0	0	0	0	0	266.6444407	0	0	0	0	0	0	0								591.0697833	25750.2
55	0	0	0	0	0	241.0622107	0	0	0	0	0	0	0	0							538.5041594	26288.7
56	0	0	0	0	0	217.9127156	0	0	0	0	0	0	0	0	0						491.702032	26780.4
57	0	0	0	0	0	196.9135271	0	0	0	0	0	0	0	0	0	0					449.0495688	27229.4
58	0	0	0	0	0	177.8688711	0	0	0	0	0	0	0	0	0	0	0				410.1696114	27639.6
59	0	0	0	0	0	160.5990204	0	0	0	0	0	0	0	0	0	0	0	0			374.73984	28014.3
60	0	0	0	0	0	144.9499232	0	0	0	0	0	0	0	0	0	0	0	0	0		342.4505453	28356.8
61	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
62	0	0	0	0	0	4118.369956	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
63																						
64																				28356.78545		

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ECONOMIC ANALYSIS WORKSHEET VERSION 6.7 10/27/99 Last code change (correction) by R Galgano, spring98

Cells in green are where the user may enter or edit data.

This spreadsheet is intended to calculate Revenue Requirements for only one plan at a time.

ENTER GENERAL PARAMETERS BELOW (Areas in Green)

TITLE		PLAN 2	(1 thru 10)
BASE YEAR	2003		
INFLATION RATE	0.03		
COMPANY	TNELCO	(Company = NEPCO,MELCO,TNELCO,GSECO)	

NE TIME O&M)

TO FIND ALL GREEN CELLS ---------->

PLAN NUMBER 2 TITLE: 0

BASE YEAR 2001
FLATION RATE 0.03
TEREST RATE 0
COMPANY (NEPCO,MELCO,NELCO,GSECO) TNELCO

YEAR	2003 CAPITAL COST WITH O&M	ESCALATED COST WITH O&M	PW COST REF-BASE YR WITH O&M	PWRR FACTOR WITH O&M	YEAR	2003 CAPITAL COST WITHOUT O&M	ESCALATED COST WITHOUT O&M	PW COST REF-BASE YR WITHOUT O&M	PWRR FACTOR WITHOUT O&M	1 PWRR 2003	2 PWRR 2004	3 PWRR 2005	4 PWRR 2006	5 PWRR 2007	6 PWRR 2008	7 PWRR 2009	8 PWRR 2010	9 PWRR 2011	10 PWRR 2012	11 PWRR 2013
2003	0	0	0	0.1835	2003	2300	2300	2300	0.1211	278.4909										
2004	0	0	0	0.2134	2004	0	0	0	0.1539	354.0689	0									
2005	0	0	0	0.1954	2005	0	0	0	0.1387	318.9318	0	0								
2006	0	0	0	0.1792	2006	2800	3059.6356	3059.6356	0.1250	287.5046	0	0	370.4698574							
2007	0	0	0	0.1644	2007	0	0	0	0.1128	259.3296	0	0	471.0094832	0						
2008	0	0	0	0.1511	2008	0	0	0	0.1018	234.0733	0	0	424.2674301	0	0					
2009	0	0	0	0.1389	2009	0	0	0	0.0919	211.4344	0	0	382.4605693	0	0	0				
2010	0	0	0	0.1279	2010	0	0	0	0.0831	191.0886	0	0	344.9800332	0	0	0	0			
2011	0	0	0	0.1179	2011	0	0	0	0.0751	172.7553	0	0	311.3821746	0	0	0	0	0		
2012	0	0	0	0.1087	2012	0	0	0	0.0679	156.1654	0	0	281.2661814	0	0	0	0	0	0	
2013	0	0	0	0.1003	2013	0	0	0	0.0614	141.1165	0	0	254.2006449	0	0	0	0	0	0	0
2014	0	0	0	0.0926	2014	0	0	0	0.0554	127.4683	0	0	229.8122896	0	0	0	0	0	0	0
2015	1300	1853.489153	1853.489153	0.0855	2015	7900	11263.51101	11263.51101	0.0500	115.092	0	0	207.743138	0	0	0	0	0	0	0
2016	0	0	0	0.0790	2016	0	0	0	0.0452	103.8772	0	0	187.7239422	0	0	0	0	0	0	0
2017	0	0	0	0.0730	2017	0	0	0	0.0407	93.7158	0	0	169.5680646	0	0	0	0	0	0	0
2018	0	0	0	0.0675	2018	0	0	0	0.0367	84.5135	0	0	153.1041654	0	0	0	0	0	0	0
2019	0	0	0	0.0625	2019	2000	3209.412878	3209.412878	0.0331	76.1829	0	0	138.1853822	0	0	0	0	0	0	0
2020	0	0	0	0.0578	2020	0	0	0	0.0298	68.6435	0	0	124.6679122	0	0	0	0	0	0	0
2021	0	0	0	0.0536	2021	0	0	0	0.0269	61.824	0	0	112.4263101	0	0	0	0	0	0	0
2022	0	0	0	0.0497	2022	0	0	0	0.0242	55.6577	0	0	101.34431	0	0	0	0	0	0	0
2023	0	0	0	0.0462	2023	0	0	0	0.0219	50.2642	0	0	91.31482448	0	0	0	0	0	0	0
2024	0	0	0	0.0431	2024	0	0	0	0.0199	45.793	0	0	82.24300493	0	0	0	0	0	0	0
2025	0	0	0	0.0404	2025	0	0	0	0.0182	41.9497	0	0	74.04012188	0	0	0	0	0	0	0
2026	0	0	0	0.0378	2026	0	0	0	0.0167	38.4422	0	0	66.8652764	0	0	0	0	0	0	0
2027	0	0	0	0.0355	2027	0	0	0	0.0153	35.2383	0	0	60.9173448	0	0	0	0	0	0	0
2028	0	0	0	0.0333	2028	0	0	0	0.0141	32.315	0	0	55.80469371	0	0	0	0	0	0	0
2029	0	0	0	0.0312	2029	0	0	0	0.0129	29.6447	0	0	51.13874942	0	0	0	0	0	0	0
2030	0	0	0	0.0293	2030	0	0	0	0.0118	27.2067	0	0	46.87667703	0	0	0	0	0	0	0
2031	0	0	0	0.0275	2031	0	0	0	0.0109	24.9803	0	0	42.98788018	0	0	0	0	0	0	0
2032	0	0	0	0.0259	2032	0	0	0	0.0100	22.9471	0	0	39.43564325	0	0	0	0	0	0	0
SUBTOTAL	1300			2.651868		15000			1.626398	3740.7154	0	0	4876.236104	0	0	0	0	0	0	0
TOTAL INVESTMENT	16300																			

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	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS
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24																						
25																						
26	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	PLAN	PLAN
27	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	2	2
28	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	TOTAL	TOTAL
29																					PWRR	CPWRR
30	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------
31																					278.4909	278.5
32																					354.0689	632.6
33																					318.9318	951.5
34																					657.9744574	1609.5
35																					730.3390832	2339.8
36																					658.3407301	2998.1
37																					593.8949693	3592.0
38																					536.0686332	4128.1
39																					484.1374746	4612.2
40																					437.4315814	5049.7
41																					395.3171449	5445.0
42	0																				357.2805896	5802.3
43	0	1703.85897																			2026.694108	7829.0
44	0	2129.560374	0																		2421.161516	10250.1
45	0	1924.097109	0	0																	2187.380974	12437.5
46	0	1740.021398	0	0	0																1977.639064	14415.2
47	0	1574.717398	0	0	0	388.6053395															2177.69102	16592.8
48	0	1426.272022	0	0	0	494.0666467	0														2113.650081	18706.5
49	0	1292.957676	0	0	0	445.0364462	0	0													1912.244432	20618.7
50	0	1172.913742	0	0	0	401.1830286	0	0	0												1731.098781	22349.8
51	0	1064.530679	0	0	0	361.8677208	0	0	0	0											1567.977424	23917.8
52	0	966.2700901	0	0	0	326.625158	0	0	0	0	0										1420.931253	25338.7
53	0	876.9609984	0	0	0	295.0349071	0	0	0	0	0	0									1287.985727	26626.7
54	0	795.8032669	0	0	0	266.6444407	0	0	0	0	0	0	0								1167.755184	27794.5
55	0	722.0530761	0	0	0	241.0622107	0	0	0	0	0	0	0	0							1059.270932	28853.8
56	0	655.069689	0	0	0	217.9127156	0	0	0	0	0	0	0	0	0						961.1020983	29814.9
57	0	594.2347532	0	0	0	196.9135271	0	0	0	0	0	0	0	0	0	0					871.9317298	30686.8
58	0	539.0030577	0	0	0	177.8688711	0	0	0	0	0	0	0	0	0	0	0				790.9553058	31477.7
59	0	488.8687424	0	0	0	160.5990204	0	0	0	0	0	0	0	0	0	0	0	0			717.435943	32195.2
60	0	443.3671521	0	0	0	144.9499232	0	0	0	0	0	0	0	0	0	0	0	0	0		650.6998185	32845.9
61	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	
62	0	20110.56019	0	0	0	4118.369956	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
63																						
64																				32845.88166		

Narragansett Electric Company
RIPUC Docket No. 3732
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ECONOMIC ANALYSIS WORKSHEET VERSION 6.7 10/27/99 Last code change (correction) by R Galgano, spring98

Cells in green are where the user may enter or edit data.

This spreadsheet is intended to calculate Revenue Requirements for only one plan at a time.

ENTER GENERAL PARAMETERS BELOW (Areas in Green)

TITLE		PLAN	3 (1 thru 10)
BASE YEAR	2003		
INFLATION RATE	0.03		
COMPANY	TNELCO	(Company = NEPCO,MELCO,TNELCO,GSECO)	

NE TIME O&M)

TO FIND ALL GREEN CELLS ---------->

PLAN NUMBER 3 TITLE: 0

BASE YEAR	2001
FLATION RATE	0.03
TEREST RATE	0
COMPANY (NEPCO,MELCO,NELCO,GSECO)	TNELCO

YEAR	2003 CAPITAL COST WITH O&M	ESCALATED COST WITH O&M	PW COST REF-BASE YR WITH O&M	PWRR FACTOR WITH O&M	YEAR	2003 CAPITAL COST WITHOUT O&M	ESCALATED COST WITHOUT O&M	PW COST REF-BASE YR WITHOUT O&M	PWRR FACTOR WITHOUT O&M	1 PWRR 2003	2 PWRR 2004	3 PWRR 2005	4 PWRR 2006	5 PWRR 2007	6 PWRR 2008	7 PWRR 2009	8 PWRR 2010	9 PWRR 2011	10 PWRR 2012	11 PWRR 2013
2003	305	305	305	0.1835	2003	0	0	0	0.1211	55.954995										
2004	0	0	0	0.2134	2004	6200	6386	6386	0.1539	65.101335	773.236038									
2005	0	0	0	0.1954	2005	0	0	0	0.1387	59.60676	983.079998	0								
2006	0	0	0	0.1792	2006	2800	3059.6356	3059.6356	0.1250	54.64197	885.521076	0	370.4698574							
2007	0	0	0	0.1644	2007	0	0	0	0.1128	50.145355	798.262772	0	471.0094832	0						
2008	0	0	0	0.1511	2008	0	0	0	0.1018	46.07086	720.034272	0	424.2674301	0	0					
2009	0	0	0	0.1389	2009	0	0	0	0.0919	42.377005	649.909606	0	382.4605693	0	0	0				
2010	0	0	0	0.1279	2010	0	0	0	0.0831	39.018955	587.052208	0	344.9800332	0	0	0	0			
2011	0	0	0	0.1179	2011	0	0	0	0.0751	35.957975	530.561652	0	311.3821746	0	0	0	0	0		
2012	0	0	0	0.1087	2012	0	0	0	0.0679	33.15777	479.658846	0	281.2661814	0	0	0	0	0	0	
2013	0	0	0	0.1003	2013	0	0	0	0.0614	30.588755	433.596628	0	254.2006449	0	0	0	0	0	0	0
2014	0	0	0	0.0926	2014	0	0	0	0.0554	28.232325	391.81303	0	229.8122896	0	0	0	0	0	0	0
2015	1300	1853.489153	1853.489153	0.0855	2015	7900	11263.51101	11263.51101	0.0500	26.069875	353.918506	0	207.743138	0	0	0	0	0	0	0
2016	0	0	0	0.0790	2016	0	0	0	0.0452	24.084935	319.55544	0	187.7239422	0	0	0	0	0	0	0
2017	0	0	0	0.0730	2017	0	0	0	0.0407	22.262865	288.417304	0	169.5680646	0	0	0	0	0	0	0
2018	0	0	0	0.0675	2018	0	0	0	0.0367	20.58994	260.203956	0	153.1041654	0	0	0	0	0	0	0
2019	0	0	0	0.0625	2019	2000	3209.412878	3209.412878	0.0331	19.05335	234.65357	0	138.1853822	0	0	0	0	0	0	0
2020	0	0	0	0.0578	2020	0	0	0	0.0298	17.641505	211.523478	0	124.6679122	0	0	0	0	0	0	0
2021	0	0	0	0.0536	2021	0	0	0	0.0269	16.344035	190.59017	0	112.4263101	0	0	0	0	0	0	0
2022	0	0	0	0.0497	2022	0	0	0	0.0242	15.15118	171.65568	0	101.34431	0	0	0	0	0	0	0
2023	0	0	0	0.0462	2023	0	0	0	0.0219	14.078495	154.534814	0	91.31482448	0	0	0	0	0	0	0
2024	0	0	0	0.0431	2024	0	0	0	0.0199	13.14428	139.559644	0	82.24300493	0	0	0	0	0	0	0
2025	0	0	0	0.0404	2025	0	0	0	0.0182	12.30919	127.14526	0	74.04012188	0	0	0	0	0	0	0
2026	0	0	0	0.0378	2026	0	0	0	0.0167	11.533575	116.474254	0	66.8652764	0	0	0	0	0	0	0
2027	0	0	0	0.0355	2027	0	0	0	0.0153	10.812555	106.735604	0	60.9173448	0	0	0	0	0	0	0
2028	0	0	0	0.0333	2028	0	0	0	0.0141	10.142165	97.839906	0	55.80469371	0	0	0	0	0	0	0
2029	0	0	0	0.0312	2029	0	0	0	0.0129	9.51844	89.7233	0	51.13874942	0	0	0	0	0	0	0
2030	0	0	0	0.0293	2030	0	0	0	0.0118	8.938025	82.309154	0	46.87667703	0	0	0	0	0	0	0
2031	0	0	0	0.0275	2031	0	0	0	0.0109	8.397565	75.539994	0	42.98788018	0	0	0	0	0	0	0
2032	0	0	0	0.0259	2032	0	0	0	0.0100	7.893705	69.358346	0	39.43564325	0	0	0	0	0	0	0
SUBTOTAL	1605			2.651868		18900			1.626398	808.81974	10322.46451	0	4876.236104	0	0	0	0	0	0	0
TOTAL INVESTMENT	20505																			

	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS
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25																						
26	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	PLAN	PLAN
27	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	3	3
28	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	TOTAL	TOTAL
29																					PWRR	CPWRR
30	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------
31																					55.954995	56.0
32																					838.337373	894.3
33																					1042.686758	1937.0
34																					1310.632903	3247.6
35																					1319.41761	4567.0
36																					1190.372562	5757.4
37																					1074.74718	6832.1
38																					971.0511962	7803.2
39																					877.9018016	8681.1
40																					794.0827974	9475.2
41																					718.3860279	10193.6
42	0																				649.8576446	10843.4
43	0	1703.85897																			2291.590489	13135.0
44	0	2129.560374	0																		2660.924691	15795.9
45	0	1924.097109	0	0																	2404.345343	18200.3
46	0	1740.021398	0	0	0																2173.91946	20374.2
47	0	1574.717398	0	0	0	388.6053395															2355.21504	22729.4
48	0	1426.272022	0	0	0	494.0666467	0														2274.171564	25003.6
49	0	1292.957676	0	0	0	445.0364462	0	0													2057.354637	27061.0
50	0	1172.913742	0	0	0	401.1830286	0	0	0												1862.247941	28923.2
51	0	1064.530679	0	0	0	361.8677208	0	0	0	0											1686.326533	30609.5
52	0	966.2700901	0	0	0	326.625158	0	0	0	0	0										1527.842177	32137.4
53	0	876.9609984	0	0	0	295.0349071	0	0	0	0	0	0									1385.490477	33522.9
54	0	795.8032669	0	0	0	266.6444407	0	0	0	0	0	0	0								1257.320813	34780.2
55	0	722.0530761	0	0	0	241.0622107	0	0	0	0	0	0	0	0							1141.580791	35921.8
56	0	655.069689	0	0	0	217.9127156	0	0	0	0	0	0	0	0	0						1036.769169	36958.5
57	0	594.2347532	0	0	0	196.9135271	0	0	0	0	0	0	0	0	0	0					941.5287698	37900.1
58	0	539.0030577	0	0	0	177.8688711	0	0	0	0	0	0	0	0	0	0	0				854.9957848	38755.1
59	0	488.8687424	0	0	0	160.5990204	0	0	0	0	0	0	0	0	0	0	0	0			776.393202	39531.4
60	0	443.3671521	0	0	0	144.9499232	0	0	0	0	0	0	0	0	0	0	0	0	0		705.0047695	40236.5
61	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	
62	0	20110.56019	0	0	0	4118.369956	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
63																						
64																				40236.4505		

Narragansett Electric Company
RIPUC Docket No. 3732
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ECONOMIC ANALYSIS WORKSHEET VERSION 6.7 10/27/99 Last code change (correction) by R Galgano, spring98

Cells in green are where the user may enter or edit data.

This spreadsheet is intended to calculate Revenue Requirements for only one plan at a time.

ENTER GENERAL PARAMETERS BELOW (Areas in Green)

TITLE		PLAN	3 (1 thru 10)
BASE YEAR	2003		
INFLATION RATE	0.03		
COMPANY	TNELCO	(Company = NEPCO,MELCO,TNELCO,GSECO)	

NE TIME O&M)

TO FIND ALL GREEN CELLS ---------->

PLAN NUMBER 3 TITLE: 0

BASE YEAR	2001
FLATION RATE	0.03
TEREST RATE	0
COMPANY (NEPCO,MELCO,NELCO,GSECO)	TNELCO

YEAR	2003 CAPITAL COST WITH O&M	ESCALATED COST WITH O&M	PW COST REF-BASE YR WITH O&M	PWRR FACTOR WITH O&M	YEAR	2003 CAPITAL COST WITHOUT O&M	ESCALATED COST WITHOUT O&M	PW COST REF-BASE YR WITHOUT O&M	PWRR FACTOR WITHOUT O&M	1 PWRR 2003	2 PWRR 2004	3 PWRR 2005	4 PWRR 2006	5 PWRR 2007	6 PWRR 2008	7 PWRR 2009	8 PWRR 2010	9 PWRR 2011	10 PWRR 2012	11 PWRR 2013
2003	305	305	305	0.1835	2003	0	0	0	0.1211	55.954995										
2004	0	0	0	0.2134	2004	7100	7313	7313	0.1539	65.101335	885.479979									
2005	0	0	0	0.1954	2005	0	0	0	0.1387	59.60676	1125.785159	0								
2006	0	0	0	0.1792	2006	2800	3059.6356	3059.6356	0.1250	54.64197	1014.064458	0	370.4698574							
2007	0	0	0	0.1644	2007	0	0	0	0.1128	50.145355	914.139626	0	471.0094832	0						
2008	0	0	0	0.1511	2008	0	0	0	0.1018	46.07086	824.555376	0	424.2674301	0	0					
2009	0	0	0	0.1389	2009	0	0	0	0.0919	42.377005	744.251323	0	382.4605693	0	0	0				
2010	0	0	0	0.1279	2010	0	0	0	0.0831	39.018955	672.269464	0	344.9800332	0	0	0	0			
2011	0	0	0	0.1179	2011	0	0	0	0.0751	35.957975	607.578666	0	311.3821746	0	0	0	0	0		
2012	0	0	0	0.1087	2012	0	0	0	0.0679	33.15777	549.286743	0	281.2661814	0	0	0	0	0	0	
2013	0	0	0	0.1003	2013	0	0	0	0.0614	30.588755	496.538074	0	254.2006449	0	0	0	0	0	0	0
2014	0	0	0	0.0926	2014	0	0	0	0.0554	28.232325	448.689115	0	229.8122896	0	0	0	0	0	0	0
2015	1300	1853.489153	1853.489153	0.0855	2015	7900	11263.51101	11263.51101	0.0500	26.069875	405.293773	0	207.743138	0	0	0	0	0	0	0
2016	0	0	0	0.0790	2016	0	0	0	0.0452	24.084935	365.94252	0	187.7239422	0	0	0	0	0	0	0
2017	0	0	0	0.0730	2017	0	0	0	0.0407	22.262865	330.284332	0	169.5680646	0	0	0	0	0	0	0
2018	0	0	0	0.0675	2018	0	0	0	0.0367	20.58994	297.975498	0	153.1041654	0	0	0	0	0	0	0
2019	0	0	0	0.0625	2019	2000	3209.412878	3209.412878	0.0331	19.05335	268.716185	0	138.1853822	0	0	0	0	0	0	0
2020	0	0	0	0.0578	2020	0	0	0	0.0298	17.641505	242.228499	0	124.6679122	0	0	0	0	0	0	0
2021	0	0	0	0.0536	2021	0	0	0	0.0269	16.344035	218.256485	0	112.4263101	0	0	0	0	0	0	0
2022	0	0	0	0.0497	2022	0	0	0	0.0242	15.15118	196.57344	0	101.34431	0	0	0	0	0	0	0
2023	0	0	0	0.0462	2023	0	0	0	0.0219	14.078495	176.967287	0	91.31482448	0	0	0	0	0	0	0
2024	0	0	0	0.0431	2024	0	0	0	0.0199	13.14428	159.818302	0	82.24300493	0	0	0	0	0	0	0
2025	0	0	0	0.0404	2025	0	0	0	0.0182	12.30919	145.60183	0	74.04012188	0	0	0	0	0	0	0
2026	0	0	0	0.0378	2026	0	0	0	0.0167	11.533575	133.381807	0	66.8652764	0	0	0	0	0	0	0
2027	0	0	0	0.0355	2027	0	0	0	0.0153	10.812555	122.229482	0	60.9173448	0	0	0	0	0	0	0
2028	0	0	0	0.0333	2028	0	0	0	0.0141	10.142165	112.042473	0	55.80469371	0	0	0	0	0	0	0
2029	0	0	0	0.0312	2029	0	0	0	0.0129	9.51844	102.74765	0	51.13874942	0	0	0	0	0	0	0
2030	0	0	0	0.0293	2030	0	0	0	0.0118	8.938025	94.257257	0	46.87667703	0	0	0	0	0	0	0
2031	0	0	0	0.0275	2031	0	0	0	0.0109	8.397565	86.505477	0	42.98788018	0	0	0	0	0	0	0
2032	0	0	0	0.0259	2032	0	0	0	0.0100	7.893705	79.426493	0	39.43564325	0	0	0	0	0	0	0
SUBTOTAL	1605			2.651868		19800			1.626398	808.81974	11820.88677	0	4876.236104	0	0	0	0	0	0	0
TOTAL INVESTMENT	21405																			

	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS
26	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	PLAN	PLAN
27	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	3	3
28	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	TOTAL	TOTAL
29																					PWRR	CPWRR
30	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------
31																					55.954995	56.0
32																					950.581314	1006.5
33																					1185.391919	2191.9
34																					1439.176285	3631.1
35																					1435.294464	5066.4
36																					1294.893666	6361.3
37																					1169.088897	7530.4
38																					1056.268452	8586.6
39																					954.9188156	9541.6
40																					863.7106944	10405.3
41																					781.3274739	11186.6
42	0																				706.7337296	11893.3
43	0	1703.85897																			2342.965756	14236.3
44	0	2129.560374	0																		2707.311771	16943.6
45	0	1924.097109	0	0																	2446.212371	19389.8
46	0	1740.021398	0	0	0																2211.691002	21601.5
47	0	1574.717398	0	0	0	388.6053395															2389.277655	23990.8
48	0	1426.272022	0	0	0	494.0666467	0														2304.876585	26295.7
49	0	1292.957676	0	0	0	445.0364462	0	0													2085.020952	28380.7
50	0	1172.913742	0	0	0	401.1830286	0	0	0												1887.165701	30267.9
51	0	1064.530679	0	0	0	361.8677208	0	0	0	0											1708.759006	31976.6
52	0	966.2700901	0	0	0	326.625158	0	0	0	0	0										1548.100835	33524.7
53	0	876.9609984	0	0	0	295.0349071	0	0	0	0	0	0									1403.947047	34928.7
54	0	795.8032669	0	0	0	266.6444407	0	0	0	0	0	0	0								1274.228366	36202.9
55	0	722.0530761	0	0	0	241.0622107	0	0	0	0	0	0	0	0							1157.074669	37360.0
56	0	655.069689	0	0	0	217.9127156	0	0	0	0	0	0	0	0	0						1050.971736	38410.9
57	0	594.2347532	0	0	0	196.9135271	0	0	0	0	0	0	0	0	0	0					954.5531198	39365.5
58	0	539.0030577	0	0	0	177.8688711	0	0	0	0	0	0	0	0	0	0	0				866.9438878	40232.4
59	0	488.8687424	0	0	0	160.5990204	0	0	0	0	0	0	0	0	0	0	0	0			787.358685	41019.8
60	0	443.3671521	0	0	0	144.9499232	0	0	0	0	0	0	0	0	0	0	0	0	0		715.0729165	41734.9
61	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	
62	0	20110.56019	0	0	0	4118.369956	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
63																						
64																				41734.87277		

Narragansett Electric Company
RIPUC Docket No. 3732
Response to the Division's Second Set of Data Requests
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ECONOMIC ANALYSIS WORKSHEET VERSION 6.7 10/27/99 Last code change (correction) by R Galgano, spring98

Cells in green are where the user may enter or edit data.

This spreadsheet is intended to calculate Revenue Requirements for only one plan at a time.

ENTER GENERAL PARAMETERS BELOW (Areas in Green)

TITLE		PLAN 4 (1 thru 10)
BASE YEAR	2003	
INFLATION RATE	0.03	
COMPANY	TNELCO	(Company = NEPCO,MELCO,TNELCO,GSECO)

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PLAN NUMBER 4 TITLE: 0

BASE YEAR 2001
FLATION RATE 0.03
TEREST RATE 0
COMPANY (NEPCO,MELCO,NELCO,GSECO) TNELCO

YEAR	2003 CAPITAL COST WITH O&M	ESCALATED COST WITH O&M	PW COST REF-BASE YR WITH O&M	PWRR FACTOR WITH O&M	YEAR	2003 CAPITAL COST WITHOUT O&M	ESCALATED COST WITHOUT O&M	PW COST REF-BASE YR WITHOUT O&M	PWRR FACTOR WITHOUT O&M	1 PWRR 2003	2 PWRR 2004	3 PWRR 2005	4 PWRR 2006	5 PWRR 2007	6 PWRR 2008	7 PWRR 2009	8 PWRR 2010	9 PWRR 2011	10 PWRR 2012	11 PWRR 2013
2003	2100	2100	2100	0.1835	2003	0	0	0	0.1211	385.2639										
2004	0	0	0	0.2134	2004	0	0	0	0.1539	448.2387	0									
2005	0	0	0	0.1954	2005	0	0	0	0.1387	410.4072	0	0								
2006	21,000	22947.267	22947.267	0.1792	2006	85,000	92881.795	92881.795	0.1250	376.2234	0	0	15456.28904							
2007	0	0	0	0.1644	2007	0	0	0	0.1128	345.2631	0	0	19196.52747	0						
2008	0	0	0	0.1511	2008	0	0	0	0.1018	317.2092	0	0	17364.17727	0	0					
2009	0	0	0	0.1389	2009	0	0	0	0.0919	291.7761	0	0	15721.50481	0	0	0				
2010	0	0	0	0.1279	2010	0	0	0	0.0831	268.6551	0	0	14245.39126	0	0	0	0			
2011	0	0	0	0.1179	2011	0	0	0	0.0751	247.5795	0	0	12918.90373	0	0	0	0	0		
2012	0	0	0	0.1087	2012	0	0	0	0.0679	228.2994	0	0	11726.75388	0	0	0	0	0	0	
2013	0	0	0	0.1003	2013	0	0	0	0.0614	210.6111	0	0	10652.47211	0	0	0	0	0	0	0
2014	0	0	0	0.0926	2014	0	0	0	0.0554	194.3865	0	0	9681.812547	0	0	0	0	0	0	0
2015	0	0	0	0.0855	2015	0	0	0	0.0500	179.4975	0	0	8801.177302	0	0	0	0	0	0	0
2016	0	0	0	0.0790	2016	0	0	0	0.0452	165.8307	0	0	8000.166887	0	0	0	0	0	0	0
2017	0	0	0	0.0730	2017	0	0	0	0.0407	153.2853	0	0	7271.715731	0	0	0	0	0	0	0
2018	0	0	0	0.0675	2018	0	0	0	0.0367	141.7668	0	0	6609.222669	0	0	0	0	0	0	0
2019	0	0	0	0.0625	2019	0	0	0	0.0331	131.187	0	0	6006.990223	0	0	0	0	0	0	0
2020	0	0	0	0.0578	2020	0	0	0	0.0298	121.4661	0	0	5459.551479	0	0	0	0	0	0	0
2021	0	0	0	0.0536	2021	0	0	0	0.0269	112.5327	0	0	4962.065658	0	0	0	0	0	0	0
2022	0	0	0	0.0497	2022	0	0	0	0.0242	104.3196	0	0	4510.039465	0	0	0	0	0	0	0
2023	0	0	0	0.0462	2023	0	0	0	0.0219	96.9339	0	0	4099.350042	0	0	0	0	0	0	0
2024	0	0	0	0.0431	2024	0	0	0	0.0199	90.5016	0	0	3726.337846	0	0	0	0	0	0	0
2025	0	0	0	0.0404	2025	0	0	0	0.0182	84.7518	0	0	3387.574993	0	0	0	0	0	0	0
2026	0	0	0	0.0378	2026	0	0	0	0.0167	79.4115	0	0	3089.061645	0	0	0	0	0	0	0
2027	0	0	0	0.0355	2027	0	0	0	0.0153	74.4471	0	0	2838.211957	0	0	0	0	0	0	0
2028	0	0	0	0.0333	2028	0	0	0	0.0141	69.8313	0	0	2620.176861	0	0	0	0	0	0	0
2029	0	0	0	0.0312	2029	0	0	0	0.0129	65.5368	0	0	2420.177223	0	0	0	0	0	0	0
2030	0	0	0	0.0293	2030	0	0	0	0.0118	61.5405	0	0	2236.545544	0	0	0	0	0	0	0
2031	0	0	0	0.0275	2031	0	0	0	0.0109	57.8193	0	0	2068.054689	0	0	0	0	0	0	0
2032	0	0	0	0.0259	2032	0	0	0	0.0100	54.3501	0	0	1913.291764	0	0	0	0	0	0	0
SUBTOTAL	23100			2.651868		85000			1.626398	5568.9228	0	0	206983.5441	0	0	0	0	0	0	0
TOTAL INVESTMENT	108100																			

	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS
26	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	PLAN	PLAN
27	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	PWRR	4	4
28	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	TOTAL	TOTAL
29																					PWRR	CPWRR
30	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------
31																					385.2639	385.3
32																					448.2387	833.5
33																					410.4072	1243.9
34																					15832.51244	17076.4
35																					19541.79057	36618.2
36																					17681.38647	54299.6
37																					16013.28091	70312.9
38																					14514.04636	84826.9
39																					13166.48323	97993.4
40																					11955.05328	109948.5
41																					10863.08321	120811.5
42	0																				9876.199047	130687.7
43	0	0																			8980.674802	139668.4
44	0	0	0																		8165.997587	147834.4
45	0	0	0	0																	7425.001031	155259.4
46	0	0	0	0	0																6750.989469	162010.4
47	0	0	0	0	0	0															6138.177223	168148.6
48	0	0	0	0	0	0	0														5581.017579	173729.6
49	0	0	0	0	0	0	0	0													5074.598358	178804.2
50	0	0	0	0	0	0	0	0	0												4614.359065	183418.6
51	0	0	0	0	0	0	0	0	0	0											4196.283942	187614.8
52	0	0	0	0	0	0	0	0	0	0	0										3816.839446	191431.7
53	0	0	0	0	0	0	0	0	0	0	0	0									3472.326793	194904.0
54	0	0	0	0	0	0	0	0	0	0	0	0	0								3168.473145	198072.5
55	0	0	0	0	0	0	0	0	0	0	0	0	0	0							2912.659057	200985.1
56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						2690.008161	203675.2
57	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					2485.714023	206160.9
58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				2298.086044	208459.0
59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			2125.873989	210584.8
60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		1967.641864	212552.5
61	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	
62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
63																						
64																				212552.4669		

Narragansett Electric Company
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Attachment 6 to Response to Division Data Request 2-2
Page 2 of 2

ECONOMIC ASSUMPTIONS for REVENUE REQUIREMENTS
SUMMARY OF RATES
JULY 1996

This summary is a reference only. It does not eliminate the need for supporting documentation contained in the economic assumptions memorandum.

INFLATION 3.00%

COST OF CAPITAL	NEPCO	MECO	NECO	GSECO	NTUC
Incremental Cap - Pre Tax Weighted Ave	9.11%	9.11%	9.11%	9.13%	9.13%
Incremental After Tax Cost of Capital Ra	7.83%	7.83%	7.97%	7.86%	7.70%
Embedded Capitalization - Weighted Ave	8.79%	9.19%	9.24%	10.51%	-
Embedded Cap - Long Term Debt Rate	6.13%	7.49%	7.77%	8.39%	-
Effective Tax Rate	39.23%	39.23%	35.00%	35.00%	39.23%

AFUDC Current Rates	NEPCO	MECO	NECO	GSECO
Debt	3.25%	5.00%	4.77%	5.40%
Equity	4.85%	0.00%	4.80%	0.00%
Total	8.10%	5.00%	9.57%	5.40%

RATES BASED ON GROSS PLANT

	NEPCO	MECO	NECO	GSECO
Local Property Taxes	1.80%	1.70%	2.70%	2.20%
Operation & Maintenance Exp.	4.80%	7.50%	6.60%	10.20%

TAXES

Federal Income Tax Rate:		35.00%	
State Income Tax Rates:			
RI	Gross Receipts Tax	2.00%	
NH	Business Profits Tax	7.00%	
VT	Franchise Tax	8.25%	
ME	Income Tax	8.93%	
MA	Franchise Tax	6.50%	
CT	Income Tax	10.75%	
NEPCo Composite State Income Tax Rat		6.50%	
State Sales Tax Rates			
Maine		6.00%	
New Hampshire		0.00%	
Vermont		5.00%	Terminating on 7/1/97
Massachusetts		5.00%	
Rhode Island		7.00%	
Connecticut		6.00%	

APPENDIX A.2

INCREMENTAL AFTER TAX COST OF CAPITAL RATES (1)

NEPCO	7.83%
MECO	7.83%
NECO	7.97%
GSECO	7.86%
NTUC	7.70%

(1) ASSUMES THE FOLLOWING EFFECTIVE TAX RATES

NEPCO	39.23%
MECO	39.23%
NECO	35.00%
GSECO	35.00%
NTUC	39.23%

May 1996

APPENDIX A.4-1

RATE COMPARISON
TARGET CAPITAL STRUCTURE

Current = May 1996
Prior = March 1995

NEPCO	Current	Prior	Delta
Long-Term Debt	45.00%	45.00%	0.00%
Preferred Stock	5.00%	5.00%	0.00%
Common Equity	50.00%	50.00%	0.00%
Total	100.00%	100.00%	

MECO & NECO			
Long-Term Debt	45.00%	45.00%	0.00%
Preferred Stock	5.00%	5.00%	0.00%
Common Equity	50.00%	50.00%	0.00%
Total	100.00%	100.00%	

GSECO			
Long-Term Debt	50.00%	50.00%	0.00%
Common Equity	50.00%	50.00%	0.00%
Total	100.00%	100.00%	

RATE COMPARISON
INCREMENTAL CAPITAL RATES

NEPCO, MECO, NECO, GSECO

	Current	Prior	Delta
Long-Term Debt	7.25%	8.25%	-1.00%
Preferred Stock *	7.00%	8.00%	-1.00%
Common Equity	11.00%	12.00%	-1.00%

* GSECo does not have preferred stock.

Reference to Appendix A.1

May 1996

APPENDIX A-4-3

RATE COMPARISON
EMBEDDED CAPITALIZATION
WEIGHTED AVERAGE RATES

Current = May 1996
Prior = March 1995

NEPCO	Current	Prior	Change
Long-Term Debt	2.70%	2.57%	0.13%
Preferred Stock	0.20%	0.21%	-0.01%
Common Equity	5.89%	6.27%	-0.38%
Total	8.79%	9.05%	-0.26%

MECO			
Long-Term Debt	3.26%	2.94%	0.32%
Preferred Stock	0.39%	0.43%	-0.04%
Common Equity	5.54%	6.13%	-0.59%
Total	9.19%	9.50%	-0.31%

NECO			
Long-Term Debt	3.34%	3.45%	-0.11%
Preferred Stock	0.44%	0.50%	-0.06%
Common Equity	5.46%	5.51%	-0.05%
Total	9.24%	9.47%	-0.22%

GSECO			
Long-Term Debt	3.83%	4.16%	-0.33%
Common Equity	6.68%	6.79%	-0.11%
Total	10.51%	10.95%	-0.44%

Reference to Appendix A-3

May 1996

Division Data Request 2-3

Request:

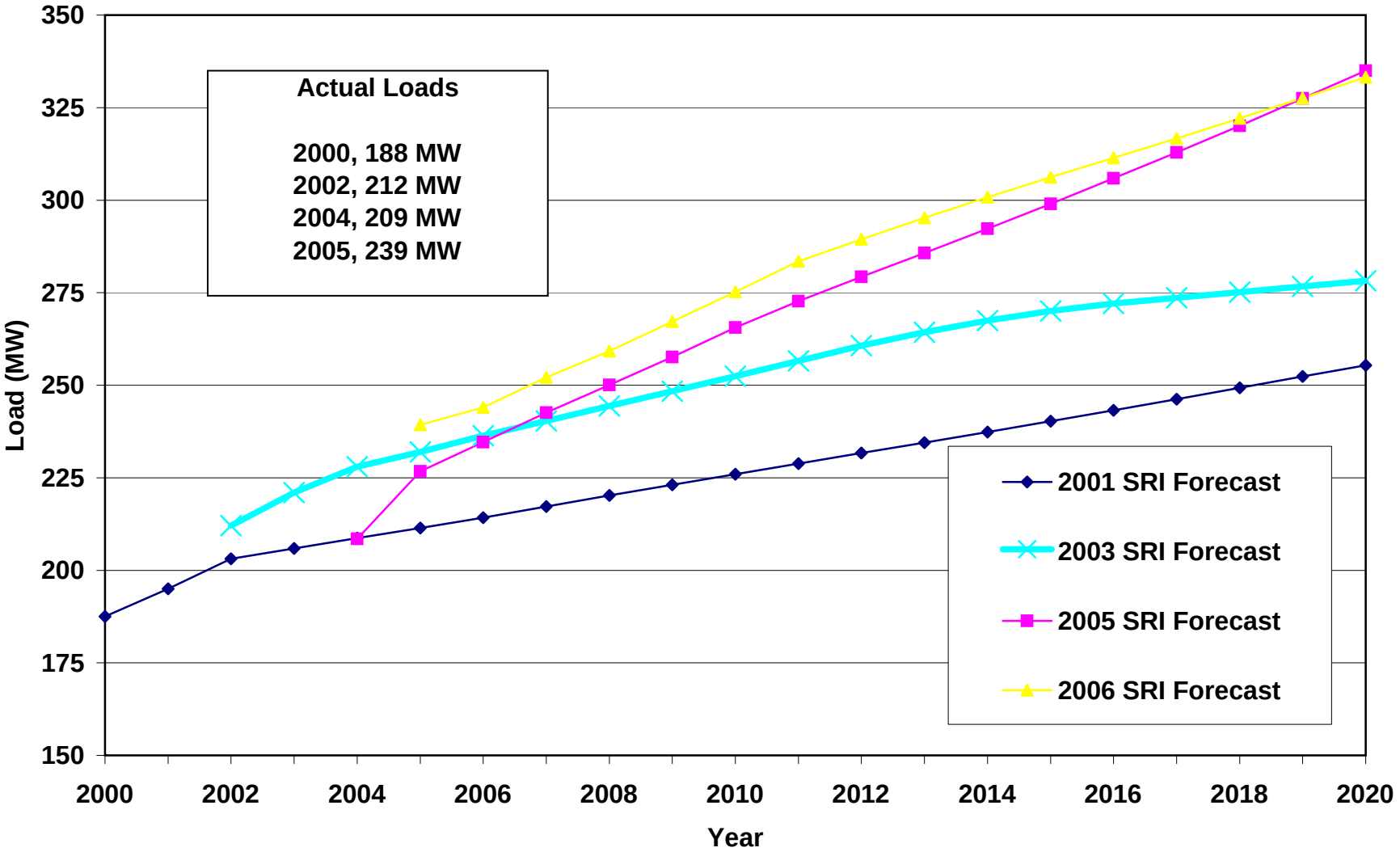
In the pre-filed testimony of Melissa Scott on page 11, reference is made to higher actual load growth and an updated load forecast. Please provide the data behind the higher actual loads and the updated load forecast.

Response

The attached chart gives the actual and projected loads for the Southern Rhode Island substations which include the Davisville, Old Baptist Road, West Kingston, Kenyon, and Wood River Substations. This chart shows the 2004 and 2005 summer actual peak loads for Southern Rhode Island and includes forecasts according to the Western Rhode Island (WRI) PSA 2005 and 2006 forecasts. The 2005 and 2006 WRI PSA forecasts are also attached.

Prepared by or under the supervision of Melissa Scott, P.E.

Southern Rhode Island Load Forecast and Actual Load



Narragansett Electric Company
RIPUC Docket No. 3732
Responses to the Division's Second Set of Data Requests
Attachment 1 to Responses to Division Data Request 2-3

PSA FORECAST 2005
NARRAGANSETT ELECTRIC COMPANY
WESTERN NECO PSA
SUMMER PEAK DEMAND WITH SPOT LOADS AT TIME OF COMPANY PEAK (MW)

		With Actual History				With Weather Adjusted History					
Year	Mo	Extreme Weather Scenario	Growth Rate	Normal Weather Scenario	Growth Rate	Extreme Weather Scenario	Growth Rate	Normal Weather Scenario	Growth Rate	Spot Loads	% of Load
1996	8	579.000	.	579.000	.	614.505	.	617.664	.	0.000	0.0%
1997	7	658.200	13.7%	658.200	13.7%	705.436	14.8%	708.624	14.7%	0.000	0.0%
1998	7	664.000	0.9%	664.000	0.9%	724.331	2.7%	727.561	2.7%	0.000	0.0%
1999	7	736.000	10.8%	736.000	10.8%	742.042	2.4%	745.311	2.4%	0.000	0.0%
2000	8	694.600	(5.6%)	694.600	(5.6%)	767.024	3.4%	770.349	3.4%	0.000	0.0%
2001	8	809.650	16.6%	809.650	16.6%	790.346	3.0%	793.722	3.0%	0.000	0.0%
2002	8	823.600	1.7%	823.600	1.7%	799.498	1.2%	802.893	1.2%	0.000	0.0%
2003	8	810.294	(1.6%)	810.294	(1.6%)	809.175	1.2%	812.592	1.2%	0.000	0.0%
2004	8	773.807	(4.5%)	773.807	(4.5%)	822.988	1.7%	826.436	1.7%	0.000	0.0%
Forecast											
2005	7	837.182	8.2%	840.661	8.6%	837.182	1.7%	840.661	1.7%	0.000	0.0%
2006	7	866.486	3.5%	869.988	3.5%	866.486	3.5%	869.988	3.5%	3.600	0.4%
2007	7	895.950	3.4%	899.470	3.4%	895.950	3.4%	899.470	3.4%	5.340	0.6%
2008	7	923.611	3.1%	927.152	3.1%	923.611	3.1%	927.152	3.1%	5.340	0.6%
2009	7	951.739	3.0%	955.301	3.0%	951.739	3.0%	955.301	3.0%	6.590	0.7%
2010	7	980.775	3.1%	984.356	3.0%	980.775	3.1%	984.356	3.0%	6.590	0.7%
2011	7	1,006.992	2.7%	1,010.592	2.7%	1,006.992	2.7%	1,010.592	2.7%	8.090	0.8%
2012	7	1,031.286	2.4%	1,034.906	2.4%	1,031.286	2.4%	1,034.906	2.4%	8.090	0.8%
2013	7	1,054.829	2.3%	1,058.468	2.3%	1,054.829	2.3%	1,058.468	2.3%	8.090	0.8%
2014	7	1,078.915	2.3%	1,082.570	2.3%	1,078.915	2.3%	1,082.570	2.3%	8.090	0.7%
2015	7	1,103.554	2.3%	1,107.225	2.3%	1,103.554	2.3%	1,107.225	2.3%	8.090	0.7%
2016	7	1,128.758	2.3%	1,132.445	2.3%	1,128.758	2.3%	1,132.445	2.3%	8.090	0.7%
2017	7	1,154.539	2.3%	1,158.232	2.3%	1,154.539	2.3%	1,158.232	2.3%	8.090	0.7%
2018	7	1,180.908	2.3%	1,184.602	2.3%	1,180.908	2.3%	1,184.602	2.3%	8.090	0.7%
2019	7	1,207.877	2.3%	1,211.573	2.3%	1,207.877	2.3%	1,211.573	2.3%	8.090	0.7%
Compound Annual Growth											
1999-2004 Five Year			1.0%		1.0%		2.1%		2.1%		
2004-2009 Five Year			4.2%		4.3%		2.9%		2.9%		
2004-2014 Ten Year			3.4%		3.4%		2.7%		2.7%		
2004-2019 Fifteen Year			3.0%		3.0%		2.6%		2.6%		

PSA FORECAST 2006
NARRAGANSETT ELECTRIC COMPANY
WESTERN NECO PSA
SUMMER PEAK DEMAND WITH SPOT LOADS AT TIME OF COMPANY PEAK
(MW)

		With Actual History				With Weather Adjusted History					
Year	Mo	Extreme Weather Scenario	Growth Rate	Normal Weather Scenario	Growth Rate	Extreme Weather Scenario	Growth Rate	Normal Weather Scenario	Growth Rate	Spot Loads	% of Load
2000	8	694.600	.	694.600	.	773.096	.	768.654	.	0.000	0.0%
2001	8	809.650	16.6%	809.650	16.6%	789.427	2.1%	784.935	2.1%	0.000	0.0%
2002	8	823.600	1.7%	823.600	1.7%	797.020	1.0%	792.506	1.0%	0.000	0.0%
2003	8	810.294	(1.6%)	810.294	(1.6%)	807.555	1.3%	803.009	1.3%	0.000	0.0%
2004	8	773.807	(4.5%)	773.807	(4.5%)	818.527	1.4%	813.947	1.4%	0.000	0.0%
2005	8	887.261	14.7%	887.261	14.7%	890.749	8.8%	886.268	8.9%	0.000	0.0%
Forecast											
2006	7	905.225	2.0%	900.718	1.5%	905.225	1.6%	900.718	1.6%	5.755	0.6%
2007	7	935.245	3.3%	930.712	3.3%	935.245	3.3%	930.712	3.3%	7.105	0.8%
2008	7	961.145	2.8%	956.581	2.8%	961.145	2.8%	956.581	2.8%	8.005	0.8%
2009	7	991.212	3.1%	986.612	3.1%	991.212	3.1%	986.612	3.1%	8.005	0.8%
2010	7	1,021.100	3.0%	1,016.467	3.0%	1,021.100	3.0%	1,016.467	3.0%	8.005	0.8%
2011	7	1,051.802	3.0%	1,047.135	3.0%	1,051.802	3.0%	1,047.135	3.0%	8.005	0.8%
2012	7	1,073.626	2.1%	1,068.925	2.1%	1,073.626	2.1%	1,068.925	2.1%	8.005	0.7%
2013	7	1,094.867	2.0%	1,090.132	2.0%	1,094.867	2.0%	1,090.132	2.0%	8.005	0.7%
2014	7	1,115.473	1.9%	1,110.707	1.9%	1,115.473	1.9%	1,110.707	1.9%	8.005	0.7%
2015	7	1,135.394	1.8%	1,130.599	1.8%	1,135.394	1.8%	1,130.599	1.8%	8.005	0.7%
2016	7	1,154.579	1.7%	1,149.756	1.7%	1,154.579	1.7%	1,149.756	1.7%	8.005	0.7%
2017	7	1,172.979	1.6%	1,168.127	1.6%	1,172.979	1.6%	1,168.127	1.6%	8.005	0.7%
2018	7	1,190.544	1.5%	1,185.663	1.5%	1,190.544	1.5%	1,185.663	1.5%	8.005	0.7%
2019	7	1,207.228	1.4%	1,202.317	1.4%	1,207.228	1.4%	1,202.317	1.4%	8.005	0.7%
2020	7	1,222.985	1.3%	1,218.044	1.3%	1,222.985	1.3%	1,218.044	1.3%	8.005	0.7%
Compound Annual Growth											
2000-2005 Five Year			5.0%		5.0%		2.9%		2.9%		
2005-2010 Five Year			2.8%		2.8%		2.8%		2.8%		
2005-2015 Ten Year			2.5%		2.5%		2.5%		2.5%		
2005-2020 Fifteen Year			2.2%		2.1%		2.1%		2.1%		

Division Data Request 2-4

Request:

In attachment 2 to National Grid's Response 1-2, it is not clear which spot loads are included in the final load forecast. Please provide some clarification and also please discuss when these spot loads are added to the basic load forecast.

Response:

In attachment 2 to National Grid's Response to 1-2, two spot loads were included in the load forecast used for the October, 2004 Distribution Study. These spot loads were 1.5 MVA for South County Commons, a residential/commercial development in South Kingstown, and 2 MVA for American Power Conversion, an industrial facility in North Kingstown. Both spot loads were added in 2004.

Prepared by and under the supervision of: Alan LaBarre, P.E.

Division Data Request 2-5

Request:

In the pre-filed testimony of Alan LaBarre on page 3, reference is made to sensitivity analyses "to determine if changes in load growth or other factors have a significant impact on plan cost." Please provide each plans costs and associated sensitivity analysis as stated in LaBarre's testimony.

Response:

The October, 2004 Distribution Study titled "South County East Area Supply and Distribution Study" developed two plans that provide new supply and distribution capacity to address both existing area problems and to provide for future needs.

Plan 1 recommends the development of a new 115/12.47 kV substation at Tower Hill Road in North Kingstown. The total estimated cost of Plan 1 presented in the Distribution Study is $7.55 million.

Plan 2 recommends the conversion of the 34.5/12.47 kV Lafayette substation to a 115/12.47 kV substation, replacing the West Kingston substation 115/34.5 kV T1 transformer, rebuilding Peacedale 34.5/12.47 kV substation, and upgrading the Wakefield 17F2 modular feeder position. The total estimated cost of Plan 2 presented in the Distribution Study is $10.75 million.

Section 8.0 of the Distribution Study details Plan 1's sensitivity to an average annual area load growth rate of 4.51%. This growth rate matches the area's historic annual growth rate experienced over the period from 1998 to 2003 and is almost twice the average annual growth rate of 2.79% assumed during the development of Plan 1. As described in Section 8.0 of the Distribution Study, should this higher growth rate be realized through the study's horizon year of 2013, additional Plan 1 infrastructure development required would be:

- A fourth distribution feeder at the new Tower Hill Road substation in 2009
- A second 115kV supply line and a second 115/12.47kV power supply transformer at the new Tower Hill Road substation in 2012.

Specific cost estimates for additional facilities other than the second 115kV supply line were not developed or presented in the report. The estimate for the second 115kV supply to Tower Hill Road substation was determined to be $775,000 including the cost of permitting and licensing activities. It is important to note that, with Plan 1, faster than anticipated general area load growth can be responded to with incremental expansion at the new Tower Hill Road substation.

The Distribution Study did not detail the sensitivity of Plan 2 to variations in predicted average annual growth rate of 2.79%. Plan 2's sensitivity to load growth assumptions was detailed in Section 5.7.2 of the Environmental Report. Although more

Division Data Request 2-5 (Continued)

detail is provided in the Environmental Report, Plan 2's sensitivity to load growth is as follows:

- Lafayette substation is further from area load centers than Tower Hill Road substation and there is greater flexibility in routing distribution feeders along local roads from the Tower Hill Road substation location.
- Incremental expansion of facilities developed in Plan 2 would ultimately increase area distribution feeder supply capacity by 47MW while Plan 1 would ultimately add 85MW of distribution feeder supply capacity.
- Plan 2 does not provide load relief to the area 34.5kV distribution supply system. Faster than predicted area load growth would require major investment in 34.5kV system load relief (such as that provided by the Tower Hill Road substation) before the Distribution Study horizon year of 2013.

From these observations, it can be concluded that Plan 2 is more sensitive to load growth rates greater than that predicted in the Distribution Study and only defers the need for Tower Hill Road substation.

Prepared by or under the supervision of: Alan LaBarre, P.E.

Division Data Request 2-6

Request:

Provide current circuit loading for study area. How does this compare to loads projected in 2003?

Response:

Distribution circuit loading for the Study Area is shown in Attachment 1. The attachment provides actual 2003 and 2005 summer peak circuit loads and the Distribution Study's originally projected 2005 summer peak circuit loads. The total undiversified peak load served by area distribution feeders in 2005 exceeded the Distribution Study prediction by approximately 2.5MVA.

Prepared by or under the supervision of: Alan LaBarre, P.E.

Attachment 1

Station	Fdrs	Actual Loads		Study Projections
		2003	2005	2005
		MVA	MVA	MVA
Bonnet	42F1	8.81	9.6	9.4
	42J1	0.72	0.8	0.8
Kenyon	68F1	11.40	8.4	8.2
	68F2	10.26	8.3	9.9
	68F4	7.65	7.1	5.9
	68F5		6.3	7.4
Lafayette	30F1	6.91	7.9	7.4
	30F2	8.99	8.2	9.6
Old Baptist	46F1	7.21	8.9	7.7
	46F2	9.81	11.7	10.5
	46F3	9.16	9.3	9.8
	46F4	9.44	11.4	10.1
Peacedale	59F1	8.29	7.9	7.4
	59F2	9.11	8.0	9.7
	59F3	10.45	10.5	9.9
	59F4	4.20	7.4	6.0
Wakefield	17F1	6.65	10.3	10.2
	17F2	5.23	5.7	5.6
	17F3	8.92	10.7	10.8
Total Load (Un-Diversified)		**143.2**	**158.5**	**156.0**

Division Data Request 2-7

Request:

As discussed in the Scott testimony, if Narragansett did not increase capacity as proposed by the project, how many hours would the transmission line exceed line capacity and by what amount?

Response:

The G-185S transmission line could potentially exceed its capacity if the 1280 transmission line comes out of service due to a fault during the summer peak load period. For the outage of the 1280 line, the G-185S line would carry the Southern Rhode Island loads which include the West Kingston, the Kenyon, and the Wood River Substations and one transformer from each of the Davisville and Old Baptist Road Substations plus the Southeast Connecticut loads which include the Mystic and the Shunock Substations. To determine how many hours the transmission line would be exposed to exceeding its capacity, the historical 2005 summer hourly loads for the above substations were obtained. These loads were totaled with the estimated losses to determine the potential loading of the line. For future loading, the latest load growth rates were used to project the 2006 and 2007 hourly loads.

Based on the described calculations, it was estimated that the section of line G-185S from the Kent County Substation to the Old Baptist Road tap would be exposed to exceeding its emergency capacity of 286 MVA by 2 MVA for two hours in the summer of 2006 and by a maximum of 10 MVA for 15 hours in the summer of 2007. The section of line G-185S from the Old Baptist Road tap to the West Kingston Substation will not be exposed to exceeding its emergency capacity of 251 MVA, but the peak loading will be within 2 MVA in the summer of 2006. In the summer of 2007, this section of line will be exposed to exceeding its emergency capacity by a maximum of 5 MVA for nine hours.

The described calculations do not take into account the impact of post contingency voltages that would be degraded as the load grows. The described calculations assume nominal voltage for the purpose of data control. The degraded voltages will result in higher losses and thus higher loading on the line. Load flow analyses confirm that the forecasted exposure will be greater due to lower post-contingency voltages.

Prepared by or under the supervision of Melissa Scott, P.E.

Division Data Request 2-8

Request:

Based on testimony, has Narragansett reviewed any DG avoided cost studies and rates? Does National Grid or Narragansett have any avoided cost studies or rates for DG applied by Narragansett or its customers for peak shaving against the CP peak and NCP peak thus reducing the need for not only utility generation additions but also either transmission additions or substation and distribution facility additions?

Response:

Narragansett is uncertain of the reference "Based on testimony" in the instant Data Request. Nonetheless, it states that it has not conducted avoided cost studies for DG. However, the Company has been investigating the use of customer-side resources to manage load on the transmission and distribution system through targeted demand response pilot projects within its service territory.

Through its filing in Docket 3680 (Summer Load Curtailment Program), approved on June 6, 2005 by the RI PUC, Narragansett is actively soliciting and paying customers in the Southern Rhode Island area to shed or shift their electric loads on peak load days. See Attachment 1. Customers choose how they comply with a request to shed or shift load. In most cases, they are electing to simply shed load; to date, none has indicated a desire to install DG.

The Summer Load Curtailment Program is effective for years 2005, 2006 and 2007. To date, of a target audience of 50 customers of 200 kWs or larger, Narragansett has enrolled 10 customers. The expected load relief the company is seeking to attain is a sustained 3 MWs.

Prepared by or under the supervision of: Alan LaBarre, P.E. and Melissa Scott, P.E.

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
PUBLIC UTILITIES COMMISSION

IN RE: NARRAGANSETT ELECTRIC COMPANY :
2005 SUMMER LOAD CURTAILMENT PROGRAM : DOCKET NO. 3680

ORDER

On May 5, 2005, Narragansett Electric Company ("Narragansett" or "Company") filed with the Commission its proposed Summer Load Curtailment Program for review. Narragansett has proposed interim improvements in the transmission system in Southern Rhode Island and is reviewing the need for longer term permanent improvements in the next few years. The Summer Load Curtailment Program is a temporary program that would use load curtailment as a means to reduce distribution capacity requirements during peak periods and thereby provide load relief to assist Narragansett in meeting customer delivery needs in the area in the unlikely event that unforeseen delays prevent the Company from finishing these transmission improvements in a timely manner.[1] The program would be in effect from the Effective Date of a Commission Order through October 1, 2008 unless terminated by either party to the enrollment agreement with thirty days notice.[2]

The Program would be designed for retail delivery customers that meet the following three criteria: (1) that are served by either the Ashaway, Hope Valley, Wakefield, Bonnet, Westerly, Kenyon, Lafayette, Woodriver and Peacedale distribution substations; (2) that have a minimum monthly billing demand of 200 kilowatts; and (3) that can curtail load by at least 50 kilowatts. Eligible customers would agree to curtail their load for a specified number of interruption hours during the day after being notified

[1] Narragansett's Filing, p. 4.
[2] Narragansett's Filing, p. 104 (Attachment 6).

by Narragansett. Compensation would be made to participants in the form of a bill credit equal to the kWh curtailment multiplied by $0.50 per kWh plus a monthly retainer credit of $3.00 per enrolled kW for the months of June, July and August. The credit would be made within 90 days of curtailment. Additionally, customers would be enrolled into the appropriate ISO-NE Annual Demand Response Program.[3]

Narragansett chose this area of the State because, in developing such a program, the Company believed that it is appropriate to choose an area which, while not in imminent danger of insufficient capacity even without the improvements for the summer of 2005, could become overloaded in the event of construction delays or extraordinary weather. Likewise, it is important to identify the amount of time the estimated capacity shortfall would exist because in a distribution capacity situation requiring many hours of interruption, customers may not be willing to enroll. Additionally, it is important to choose an area where the existing population of large accounts could provide the necessary load relief. Finally the incentive needs to be sufficient to induce customers to curtail their load. Narragansett anticipates enrolling approximately 40% of the eligible customers in the area who could shed 8% of their total load when called upon. This results in the enrollment of 20 to 25 customers and targeting 2,000 to 2,700 kilowatts of load relief if necessary.[4]

In determining the expected kWh curtailment and calculating the credit, Narragansett will follow the following process: For each hour of the interruption, and for the hour that is two hours prior to the interruption, Narragansett will obtain the customer's metered data occurring during the five business days preceding the day of the

[3] Narragansett's Filing, pp. 4-5, 104. The monthly retainer credit will be made no later than November 30 of each year and is dependent upon customer compliance with the enrollment agreement.
[4] Id. at 5.

interruption. This is the "baseline load" for these hours. Narragansett will obtain the customer's metered data for the hour that is two hours prior to the curtailment. This is the customer's actual load requirement immediately prior to the interruption. The baseline load for the hour that is two hours prior to the interruption would be compared to the customer's actual load two hours prior to the interruption. The difference between these two values, positive or negative, represents the adjustment value. This adjustment value is then added to the baseline load during the hours of interruption to determine expected load curtailment during the hours of interruption. The customer's actual metered data during each hour of interruption is obtained. The expected load requirement is compared with the actual load requirement. This determines the customer's reduction in load during the interruption. Finally, this interrupted kWh load would be multiplied by $0.50 to determine the credit applied to the customer's bill.[5]

At an open meeting on May 31, 2005, after considering the filing by Narragansett, the Commission approved Narragansett's Summer Load Curtailment Program. The Summer Load Relief Program will be an effective program during transmission upgrades in the South County area. The Commission is hopeful that the data Narragansett collects during this temporary program can lead to using targeted demand response as a tool more generally in the future. As it was required to do as a condition of the 2004 Summer Load Relief Program, Narragansett shall file a Report no later than September 1 annually for enrollment and curtailment events through July 31 of that year and another Report no

[5] Id. at 6, 104 (Attachment 5). In response to a data request in Docket No. 3608, the 2004 Summer Load Relief Program, the credits provided to participating customers that reduce their load during a call for curtailment will be recorded as a reduction to the Company's distribution revenue recorded on its books of account. There was no indication of a change to that accounting in this docket.

later than November 1 annually for enrollment and curtailment events through September 30 of that year.

Accordingly, it is hereby

(18267) ORDERED:

1. Narragansett Electric Company's proposed Summer Load Curtailment Program is hereby approved.
2. Narragansett Electric Company shall file a Report no later than September 1 annually for enrollment and curtailment events through July 31 of that year and another Report no later than November 1 annually for enrollment and curtailment events through September 30 of that year.
3. Narragansett Electric Company shall comply with all other findings and instructions contained in this Report and Order.

EFFECTIVE AT WARWICK, RHODE ISLAND PURSUANT TO AN OPEN MEETING DECISION ON MAY 31, 2005. WRITTEN ORDER ISSUED JUNE 6, 2005.

PUBLIC UTILITIES COMMISSION

_____
Elia Germani, Chairman

_____
Robert B. Holbrook, Commissioner

Division Data Request 2-9

Request:

In the LaBarre Testimony at top of page 5 he commented on the 2004 and 2005 loadings. Did the loads actually reach or exceed the criteria, if so by what amount and how did the system perform?

Response:

Facility loading information for 2004 and 2005 is shown in Attachments 1 and 2 respectively. Each attachment provides actual summer peak loads experienced on area distribution circuits along with the Distribution Study's projected peak loads for these circuits in the same year. In addition, each attachment provides details on supply facility (distribution supply line and supply transformers) contingency load levels that could have been experienced as a result of the actual summer peak loads.

From these attachments, it can be seen that in 2005 actual area peak circuit loads generally exceeded the predictions made in the Distribution Study. By the summer peak of 2005, three area circuits were loaded at or above peak loading capability. Fortunately, no customer outages were experienced as a direct result of the circuit peak loads experienced.

In addition to feeder loading concerns, actual supply facility contingency load levels in summer of 2005 would have exceeded the predictions made in the Distribution Study. Emergency response by system operators to contingency loads at the levels indicated in Attachments 1 and 2 would have included load shedding (service interruption) to prevent equipment damage or failure. Fortunately, the system contingencies described in the attachments did not occur during these 2004 and 2005 peak load periods.

Prepared by or under the supervision of: Alan LaBarre, P.E.

Attachment 1

Distribution Circuit Loading						
	Fdrs	Capacity (MVA)	Actual 2004		Study Projections 2004	
			MVA	% Cap.	MVA	% Cap.
Bonnet	42F1	11.12	7.95	71	9.2	83
	42J1	1.48	0.74	50	0.8	51
Kenyon	68F1	11.06	8.9	80	8.0	72
	68F2	11.04	6.5	59	9.7	88
	68F4	8.32	7.2	87	5.8	70
	68F5	11.45	3.1	27	7.2	63
Lafayette	30F1	7.56	6.7	88	7.2	**96**
	30F2	11.77	8.3	70	9.4	80
Old Baptist	46F1	9.76	6.8	69	7.6	77
	46F2	10.67	8.9	84	10.3	**96**
	46F3	9.76	6.9	71	9.6	**98**
	46F4	11.14	8.9	80	9.9	89
Peacedale	59F1	8.83	7.2	82	7.2	82
	59F2	9.83	7.5	76	9.5	**97**
	59F3	10.67	8.2	77	9.7	91
	59F4	8.83	7.0	79	5.9	67
Wakefield	17F1	11.12	7.9	71	10.0	90
	17F2	8.36	7.6	91	5.5	65
	17F3	12.89	9.0	70	10.6	82
Total Load (Un-Diversified)			**135.3**		**153.1**	

Distribution Supply Line Loading				Contingency Loading			
				Actual Loads		Study Projections	
Line	Contingency Capacity	Line Section	Contingency	2004		2004	
	MVA			MVA	% Cap.	MVA	% Cap.
3308	21.80	Peacedale to Wakefield	Loss of 3307 Line	16.60	76	16.10	74
84T3	21.80	Lafayette Tap to Bonnet	Loss of W. Kingston T1 or T2 or 3308 Line	15.70	72	18.90	87
3312	21.80	P34A ROW to Bostich Tap	Loss of 84T3 Line	23.50	**108**	24.00	**110**

Transformer Loading			Contingency Loading			
			Actual Loads		Study Projections	
Transformer	Contingency Capacity	Contingency	2004		2004	
	MVA		MVA	% Cap.	MVA	% Cap.
Peacedale T1	27.20	Loss of Peacedale T2 or 3307 Line	27.00	99	29.10	**107**
Peacedale T2	27.20	Loss of Peacedale T1 or 3308 Line	27.00	99	29.10	**107**
West Kingston T1	55.65	Loss of W. Kingston T2 or the 1870N Line	51.40	92	53.00	**95**

Attachment 2

Distribution Circuit Loading

	Fdrs	Capacity (MVA)	Actual 2005		Study Projections 2005	
			MVA	% Cap.	MVA	% Cap.
Bonnet	42F1	11.12	9.6	86	9.4	85
	42J1	1.48	0.8	52	0.8	52
Kenyon	68F1	11.06	8.4	76	8.2	74
	68F2	11.04	8.3	75	9.9	89
	68F4	8.32	7.1	85	5.9	71
	68F5	11.45	6.3	55	7.4	64
Lafayette	30F1	7.56	7.9	105	7.4	98
	30F2	11.77	8.2	70	9.6	81
Old Baptist	46F1	9.76	8.9	91	7.7	79
	46F2	10.67	11.7	110	10.5	98
	46F3	9.76	9.3	96	9.8	100
	46F4	11.14	11.4	102	10.1	90
Peacedale	59F1	8.83	7.9	89	7.4	83
	59F2	9.83	8.0	82	9.7	99
	59F3	10.67	10.5	98	9.9	92
	59F4	8.83	7.4	84	6.0	68
Wakefield	17F1	11.12	10.3	93	10.2	92
	17F2	8.36	5.7	68	5.6	67
	17F3	12.89	10.7	83	10.8	84
Total Load (Un-Diversified)			**158.5**		**156.0**	

Distribution Supply Line Loading

Line	Contingency Capacity	Line Section	Contingency	Contingency Loading: Actual Loads 2005		Contingency Loading: Study Projections 2005	
	MVA			MVA	% Cap.	MVA	% Cap.
3308	21.80	Peacedale to Wakefield	Loss of 3307 Line	16.40	75	16.41	75
84T3	21.80	Lafayette Tap to Bonnet	Loss of W. Kingston T1 or T2 or 3308 Line	19.60	90	19.27	88
3312	21.80	P34A ROW to Bostich Tap	Loss of 84T3 Line	26.88	123	24.44	112

Transformer Loading

Transformer	Contingency Capacity	Contingency	Contingency Loading: Actual Loads 2005		Contingency Loading: Study Projections 2005	
	MVA		MVA	% Cap.	MVA	% Cap.
Peacedale T1	27.20	Loss of Peacedale T2 or 3307 Line	30.40	112	28.90	106
Peacedale T2	27.20	Loss of Peacedale T1 or 3308 Line	30.40	112	28.90	106
West Kingston T1	55.65	Loss of W. Kingston T2 or the 1870N Line	56.90	102	54.03	97

Division Data Request 2-10

Request:

How many mobile transformers are available to meet a transformer failure and how long would it take to have one in service during the summer peak?

Response:

Attachment 1 provides information on the 16 mobile transformers/substations most readily available to respond to contingencies in the entire New England service territory. Suitability for use in response to system contingencies depends on the unit's size, primary voltage, secondary voltage, etc. Attachment 1 indicates which mobile units would be suitable for service at the substations within the electrical scope of the October, 2004 Distribution Study titled "South County East Area Supply and Distribution Study". The typical assumption made regarding mobile transformer installation time is 24 hours.

Prepared by or under the supervision of: Alan LaBarre, P.E.

Attachment 1

ID	Type	Description	Substation*
9879	MOBILE SUB	30MVA LTC MOL 69D X 34.5D - 13.2Y kV	Peacedale
9734	MOBILE SUB	7.5MVA WEST 34D X 23D - 11.5D X 12.4Y - 8.3Y X 4.8D X 4.1Y X 2.4D	Bonnet, Lafayette, Wakefield
9890	MOBILE SUB	25MVA LTC MOL 23Y/D - 13.8Y kV	N/A
193	MOBILE SUB	7.5MVA WEST 24 X 14.4D kV - 13.2Y - 8.3Y X 4.8D X 4.16Y X 2.4D	N/A
5264	MOBILE SUB	5MVA WEST 24D X 14.4D - 8.3Y X 4.8D X 4.1Y X 2.4D - 600D X 480D	N/A
5266	MOBILE SUB	5MVA Auto GE 24Y kV - 13.2Y X 13.2ZZ kV	N/A
5616	MOBILE SUB	5MVA LTC 13800/22710GRY/13110x23000-2400/4160Y/2400x13800Y/7965	N/A
5806	MOBILE SUB	5MVA 14200/24600Y-2520/4360Y/2520-600	N/A
6845	MOBILE SUB	3.75MVA 13800-4160Y/2400	N/A
6846	MOBILE SUB	5MVA 13800-4360Y/2520	N/A
4230	MOBILE TRF	50MVA Auto GE 115Y kV - 69Y - 24D/Y X 13.8D kV 35'L X 10'W	N/A
7661	MOBILE TRF	50MVA TRF DS 115Y/D kV - 36Y X 24Y kV 48'L X 8.5'W X 13.5'H	West Kingston
7704	MOBILE TRF	40MVA TRF GE 115D kV - 14.4Y/8.3 X 24Y/13.86 kV	N/A
7131B	MOBILE TRF	25MVA LTC WE 115D kV - 13.8Y X 4.16Y kV New Trailer No 1243	Kenyon, Old Baptist
1754	MOBILE TRF	8MVA GE 66Y/D kV - 24.6Y/D X 14.2D/Y kV	N/A
1755	MOBILE TRF	8MVA GE 66Y/D kV - 24.6Y/D X 14.2D/Y kV	N/A

*** Substations in the Study Area where mobile transformer could be used.**

Division Data Request 2-11

Request:

As referenced in the McIntyre testimony, did the project alternative cost comparisons include design revised proposal to use metal clad substation?

Response:

The full build out cost of the metal clad substation is comparable to the cost of an open air substation. The metal clad cost for the initial installation of one transformer and three feeders is higher than the open air design because of the building. However it is less expensive to install future feeder positions to the metal clad design than the open air design so the ultimate costs are essentially the same.

Prepared by or under the supervision of: Daniel McIntyre, P.E.

Division Data Request 2-12

Request:

Was the secondary containment cost and ground water monitoring cost included in the study grade estimates? Please provide detail cost estimates of grading, landscaping, oil containment facilities, monitoring wells, and any other environmental driven facilities.

Response:

The secondary containment costs are included in all our substation estimates. Groundwater monitoring is unique to North Kingstown. The estimated cost of the well installation is provided below. The cost is small enough so as not to change the overall substation cost estimate. Ongoing groundwater testing is not included in the cost estimate since this would be a substation operation and maintenance cost.

Site Preparation (grading, fencing, pavement)	$300,000
Secondary Containment	$ 40,000
Landscaping	$ 50,000
Monitoring Wells	$ 6,000
Total Estimate	$396,000

Prepared by or under the supervision of: Daniel McIntyre, P.E.

Division Data Request 2-13

Request:

What are the transmission line design temperatures now and proposed?

Response:

National Grid designs it transmission lines to maintain safe clearances while operating at specified Maximum Conductor Operating Temperatures (MCOTs). The MCOT of a particular transmission line is dependent on the conductor type as well as the mode of operation. The design temperatures for the existing and proposed conductor types of the transmission lines of the Southern Rhode Island Project are described in the table below:

Conductor Type	**Normal**	**Emergency(LongTerm & Short Term)**
AAC	100°C	100°C
ACSR	105°C	140°C

The existing and proposed conductor types for the transmission lines which are part of the Southern Rhode Island Transmission Project are as follows:

Transmission Line	**Existing Conductor**	**Proposed Conductor**
L-190 Line Kent County to Old Baptist Road Tap	795 kcm ACSR "Condor" 795 kcm AAC "Arbutus"	1590 kcm ACSR "Falcon" 1113 kcm ACSR "Finch"
L-190 Line Extension Old Baptist Road Tap to West Kingston	N/A	795 kcm ACSR "Condor"
1870N Line West Kingston to Kenyon	795 kcm AAC "Arbutus"	1113 kcm ACSR "Finch"
1870 Line Kenyon to Wood River	795 kcm AAC "Arbutus"	795 kcm ACSR "Condor"

Prepared by or under the supervision of: David J. Beron, P.E. and Melissa Scott, P.E.

Division Data Request 2-14

Request:

What are the cost projections for the Connecticut 1280 Line upgrade and when will the upgrades be needed?

Response:

According to ISO-NE's Regional System Plan 2005 (RSP05), Northeast Utilities does not have any plans to upgrade the 1280 line.

Prepared by or under the supervision of: Melissa Scott, P.E.

Division Data Request 2-15

Request:

On page 10 of the Scott Testimony a statement is made that work has been done to provide higher loading capability in the short term. What is the term and how much additional load was determined?

Response:

The higher loading capability is expected to cover the period up until the summer of 2007. The emergency capacity of the G-185S line from Old Baptist Road tap to West Kingston Substation was increased from 218 MVA to 251 MVA.

Prepared by or under the supervision of: Melissa Scott, P.E.

Division Data Request 2-16

Request:

Was conversion of Peacedale to 115 kV and expansion of Bonnet considered as an alternative?

Response:

No. The conversion of Peacedale to 115 kV and the expansion of Bonnet were not considered viable alternatives primarily due to proximity of these stations to 115 kV sources (Peacedale ~ 3.5 miles and Bonnet ~ 12 miles) and the fact that these sites are too small to accommodate the required 115/12.47kV substation.

Prepared by or under the supervision of: Alan LaBarre, P.E.

Division Data Request 2-17

Request:

How were the revised reliability numbers in Table 4 of Appendix B derived?

Response:

The predicted MWH exposure levels in Table 4 of the Distribution Study in Appendix B of the Environmental Report were derived by first developing the routing of all existing and proposed area distribution feeders after the installation of the new Tower Hill Road substation. Worst case single contingencies on these area circuits were then considered. The calculated MWH exposure levels assume peak feeder loading, switching flexibility, and spare capacity that will exist after the three new area distribution feeders are added at the Tower Hill Road substation.

Prepared by or under the supervision of: Alan LaBarre, P.E.