

## **Appendix B**

# **Data Assumptions for Modeling the New England Electricity Market**

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**June 11, 1997**

## Generation and Capacity Ratings

Generating capacity data was obtained from EIA Form 860 and the April 1, 1997 *NEPOOL Forecast Report of Capacity, Energy, Loads and Transmission, 1997-2006* (“CELT Report”). The total amount of generating capacity in NEPOOL was found to be 24,420 MW. This includes Maine Yankee and the three Millstone units, but not Haddam Neck. It also includes non-utility generation. Capacity owned by more than one utility was allocated to the owners.

## Fuel Costs

The following fuel costs were used in the base case:

Coal	\$1.69/MMBtu
Natural Gas	\$1.99/MMBtu
No. 6 Oil	\$2.58/MMBtu
No. 2 Oil	\$4.11/MMBtu
Jet Fuel	\$4.21/MMBtu
Wood	\$1.65/MMBtu
Nuclear	\$0.52/MMBtu

The first three are from Edison Electric Institute’s *Statistical Yearbook of the Electric Utility Industry 1995*. The others are from the *1996 Summary of the Generation Task Force Long-Range Study Assumptions* by the NEPOOL Generation Task Force and NEPLAN Staff, June, 1996 (“GTF”).

## Variable O&M Costs

Variable O&M costs for steam units were assumed to be \$1/MWH. Variable O&M costs for peakers were assumed to be \$4/MWH. Variable O&M costs for nuclear and hydro were assumed to be zero. These are round numbers, selected based upon inspection of NEPOOL’s June 1995 *GTF Assumptions Book* and EPRI’s *Technical Assessment Guide* (1993).

## Pumped Storage Cost

Pumped storage facility operation was modeled as a simple generator, without representing the off-peak pumping or the opportunities for optimal scheduling. The running cost of pumped storage hydro was estimated based upon 2 cent/kWh pumping energy at an efficiency of 76 percent:

$$2.0 / 0.76 = 2.6 \text{ cents/kWh}$$

## Purchases

Inputs representing purchased power for neighboring regions over interties were based upon: (1) Dr. Gilbert's testimony and exhibits submitted by Massachusetts Electric Company in Massachusetts Department of Public Utilities Docket D.P.U. 96-25, February 16, 1996; (2) New England Power Pool's FERC Form No. 715, April 1, 1994; (3) *Review of NEPOOL's Reliance on Outside Assistance*, February, 1994; (4) the CELT Report, April 1, 1997; (5) and NEPOOL's "Media Briefing Package," April 30, 1997. In the base case, we included 1,456 MW of Hydro Quebec, and 1,700 MW of other intertie.

This HQ capacity is allocated to New England companies as follows, based upon Dr. Gilbert's testimony:

BECO	137 MW
CMP	87 MW
NEP	224 MW
NU	408 MW
UI	67 MW
Others	<u>533 MW</u>
Total	1456 MW

The HQ capacity was priced at 2.8 cents/kWh, and the other purchased power was priced in four blocks ranging from 2.6 cents/kWh to 5.6 cents/kWh. These are based upon prices offered by HQ, inspection of marginal energy cost data for New York and New England, and consideration of plant outages on marginal costs.

## Outage Rates

The following outage rates were assumed:

Nuclear	11%
Hydro	2%
Fossil	8%
Pumped Storage Hydro	5%
Tie lines	0%

These are based upon information in the NEPOOL's GTF Reports, and data from NERC's *Generation Availability Data System*.

## Customer Loads

Hourly load data for 1995 was scaled to match the peak hour demand of 21,390 MW forecast by NEPOOL for 1997 (CELT Report, page 1).

### **Must Run Units**

Hydro, nuclear and NUGs (thermal and hydro) were assumed to be “must run.” It was assumed that the companies entitled to this output could not manipulate the availability or the bid price as part of a strategy to maximize profits, but that the companies would obtain higher revenues from these units as a result of elevated market clearing prices.