

Northfield 2008 Resource Analysis Report

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1) Executive Summary

The Village of Northfield Electric Department (Northfield) submits the following report to the Vermont Public Service Board and the Department of Public Service in compliance with Rule 5.206 (B), *Reporting Power Supply Transactions*. The information contained within this report highlights and identifies the steps being taken by Northfield to maintain its responsibility for providing adequate and cost effective power supply for its system.

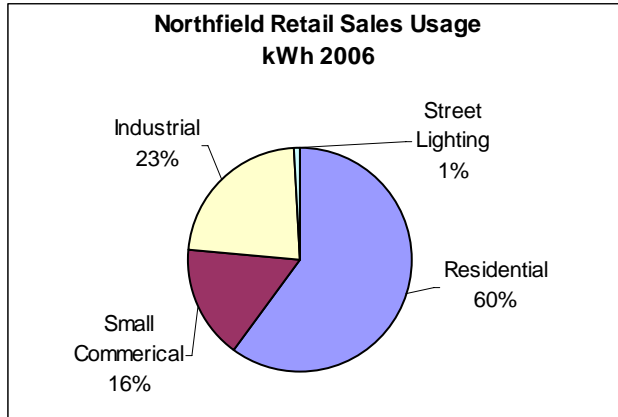
Some important topics covered in this report are: A new purchasing structure Northfield is currently participating in which is administered through the Vermont Public Power Supply Authority (VPPSA). It is a plan to purchase power in the future using a systematic purchasing technique. This plan is described more thoroughly in section 8. Northfield has also voted to be part of the new VPPSA Peaker Project (Project 10) estimated (subject to all regulatory and permitting approvals) to begin operation in 2009, for both capacity and peak day energy coverage.

Northfield will continue to rely on VPPSA for most of their interactions with the ISO-NE markets; new generation sources are being explored, such as the peaking generation plant already mentioned, a biomass plant, and discussions with Hydro Quebec for a new power contract.

The report and information contained herein is subject to the constraints of the marketplace and to circumstances, changes and events beyond the control of the utility.

2) Utility Information

Northfield provided 28,472,344 kWh to retail customers in 2006. The following chart categorizes Northfield's retail sales by customer class.



The System Energy Usage table provides Northfield’s percent change in load from 2004 through 2007. Positive means load growth while negative means load decline.

System Energy Usage		
Year	% Change	Cumulative Change
04-05	2.04%	2.04%
05-06	0.53%	2.58%
06-07	2.18%	4.81%

The table below describes Northfield’s peak load, date, and time of their peak for 2007. Also, it provides the annual energy consumption at the system boundary (kWh) for 2007. The load factor represents the efficiency with which capacity is used by customers (calculated as average hourly load divided by the peak hourly load).

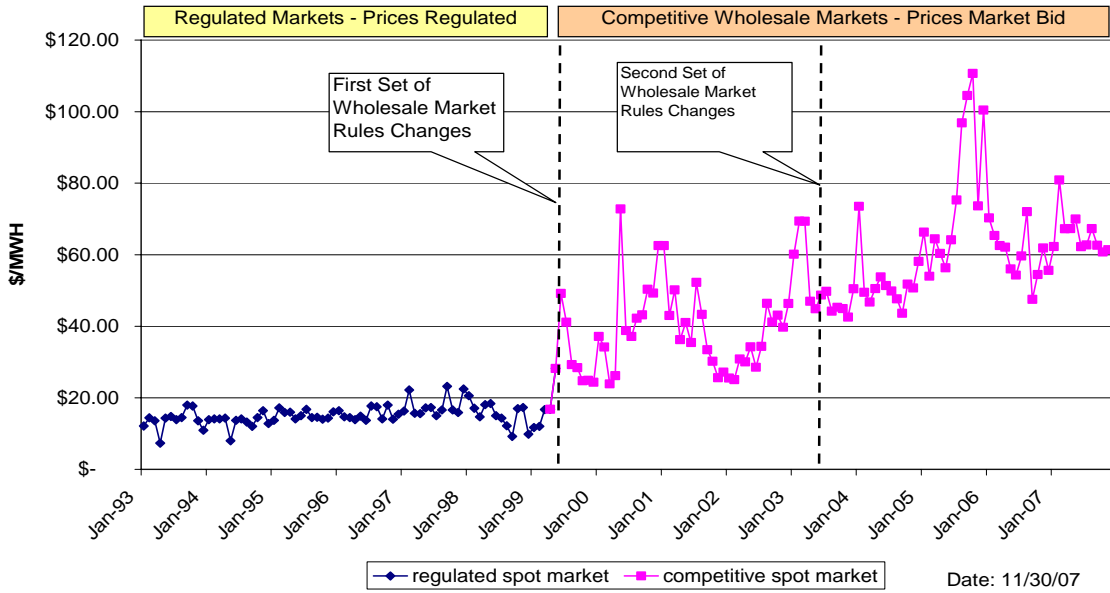
2007 Peak Load	2007 Peak Date/Time	2007 Pulse kWh	2007 Load Factor
5,069.0	12/13/07 6:00 PM	29,989,970	67.54%

3) Market Conditions and New England price for electricity

Wholesale Markets

Wholesale electricity costs have become extremely volatile with the advent of restructured wholesale energy markets. The first significant change to market rules began in May 1999 with the advent of the “First Effective Date” and the implementation of bidding generation resources. Implementation of “Standard Market Design” began in March 2003. The following chart displays monthly average energy values with significant market rule changes identified by dashed lines. The volatility and rise in wholesale energy costs has created instability and lack of predictability in power portfolios and power costs.

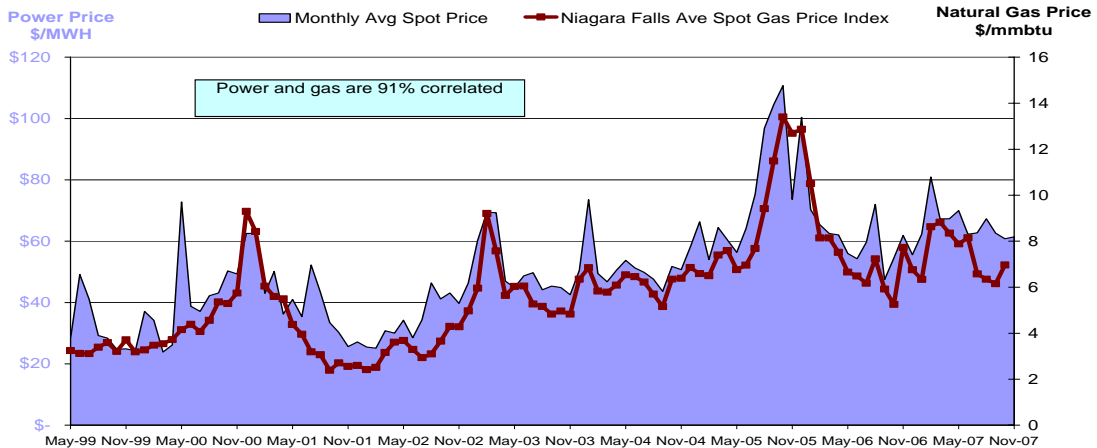
Monthly Average New England Wholesale Price for Electricity Jan '93 - Nov '07



The next chart shows the relationship between spot market electricity prices in New England and wholesale natural gas prices. As can be seen there is a 91% correlation between electricity and natural gas prices. Therefore, power planners need to look at underlying fuels as well as electricity markets, of which natural gas has become a significant cost driver. In addition, the graph shows that in the roughly eight years covered, natural gas prices have increased by approximately 225%.

New England Spot Electricity Market vs Niagara Falls Ave Spot Gas Price Index

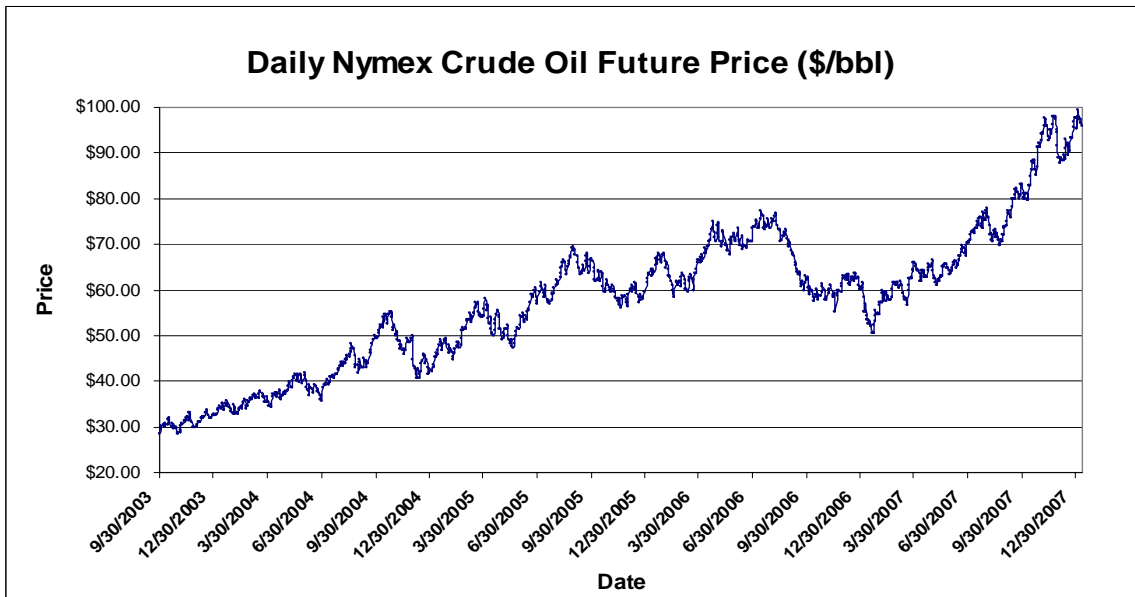
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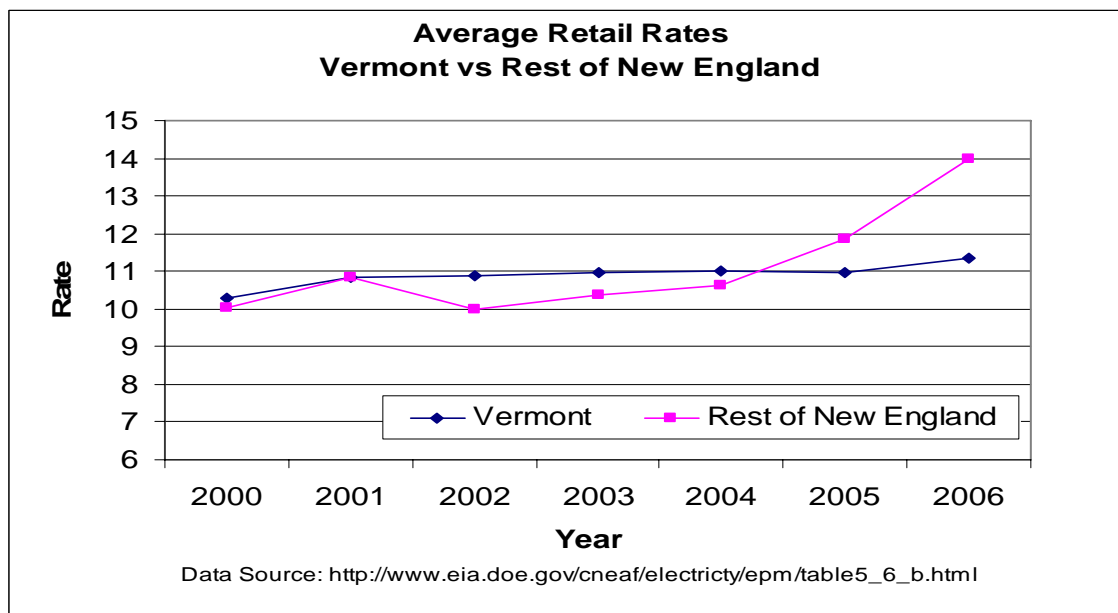
Data Source:
 Natural Gas: Natural Gas Exchange (www.NGX.com)
 New England Spot Electricity Market: www.iso-ne.com
 Gas Futures: www.barrons.com plus transportation costs

New England converted to SMD 3/1/2003. Monthly energy prices from 3/1/2003 to date represents Vermont Zonal average in the Real Time energy market

Crude oil has averaged \$72.31/barrel in 2007 (as compared to a 2006 average of \$66.17/ Barrel) and has peaked at \$97.90/barrel at the end of 2007. Oil has increased in price even faster than natural gas with the last four years showing more than a 300% increase in the price per barrel.

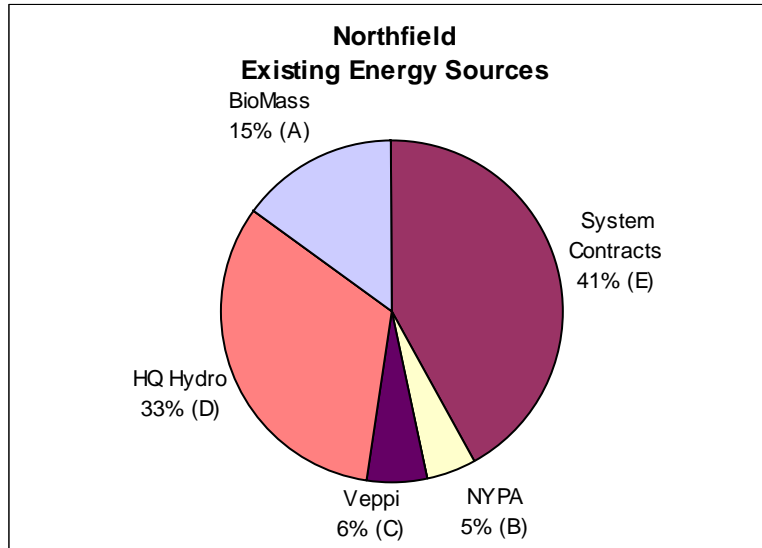


The Rate Chart below expresses how the average retail rates in Vermont have become lower than the average retail rates of the rest of New England since 2004. One of the reasons for the growing gap in recent years is Vermont’s decision not to de-regulate its electric industry. Customers in Vermont receive significant portions of their power from long-term stably priced contracts whereas customers in the rest of New England are much more exposed to market price changes.



4) Existing Resources

The pie chart below displays Northfield's 2008 projected resource mix without new purchases/sales. Each category is a percent of their resource portfolio. These resources are expected to meet 96% of Northfield's forecast load for 2008 with the balance being purchased in the spot market.



Each resource is further described in the following sections. The letter next to the resource in the chart corresponds to the written section below.

McNeil- (Resource A)

The McNeil wood-fired generating facility is located in Burlington, Vermont. The facility has a maximum generating capability of 53,000 kW. Northfield's entitlement to McNeil is provided through an agreement with the Vermont Public Power Supply Authority, and is expected to be available through the 20 year planning period. Northfield expects the generation to be mostly composed of wood, but gas and oil can be used to fuel the unit if pricing is appropriately set and available.

New York Power Authority – (Resource B)

The New York Power Authority provides inexpensive, hydroelectric power to publicly owned utilities in Vermont under two contracts. The first contract is a 1,000 kW entitlement to the Robert Moses Project (a.k.a. "St. Lawrence") located in Massena, New York. The second contract, known as the "Niagara Contract," is for a 14,300 kW entitlement to the Niagara Project located at Niagara Falls, New York. The contract for St. Lawrence has been extended through April 30, 2017. The Niagara Contract has been extended through September 1, 2025. While the current St. Lawrence and Niagara contracts have expiration dates, VPPSA has assumed the NYPA power block will be maintained through the duration of the 20 year planning period, due to the unique nature of the NYPA power block structure. The energy costs for NYPA in 2008 is \$5.07 \$/mWh.

Vermont Electric Power Producers, Inc. - (Resource C)

Northfield receives power from several independent power projects through a state mandated arrangement administered by the Rule 4.100 appointed purchasing agent. There are currently twenty IPP generation resources in Vermont of which nineteen are hydro and one is wood fired. Vermont Electric Power Producers, Inc. assigns power to all Vermont utilities under Vermont Public Service Board (“PSB”) Rule 4.100 based on a pro-rata share of electric sales (updated annually).

Contracts between VEPPI and its constituent power producers begin to terminate in 2008 while the last VEPPI contract is scheduled to end in 2020. The costs for VEPPI in 2008 are broken up between Ryegate and the Hydro units. Ryegate energy costs in 2008 are projected to be \$173.74 \$/mWh and the Hydro energy costs in 2008 are projected to be \$147.16 \$/mWh

Hydro-Quebec/Vermont Joint Owners’ (VJO) Contract – (Resource D)

Northfield’s entitlement in HQ/VJO contract is 1,512 kW. More specifically, Northfield’s entitlements are summarized as follows:

HQ Schedule	Entitlement (kW)	End Date	Energy (\$/mWh)	Capacity (\$kW month)
B	1,198	2015	\$31.41	\$20.69
C1	246	2012	\$31.41	\$16.90
C2	66	2012	\$31.41	\$16.90
C3	2	2015	\$31.41	\$20.54

HQ’s annual energy deliveries are set at a 75% capacity factor starting in the contract year November 1, 2007 and will stay at that level for the remainder of the contract. Under the terms of the contract, monthly capacity factors can range from 25% to 95%. However, in order to comply with ISO New England, Inc.’s Standard Market Design rules, the monthly capacity factor, for practical purposes, cannot be less than 47%, on average.

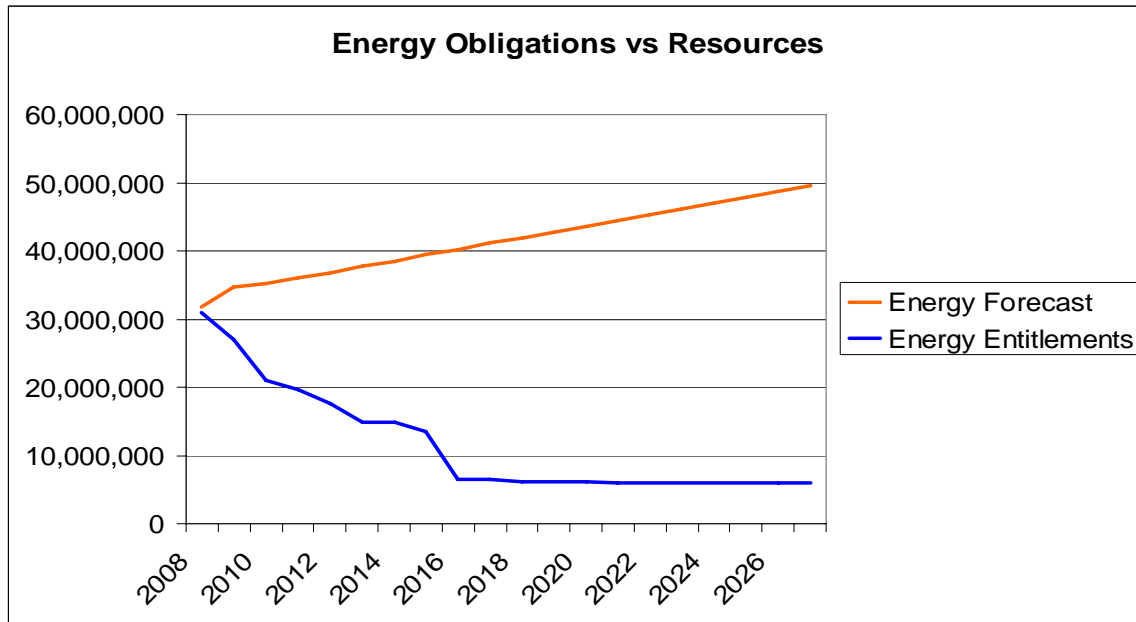
Market Purchases – (Resource E)

Northfield meets the remainder of its load obligations through the ISO-NE and bilateral transactions. Northfield automatically participates in the wholesale markets through ISO-NE settlement. Market purchases range in size, duration, and provider. If longer than five years, they would require Vermont Public Service Board approval. At this time all market purchase contracts have been less than five years in duration.

5) Energy Position

Energy

Presented below is a graph of projected energy available from existing contracts and resources from 2008 through 2028. On the same graph is a forecast of the load the utility expects to serve over the same 20 year period. Energy is the largest component of utility costs at this time.



Major Energy Milestones

- Market Contracts expiring in the first one to five years
- HQ C1 and HQ C2 expiring in 2012
- HQ B and HQ C3 expiring in 2015

Notice in the graph the growing gap between Energy Forecast and Energy Entitlements. The Energy Entitlement line represents only those committed resources as of the time of the report. As supply falls below load, Northfield will acquire new resources that meet the utility's decision making criteria. It should be noted that a growing gap between these two lines is a normal part of the utility business with expirations of existing contracts occurring over time and a continuing search for economical ways to provide energy. Northfield continues to look for opportunities to address energy needs resulting from future contract expirations.

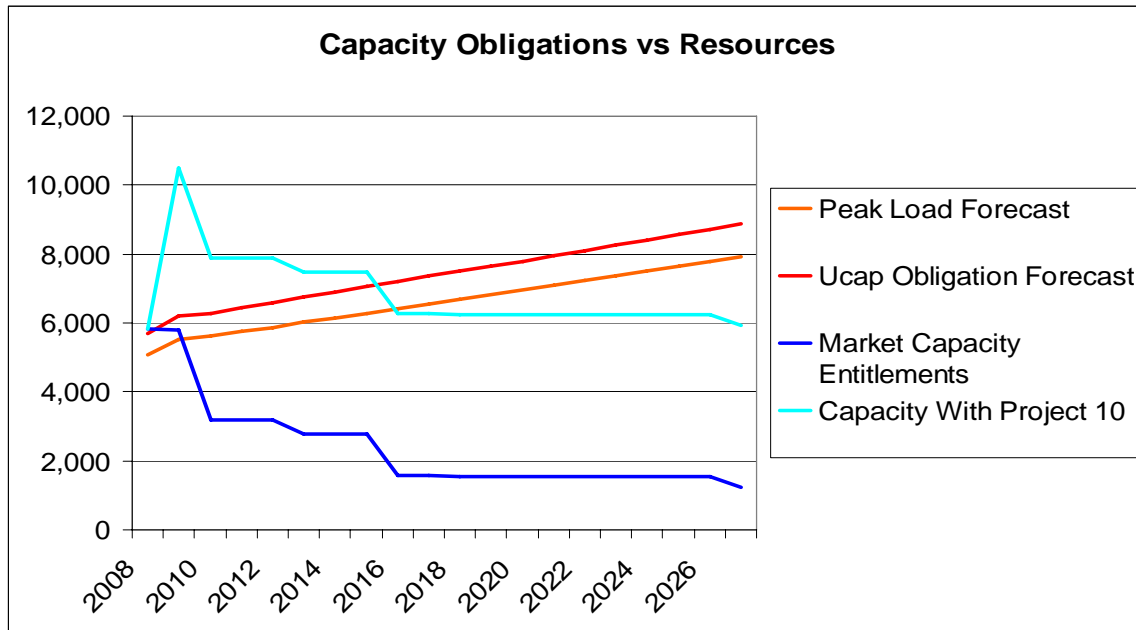
Northfield continues to participate in VPPSA's Central Dispatch activities. This agreement places Northfield's assets in a pool with the assets of other CDA signatories under VPPSA. This allows VPPSA to administer Northfield's loads in the New England power markets operated by ISO-NE.

6) Capacity Position

Capacity

Capacity is the second largest dimension in utility power costs and represents the ability to generate electricity when needed (as opposed to energy which is the actual energy generated). In broad terms, capacity is important in providing reliability and avoiding price spikes during peak demand periods.

The graph below shows the utility's capacity available from existing resources as compared to its projected capacity need. Also included is an estimate of the utility's resources if the proposed peaking facility (Project 10) comes on line in 2009 (see executive summary).



Major Capacity Milestones

- Market Capacity Contract expiring in 2009 – 2,500 kW
- Potential Addition of Project 10 in 2009 – 4,701 kW
- HQ Schedules C1 and C2 expiring in 2012 – 312 kW
- HQ Schedule B expiring in 2015 – 1,198 kW

FCM

Forward Capacity Market is a new market for capacity that will take affect in June 2010. The first auction is scheduled to take place on February 4, 2008. The results from this auction will set a new price for capacity. Northfield's generation will be paid at the auction price and conversely Northfield will be charged based on its load obligation relative to New England's peak. As of today the price of capacity has been set via FERC approved agreement and will range from \$3.05 per kW per month in December 2006 to \$4.10 by May 2010. After that time the auction process will set the price.

Northfield has voted to participate in a proposed VPPSA peaking generating facility (Project 10) which would, if approved, come on line in 2009. This project is forecasted to come on line at prices

significantly below current market expectations. Northfield's capacity graph shows Northfield's capacity obligations and resources with and without the proposed peaking project.

7) Future Long-Term Resources

Future Resources

VPPSA assists Northfield in seeking resources to replace existing long-term resources. At this time negotiations are under way for the purchase of the output of several power projects that are in the planning and development stages as well as for other long term contractual opportunities.

Project 10

Northfield has held a municipal vote to authorize the execution of a Power Sales Agreement (PSA) with the Vermont Public Power Supply Authority for 12.0% of the output from a planned 40 MW peaking facility contemplated for Swanton, Vermont. At this time 11 municipal utilities have signed identical PSA's to provide the backing required for the project to continue.

The project will, if approved, result in the construction of approximately 40 mW of peaking generating capacity. This generating capacity is designed to provide reliability services to the participating municipal utilities at prices significantly below projected Forward Capacity Market (FCM) prices. In addition, the units will run during peak price times to mitigate price spikes that occur when New England loads reach peak levels in the summer and winter.

The Power Sales Agreement was filed with the Vermont PSB for Rule 5.200 notice in February 2007.

Ludlow Woodchip Plant

A 30-megawatt wood fired generation plant is being explored in Ludlow, Vermont. The woodchip plant is still in discussion stages on its economics and contract structure. The Letter of Intent was filed with the Vermont PSB for Rule 5.200 notice in November 2007.

Hydro Quebec

Negotiations with Hydro Quebec are underway for new contracts to begin when the existing contracts with Vermont utilities start to expire. The goal of such long-term resource options is to reduce future price volatility and market uncertainty, by reducing reliance on short duration market purchases.

8) 2008 Anticipated Resource Transactions

Planned Purchasing

In order to make its members' power costs more predictable, VPPSA implemented a plan to purchase power using a systematic power purchasing technique. In order to avoid uncertainty and volatile swings of market purchases, Northfield currently participates in this Planned Purchasing structure through its membership in the Vermont Public Power Supply Authority. Under the Planned Purchasing approach,

VPPSA reviews Northfield's future market exposure (defined as its forecasted need for power, less amounts available through previously secured long-term contracts and generation) every six months.

Twice a year, in the spring and fall, Northfield has the opportunity to purchase for a two year period, one quarter of its future energy needs that are not met by long-term contracts. For example, in the spring of 2007, Northfield purchased a portion of its projected need for market energy for the period January 2009 to December 2010. In the fall of 2007, a portion of its need for the period July 2009 to June 2011 was purchased. By staggering the purchases, at any given point the market needs of Northfield are met by contracts purchased at four different times resulting in less volatile power market prices. This is very similar to the concept of dollar cost averaging which is used in investing.

The implementation of Planned Purchasing is structured and systematic, but it does not remove the need for continual market monitoring and judgment. The goal is to use market monitoring and judgment to effectively "put a thumb on the scale" in favor of Northfield. In the event that market prices are below prices that will cause rates to be stable, additional or longer purchase may be made instead of the normal two year duration. In the event that unusually high prices prevail at the time of a planned purchase, that purchase may be delayed (though it would not normally be delayed beyond the next scheduled purchase). In general the intent is to avoid trying to, "time the market" and so the pre-disposition will be to make each bi-annual purchase unless the prices depart noticeably from expected ranges.

See below for a table showing anticipated resource transactions for 2008:

Transaction	Volume	Term	Product	Explanation
Outage Replacement - McNeil	0-1 mW	Up to 1 month	Energy	Purchase to hedge load exposure during maintenance outage at prevailing market prices
Daily Transactions	0-3 mW	1-3 Days	Energy	Optimizing / hedging purchases or sales at prevailing market prices
Weekly Transactions	0-3 mW	1-2 Weeks	Energy	Optimizing / hedging purchases or sales at prevailing market prices
Monthly / Season Transactions	0-3 mW	1-3 Months	Energy	Optimizing / hedging purchases or sales at prevailing market prices
Planned Purchasing	0-2.6 mW	2-5 Years	Base Load Energy	Prevailing market price purchases to hedge long-term energy needs not met by long term resources
Planned Purchasing	0-2.6 mW	2-5 Years	Peak Period Energy	Prevailing market price purchases to hedge long-term energy needs not met by long term resources
Financial Transmission Rights	0-6 mW	Monthly and one year	FTR	Purchase of FTR's to minimize congestion exposure or provide revenues to offset congestion charges
Capacity	Excess or short position	Monthly	Capacity	Excess or deficient capacity obligations will be settled at FCM transition price
Phase 1	0-1.4 mW	Up to 1 Year	Transmission	Short term lease/sale of unused transmission space to reduce costs
Renewable Energy Credits	Variable	Up to 5 Years	REC's	Sales of Renewable Energy Credits (REC's) to minimize generation costs
Financial Options	See Above	See Above	See Above	Financial options may be substituted for any of the above physical products