

**STATE OF NEW HAMPSHIRE
BEFORE THE
PUBLIC UTILITIES COMMISSION**

and

**STATE OF MAINE
BEFORE THE
PUBLIC UTILITIES COMMISSION**

NORTHERN UTILITIES, INC.

**PETITION FOR APPROVAL OF
PROPOSED FINANCIAL HEDGING PROGRAM REDESIGN**

Docket No. DG 09- 141 in New Hampshire

Docket No. 2008-93 in Maine

**Submitted by
NORTHERN UTILITIES, INC.**

February 17, 2010

I. INTRODUCTION

In August 2009 Northern Utilities, Inc. ("Northern") filed a proposed redesign of its financial hedging program. Through discovery and discussions with Commission Staffs from both Maine and New Hampshire, Northern has refined its proposal to redesign the hedging program. This redesign incorporates simple techniques and clearly defined rules meant to provide transparency and structure. Northern proposes four primary changes to the program: 1) the adoption of a portfolio approach to hedging whereby Northern would apply both its physically hedged supplies and financial program to target beginning each peak season with 70 percent of requirements available under a fixed price, 2) the introduction of a price ceiling calculated pursuant to a formula, above which purchases of futures contracts would be postponed, 3) the elimination of the price-based component of the existing hedging program and 4) the introduction of a process under which futures contracts that appreciate in value above a specified percentage would be sold. This proposed redesign also addresses the structure and timing of program implementation and the manner in which price parameters are determined.

Northern has incorporated this proposed redesign of the financial hedging program in its 2010 off-peak period cost of gas filings which are being submitted on February 17, 2010 for the Maine Division and March 15, 2010 for the New Hampshire Division. The off-peak cost of gas filings present hedging plans for both the summer of 2011 and the winter of 2011-12. Northern is filing this proposed redesign jointly with the Commissions in both New Hampshire and Maine with the goal of maintaining a common hedging program for both divisions.

II. PROPOSED CHANGES TO NORTHERN'S HEDGING PROGRAM

The proposed redesign builds upon the structure of the current financial hedging program. Table 1 below compares the proposed changes to the methods employed by the current program. The proposed changes are discussed in greater detail below.

Table 1: Summary of Proposed Changes to Northern's Hedging Program

Program Attribute	Current Program	Proposed Program
Winter Hedging Volumes	Winter period financial hedging volumes based on planned pipeline deliveries; vary monthly according to a resource plan. Fixed, time-based target equals 40% of planned pipeline deliveries; variable, price-based target equals up to 30% more of planned pipeline deliveries.	Winter period financial hedging volumes determined by portfolio approach that factors both physically hedged supplies and financial program to target 70% of normal winter requirements.
Summer Hedging Volumes	Summer period financial hedging volumes equal 40% of May and October requirements.	Summer period financial hedging volumes equal 40% of May and October requirements.
Transaction Types	Time-based (fixed) & price-based (variable) components.	Time-based transactions only, subject to ceiling prices (would purchase less if prices remain too high). Price-based component discontinued.
Structure of Price Parameters	Price triggers equal to 65 th , 35 th and 20 th percentiles for priced-based component.	Monthly price ceilings equal to one average standard deviation above the mean.

Program Attribute	Current Program	Proposed Program
Data Underlying Price Parameters	Common price triggers calculated for entire season based on frequency distribution using 5 years of prompt month historical prices inflated by PPI, weighted more heavily for the most recent year.	Price ceilings calculated by month based upon average daily closing prices for final 2 years of trading for the 2 most recently expired contracts and the 2 contracts still trading in their final 2 years. ¹
Timing of Purchases	<p>Time-based purchases are made each month on the day the prompt month contract expires.</p> <p>Price-based purchases are made any time during the month when the criteria are triggered.</p>	<p>Provided prices remain below the ceiling, purchases are made each month on the day the prompt month contract expires.</p> <p>Purchases delayed due to prices above the ceiling are queued and made any time during the month when prices fall below the ceiling.</p>
Appreciation Rule	Futures contracts are held until expiration regardless of appreciated value.	Futures contracts that appreciate by 40% are sold and proceeds credited to the CGA. Once liquidated, contracts are not replaced.
Hedging Plan Schedule	<p>Hedging plans filed with CGA filings every 6 months for period beginning 12 months later.</p> <p>All purchases made before CGA is filed; program activity stops except contracts are sold each month as they expire.</p>	<p>Hedging plans filed annually with off-peak CGA filings for summer period beginning 12 months later and winter period beginning 18 months later.</p> <p>Price Ceiling (to extent queued purchases have not been made) and Appreciation Rule continue to apply after CGA filing; contracts are sold each month as they expire.</p>

¹ For example, the two most recently expired January contracts are January 2009 and January 2010. The two January contracts still trading in their final 2 years before expiration are January 2011 and January 2012.

Hedging Volumes

The current program establishes both a fixed target volume, the time-based component, and a variable target volume, the priced-based component, each representing a percentage of expected pipeline delivered supplies based on a resource portfolio dispatch model run. Northern proposes to adopt a portfolio approach to establishing hedging volume targets whereby Northern would apply both its physically hedged supplies (underground storage, fixed price contracts) and its financial hedging program to target starting each winter season with 70 percent of forecasted normal winter requirements available under a fixed or capped price. Recognizing that actual deliveries will differ from forecast due to weather conditions and customer behavior, targeting 70 percent on a forecast basis is likely to result in an actual hedged volume bandwidth of between 65 percent and 75 percent. Northern also proposes to continue financially hedging the summer months of May and October at the current level of 40 percent.

Table 2. Hedge Plan Volumes - Plan Year 2011/2012

Description	City-Gate Volumes	Percent of Sendout	Futures Contracts
SUMMER 2011			
Sendout Requirement (May, Oct)	742,547		
Financial Hedge Volume	300,000	40%	30
WINTER 2011-12			
Sendout Requirement	5,565,421		
Washington 10 Storage	2,724,393	49%	
Tennessee Storage	207,019	4%	
Fixed Price Physical Contracts	0	0%	
Financial Hedge Volume	960,000	17%	96
Total Hedged Volume	3,891,412	70%	
PLAN YEAR 2011-12			
Financial Hedge Volume	1,260,000	20%	126

Table 2 presents the planned financial hedging volumes for the summer of 2011 and the winter of 2011-12. For the summer period, planned financial hedging volumes are simply

40 percent of the projected May and October requirements. For the winter period, storage resources account for 53 percent of expected requirements, and financial hedging volumes are planned at 17 percent of expected requirements to yield a portfolio of fixed price supplies that meet 70 percent of projected requirements. Along with its annual hedging plans, described later, Northern will submit a three-year look at the resources expected to be used in achieving the 70 percent fixed price threshold.

Transaction Types

The current program involves both time-based and price-based transactions. Time-based transactions are scheduled in advance and executed in a dollar cost averaging method without regard to the level of prices. Price-based transactions are made when prices decrease to any of three pre-defined levels. Because prices may continue to fall after price-based purchases are made, price-based purchases do not always result in lower average prices than time-based purchases. Through discovery, it was determined that as of August 2009, time-based transactions had lost \$0.63 per Dth while price-based transactions had lost \$2.21 per Dth².

Northern proposes to discontinue the price-based component and to continue the time-based component, with purchases subject to a ceiling price for each contract month. The monthly price ceilings are designed to avoid purchases during price "spikes." As long as prices remain below the ceiling prices, Northern would purchase futures contracts each month in accordance with a pre-defined schedule. If prices rise above the ceiling price established for a contract month, the purchases would be delayed until prices fall below the ceiling price. Adopting the price ceiling means that Northern may buy less than the target volume of futures contracts. In order to provide a greater chance of executing postponed purchases at prices below the price ceiling, as discussed below, Northern proposes to begin hedging the peak season six months earlier than under the current schedule.

² Until response to State of Maine Public Utilities Commission Oral Data Request No. 5 in Docket No. 2008-93, dated 9/14/2009.

Structure of Price Parameters

The price-based component which Northern proposes to discontinue utilizes a seasonal price frequency distribution calculated in deciles and used to establish price triggers at the 65th, 35th and 20th percentiles. When prices drop below these respective percentiles, additional futures contracts are purchased. The trigger prices are not differentiated by month; they apply to all months of a season being hedged which typically results in shoulder months (such as November and April) being triggered earlier and more often than peak months (such as January and February).

Northern proposes to establish a single price parameter: a monthly ceiling price. The price ceiling is set at an average standard deviation above the historical mean (the derivation is discussed below). The purpose of the price ceiling is to avoid purchasing when prices are high relative to historical experience. Purchasing when prices are high locks in a negative result, whereas avoiding a high priced transaction preserves the opportunity that a better price will be available in the future. Underlying this approach is the belief that over time prices will tend toward a long term mean.

Data Underlying Price Parameters

The data used for the frequency distribution that establishes the price triggers for the price-based component of the current program include five years of prompt month history that has been inflated by the producer price index (PPI). In calculating the frequency distribution, the most recent year is more heavily weighted than the earlier years.

Northern proposes to use the daily closing price history of futures contracts during the span of each contract's last two years of trading to calculate ceiling prices, rather than utilize the rolling prompt month contract price history. Price behavior over time provides a variance that can be applied to set a suitable price ceiling. Under the proposed program, futures contracts will be purchased as many as twenty-three months before the delivery month. Using the pricing history from the final two years of trading activity will better align the price

ceiling calculation in terms of horizon to delivery. Northern proposes to utilize nominal data rather than to inflate the data by an inflation index.

Table 3 details the proposed price ceiling calculations, using data as of April 8, 2009 to establish price ceilings that would have been used for the period of May 2010 through April 2011. These calculations will be updated in mid-April 2010 for the period of May 2011 through April 2012. The monthly price ceilings would be calculated on the basis of historical mean price levels and standard deviations. The mean value is calculated for the final two years (or 500 trading days) for the two most recently expired contracts for a given calendar month and for the next two contracts for that calendar month not yet expired but trading in their final 500 days prior to expiration. Incorporating currently trading contracts adds current market pricing to the calculation, as well as pricing relative to contracts that are more than 30 days from expiration, such as Northern purchases under the hedging program. Taking an example from Table 3, the May 2007 and May 2008 contracts had expired by April 8, 2009 and therefore each had 500 days of pricing history, while the May 2009 contract had 487 days and the May 2010 contract had 236 days. The average of the means for the four contracts for each calendar month is taken as the average mean. For the May contracts in Table 3, the average mean was \$7.896.

The standard deviation is calculated for each of the most recent two settled contracts for a given calendar month, and then each is calculated as a percentage of its mean. The average of these percentage standard deviations for the two years of expired contracts is the percent standard deviation. Thus the standard deviation reflects the two years of completed history, but not the two years of currently trading contracts.³ The average standard deviation is applied to the average mean to calculate the price ceiling, which is set at one standard deviation above the mean for each calendar month. In Table 3, for the May contracts, the average standard deviation was 10 percent and the price ceiling would have been \$8.646. As shown on the last row in Table 3, there is considerable variation in the monthly price ceilings.

Table 3. Price Ceiling Calculations - Plan Year 2010/11

2010/11	May-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11
Plan Filed (Update)	04/15/09	04/15/09	04/15/09	04/15/09	04/15/09	04/15/09	04/15/09	04/15/09
Latest Pricing	04/08/09	04/08/09	04/08/09	04/08/09	04/08/09	04/08/09	04/08/09	04/08/09
Month - Open 2	May-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11
Month - Open 1	May-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10
Month - Expired 1	May-08	Oct-08	Nov-08	Dec-08	Jan-09	Feb-09	Mar-09	Apr-09
Month - Expired 2	May-07	Oct-07	Nov-07	Dec-07	Jan-08	Feb-08	Mar-08	Apr-08
Days Pricing - Open 2	236	130	109	89	68	48	29	6
Days Pricing - Open 1	487	381	359	340	318	299	280	257
Days Pricing - Expired 1	500	500	500	500	500	500	500	500
Days Pricing - Expired 2	500	500	500	500	500	500	500	500
Mean Price - Open 2	7.766	6.997	7.116	7.245	7.287	7.073	6.702	6.302
Mean Price - Open 1	7.796	8.125	8.454	8.843	9.082	9.072	8.852	7.911
Mean Price - Expired 1	7.981	8.815	9.119	9.442	9.540	9.391	9.023	7.910
Mean Price - Expired 2	8.040	8.285	8.845	9.422	9.665	9.546	9.274	8.001
SD Price - Expired 1	0.705	1.465	1.492	1.567	1.744	1.918	2.065	1.723
SD Price - Expired 2	0.818	0.963	0.993	1.028	1.177	1.179	1.128	0.528
SD / Mean - Expired 1	9%	17%	16%	17%	18%	20%	23%	22%
SD / Mean - Expired 2	10%	12%	11%	11%	12%	12%	12%	7%
4-Year Avg Mean Price	7.896	8.056	8.384	8.738	8.894	8.771	8.463	7.531
2-Year Avg SD	10%	14%	14%	14%	15%	16%	18%	14%
Price Ceiling	8.646	9.193	9.540	9.940	10.248	10.208	9.946	8.600

³ The two years of currently trading contracts are assumed not to have sufficient history upon which to establish an appropriate measure of variance. Thus, they impact the level (mean) of pricing, but not the variance.

Setting the price ceiling at one standard deviation greater than the mean implies that 84 percent of the time prices will be below the ceiling and 16 percent of the time prices will exceed the ceiling.⁴ Of course, the future of market prices is unknowable and constantly changing, often in unpredictable ways. Adopting an approach that relies on a history of price levels and price variation over a time horizon similar to that Northern uses to purchase futures contracts provides a reasonable context around which to set such a parameter.

Timing of Purchases

Timing of purchases will remain the same as under the current program, with scheduled purchases made each month on the day the prompt month contract settles, as long as prices remain below the price ceiling. When purchases have been delayed due to the price ceiling, they will be executed as soon as possible when prices fall below the price ceiling, similar to the way price-triggered purchases have been made under the current program.

Appreciation Rule

Historically Northern has held its futures contracts until settlement, regardless of whether and to what extent the contract may have appreciated in value.

Northern proposes to adopt an Appreciation Rule whereby it would liquidate all futures contracts that appreciate in value by 40 percent. The proceeds from the sales would be credited to the cost of gas, allowing customers to realize the benefit from appreciated value. Once contracts are liquidated, they would not be replaced. Northern proposes to apply the Appreciation Rule at any time prior to the expiration of a given futures contract, including during the delivery months of a given peak season. For example, if the March

⁴ Assuming a normal distribution, one standard deviation from the mean encompasses 68 percent of outcomes, and half of the remaining 32 percent of outcomes (16 percent each) will be lower than the bandwidth covered by one standard deviation, and half will be higher. Thus, the percentage of expected outcomes below the price ceiling equals 84 percent (68 + 16).

2011 contract were to trigger the Appreciation Rule during December of 2010, the contract would be liquidated.

Hedging Plan Schedule

Under the current hedging program, seasonal hedging plans are filed with the cost of gas filings every six months for the period that begins twelve months after the cost of gas filings. Thus, the hedging plans are executed over a twelve month period prior to the start of each six month cost of gas period.

Northern proposes to submit a hedging plan once annually with the off-peak cost of gas filings. The hedging plan would address the following summer, providing a twelve month purchasing schedule, as well as the next following winter, providing an eighteen month window to implement the hedging plan. Table 4 provides the initial schedule associated with the hedging plan for summer 2011 and winter 2011-12. The schedule lists the purchases planned over the twelve month period of April through March showing the contracts that would be purchased each month so long as prices remain below the price ceiling for each contract month. Sample price ceiling values are listed below the contract months, and will be updated in mid-April in the cost of gas dockets. All contracts other than the May contract have additional time beyond the planned twelve month period to allow for making purchases that were delayed due to prices that exceed the price ceiling. For example, the October contract has an additional five months, while the April contract has an additional eleven months.

Under the current program, all hedging activity ends prior to making the cost of gas filings. Going forward, Northern proposes to continue program activity into the delivery season for the purpose of making postponed purchases due to the price ceiling and making sales of appreciated contracts under the appreciation rule.

Table 4. Hedge Plan Initial Schedule - Plan Year 2011/12

		Off-Peak Season		Peak Season						Peak Season	Off-Peak Season	Total Contracts
		May-11	Oct-11	Nov-11	Dec-11	Jan-12	Feb-12	Mar-12	Apr-12			
<i>Ceilings*</i>		8.646	9.193	9.540	9.940	10.248	10.208	9.946	8.600			
Scheduled Purchases	04/28/10	2	1	1	2	2	1	2	0	8	3	11
	05/26/10	2	1	1	1	1	2	2	1	8	3	11
	06/28/10	1	1	0	2	1	2	2	1	8	2	10
	07/28/10	2	1	1	1	2	2	1	1	8	3	11
	08/27/10	1	1	1	1	2	2	1	1	8	2	10
	09/28/10	1	1	0	1	2	2	2	1	8	2	10
	10/27/10	2	1	1	1	1	2	1	2	8	3	11
	11/24/10	2	1	1	1	2	2	1	1	8	3	11
	12/28/10	1	1	1	1	2	2	1	1	8	2	10
	01/27/11	1	1	0	2	2	1	2	1	8	2	10
	02/24/11	1	1	1	1	2	2	1	1	8	2	10
	03/29/11	2	1	1	2	2	2	1	0	8	3	11
Make-Up Purchases (white area) Scheduled Sales (gray area)	04/27/11	-18								0	-18	-18
	05/26/11									0	0	0
	06/28/11									0	0	0
	07/27/11									0	0	0
	08/29/11									0	0	0
	09/28/11		-12							0	-12	-12
	10/27/11			-9						-9	0	-9
	11/28/11				-16					-16	0	-16
	12/28/11					-21				-21	0	-21
	01/27/12						-22			-22	0	-22
	02/27/12							-17		-17	0	-17
	03/28/12								-11	-11	0	-11
Scheduled		18	12	9	16	21	22	17	11	96	30	126
check		0	0	0	0	0	0	0	0	0	0	0

*Note: Price Ceilings reflect 2010-11 levels and will be updated for 2011-12 with the Cost of Gas update in mid-April.

III. IMPLEMENTATION

Northern has internal processes in place to ensure proper planning and execution of the proposed hedging program. The hedging plans, including the financial hedging purchasing schedule, are established by the Energy Contracts department under my direction with review and approval by Mark H. Collin, Treasurer of Northern.

Northern provides monthly instructions to Risk Management, Inc. ("RMI"), Northern's introducing broker, which are issued by both verbally and in writing. The instructions are consistent with the approved program. RMI executes requested transactions and sends the written transaction confirmations to Northern to verify that the transactions were made in accordance instructions. Under the proposed plan, Northern would regularly provide RMI with a list of currently held contracts and sell limit orders for those contracts with sell prices set at 40 percent above the purchase prices. For queued purchases due to prices higher than the prices ceilings, Northern would provide RMI with buy limit orders at the ceiling prices.

On a daily basis my staff and RMI monitor the natural gas futures market and perform mark to market calculations on open futures positions. The open trade equity is compared to the funding level in the account to determine if a margin call is required. This report is sent to Northern's Energy Contracts staff and finance department daily to alert of account funding requirements every trading day upon market close. Staff also monitor the proper execution of price-based transactions and under the proposed plan, would monitor the market for queued contracts and appreciated contracts.

On a monthly basis my staff prepares the financial hedging report, which is reviewed and approved by me and then is sent to both Commissions as well as Northern's

Accounting department. Northern proposes to include in the monthly report the disposition of scheduled futures contracts (bought, sold, and queued) and to enhance the report to put executed transactions in context of the seasonal hedging plans, rather than simply listing and summarizing the transactions by season as has been recent practice. The context would identify what percentages of the pertinent season are hedged according to the schedule, which are queued and which have been liquidated due to appreciation.

Since purchases may be delayed and not executed pursuant to the price ceilings and sold due to the appreciation rule, Northern will also monitor and report how the financial portion of the hedging program impacts the overall hedging target of entering the peak season with 70 percent of supplies at a fixed or capped price. In the event that the overall peak season hedged position is projected to fall below 60 percent, Northern will bring this to the attention of the Commissions and discuss the impact and possible alternatives.

IV. CONCLUSION

Northern believes that the proposed hedging program described herein will provide significant benefits to ratepayers going forward in terms of reduced exposure to market volatility and the ability to capture financial benefits of Northern's hedging contracts. The proposed program addresses shortcomings in the existing hedging program, most notably by introducing a ceiling price for hedges, and by providing a mechanism to liquidate hedges that have significantly appreciated in value. Northern believes the proposed program will offer greater predictability for ratepayers and the Commissions. Northern would be pleased to meet with Commission Staffs, the Office of Consumer Advocate, and Office of the Public Advocate and other interested parties to discuss the proposed revisions to the hedging program. Northern also appreciates the time and

effort that Staff from both Commissions have put into to working with Northern to refine the proposal.