NORTHERN UTILITIES, INC.

LONG RANGE INTEGRATED FORECAST AND SYSTEM GAS SUPPLY RESOURCE PLAN FOR THE MAINE DIVISION AND THE NEW HAMPSHIRE DIVISION

As submitted jointly to

The Public Utilities Commission of the State of Maine

The Public Utilities Commission of the State of New Hampshire

For the Purposes of Joint Hearing

June 30, 2006

are available for the period 1994-2005. The minimum and maximum 5-year compound average growth rates are used for all concepts except for residential volume per customer, which is allowed to remain constant in the high case. The high and low cases are depicted graphically in Schedule III-7, entitled Alternate Cases.

B. Planning Standards and Forecast under Design Conditions

Northern's primary planning standards for its combined system are weather-related. In particular, Northern plans to meet its customers' needs for both Divisions, jointly, under design weather conditions. Design weather planning standards are established through statistical methods using a weather database of division-specific EDD purchased from Meteorlogix, a weather consulting firm. This database contains daily EDD beginning January 1967 through 2005.

As a normal year condition, Northern calculates the mean number of EDD in each month and for each of its divisions using the 35-year period from November 1967 through December 2005. The mean monthly EDD are summed by Division to arrive at the normal year EDD. The Maine Commission and the New Hampshire Commission have approved the use of shorter periods for determining normal weather for non-resource planning purposes, such as for the design of Northern's rates.

Northern has updated its design planning standards for design day and design winter to incorporate a 1-in-33 probability of occurrence. These reflect a small change from the 1-in-25 year standards that were used previously. Northern believes that the revised design criteria are appropriate in view of the limited pipeline interconnections serving the Company and the overall lack of liquidity in the region. The 1-in-33 standard is also more consistent with those used by other LDCs in the region. Finally, the change is supported by actual peak

weather conditions that have been experienced in recent periods. In Northern's New Hampshire Division, the actual peak day exceeded the 1-in-33 year standard as recently as January 2004.

Northern uses the t-distribution to determine the design EDD at the 1-in-33 year probability of occurrence. This calculation is restricted to the January degree days reflected in the weather database. The result is 83 EDD for the Maine Division and 82 EDD for the New Hampshire Division meaning that the probability that the actual EDD will meet or exceed these levels is once every 33 years or 3.3 percent.

Northern calculates the design day requirements of its customers based on the maximum observed baseload during the summer months plus the heating use calculated at the design degree day levels. The Company uses the maximum level of base load that was actually observed because customers have already demonstrated the capability to pull this base load volume and could do so again on a design day.

The design day heating use model uses linear regression to estimate a factor for volume per EDD over the course of the previous year, in this case April 1, 2005 – March 31, 2006. Daily data is regressed against EDD for all days having more than 5 EDD and an indicator variable for weekends. The models for both of Northern's divisions have R-Squares in excess of .96. The strong relationship for values in excess of 5 EDD is clearly illustrated in Schedule III-8, entitled Design Day Model and Graph.

1. Summary of Design Day Customer Demand

The design day customer demand forecast follows the growth path indicated in the forecast of annual volume. Capacity-exempt status is assigned to 50 percent of transportation design-day volume for Northern's Maine Division. Capacity-exempt status in Northern's

New Hampshire Division is set at the level measured in the most recent twelve months. The total design day load for sales and transportation customers is detailed along with forecasted capacity- and non-capacity-exempt status in Schedule III-9, entitled Design Day Forecast.

2. Design Winter and Cold Snap EDD

In order to develop design winter conditions, Northern uses a similar methodology as used to calculate the design day. For each month of the winter season November through March, Northern calculates the degree days at a 1-in-33 year probability of occurrence using the t-distribution. Schedule III-10, entitled Design Winter, provides the monthly EDD values for each Division. As indicated in this schedule, the total design winter EDD are 11-12% over average normal levels.

Northern also determines requirements under a cold snap period to test the adequacy of its combined portfolio to meet an extended period of cold weather. The Company cold snap is based on actual EDD experienced in each division from January 7 through January 30, 2004. This was the coldest 24-day period from 1967-2005.

3. Demand Side Management Impacts

On March 10, 2006, Northern filed with the New Hampshire Commission an energy efficiency program proposal covering the period May 1, 2006 through April 30, 2009, which was docketed DG 06-036. On April 21, 2006, a settlement was filed and on June 8, 2006, the New Hampshire Commission issued Order No. 24,630 approving the settlement and implementing a three-year energy efficiency program.

The Company's approved three-year energy efficiency program plan assumes that under normal weather conditions for each year that the program is offered, 214,619 therms savings will be achieved across all customer classes in the New Hampshire Division.

Assuming 7,219 normal annual EDDs in the New Hampshire Division, this annual therm savings translates into 29.7 therms saved per EDD.

$$\frac{214{,}619 therms}{7{,}219 EDD} = 29.7\ {}^{Therms}/_{EDD} = 2.97\ {}^{Dth}/_{EDD}$$

Accordingly, the Company projects the following energy conservation impact over the next five years.

2006/07	2.97 Dth/EDD; cumulative = 2.97/EDD
2007/08	2.97 Dth/EDD; cumulative = 5.94/EDD
2008/09	2.97 Dth/EDD; cumulative = 8.91/EDD
2009/10	2.97 Dth/EDD; cumulative = 11.88/EDD
2010/11	2.97 Dth/EDD; cumulative = 14.85/EDD

In 2005, the Maine Legislature enacted 35-A M.R.S.A. §4711, directing the Maine Commission to adopt rules requiring the implementation of conservation programs by LDCs that serve more than 5,000 customers. On September 12, 2005, Northern filed its first set of interim energy efficiency programs in Docket No. 2005-466. On September 21, 2005, the Maine Commission issued an Order approving early implementation of Northern's interim programs for the 2005-2006 heating season: a Rebate Program to offset the incremental costs of installing high efficiency natural gas fired equipment, and weatherization and other services to assist low-income customers. On March 13, 2006, the Maine Commission issued a Notice of Rulemaking (NOR) in Docket No. 2006-129, proposing a new Chapter 480 to govern implementation of cost effective conservation and efficiency programs offered by natural gas utilities. Northern filed comments on May 1, 2006, and looks forward to the final promulgation of permanent conservation program rules for implementation later this year.

From its experience in other jurisdictions, there will be a lag from the time that fully developed programs are available to customers and the program's impact on design day

throughput. Considering such a lag, Northern forecast the impact of future energy efficiency programs in its Maine Division with respect to reducing design day throughput.

The Company expects that there will be no measurable impact in the 2006/07 heating season. In subsequent years, the impact will grow until it reaches the same level of impact as in its New Hampshire Division. Using the same approach as that for the New Hampshire Division, the Company has developed the following estimate of potential impact per EDD for its Maine Division:

2006/07	0.00 Dth/EDD; cumulative = 0.00/EDD
2007/08	0.50 Dth/EDD; cumulative = 0.50/EDD
2008/09	1.06 Dth/EDD; cumulative = 1.56/EDD
2009/10	2.29 Dth/EDD; cumulative = 3.85/EDD
2010/11	2.97 Dth/EDD; cumulative = 6.82/EDD

Assuming Design Day conditions of 82 effective degree days in Northern's New Hampshire Division and 83 effective degree days in Northern's Maine Division, the Company projects the cumulative impact of energy efficiency programs over the next five years to be the following:

Heating Season	**Dth reduction to estimated customer demand on design day**
2006/07	(2.97x82)+(0.00x83) = 244
2007/08	(5.94x82)+(0.50x83) = 529
2008/09	(8.91x82)+(1.06x83) = 819
2009/10	(11.88x82)+(3.85x83) = 1,294
2010/11	(14.85x82)+(6.82x83) = 1,784

Northern has adjusted downward its forecasted customer loads in this IRP by the above DSM effects.