NATURAL GAS SUPPLY

PROCUREMENT PLAN

December 2012 | Docket No. N2012.12.125

NorthWestern® Energy

Delivering a Bright Future

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December 14, 2012

Ms. Kate Whitney
Montana Public Service Commission
1701 Prospect Avenue
P. O. Box 202601
Helena, MT 59620-2601

RE: Docket No. N2012.12.125
NorthWestern Energy Filing
Natural Gas Biennial Procurement Plan

Dear Ms. Whitney:

NorthWestern Energy (NWE) is submitting its December 2012 Natural Gas Biennial Procurement Plan to the Montana Public Service Commission (MPSC or Commission) pursuant to Docket No. 2005.6.101, Order No. 6683d. NWE looks forward to receiving Commission comments on this Plan.

Please contact John Smith at 497-2379 or Joe Schwartzenberger at 497-3362 if you have any questions.

Best Regards,

John M. Smith

John M. Smith
Manager of Montana Gas Operations

Enclosures

CC: Montana Consumer Counsel
George Donkin

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of NorthWestern Energy's Natural Gas Procurement Plan in Docket No. D2012.12. will be e-filed with the PSC. It will also be served upon the following persons by, postage prepaid via first class mail, as follows:

Robert Nelson
Montana Consumer Counsel
Po Box 201703
Helena Mt 59620-1703

Kevin Markovich
NorthWestern Energy
40 East Broadway
Butte MT 59701

Connie Moran
NorthWestern Energy
40 East Broadway
Butte MT 59701

John Hines
NorthWestern Energy
40 East Broadway
Butte MT 59701

Joe Schwartzenberger
NorthWestern Energy
40 East Broadway
Butte MT 59701

George Donkin
JW Wilson and Associates
1601 N Kent Street Suite 1104
Arlington VA 22209

Kate Whitney
Administrator
Public Service Commission
1701 Prospect Ave
Po Box 202601
Helena Mt 59620-2601

Pat Corcoran
NorthWestern Energy
40 East Broadway
Butte MT 59701

Al Brogan
Northwestern Energy
208 North Montana Suite 205
Helena Mt 59601

Sarah Norcott
Northwestern Energy
208 North Montana Suite 205
Helena Mt 59601

DATED this 14th day of December 2012.

Connie Moran

2012 Natural Gas Biennial Procurement Plan

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INTRODUCTION

NorthWestern Energy's ("NWE" or "NorthWestern") December 2012 Natural Gas Biennial Procurement Plan ("Plan") is submitted to the Montana Public Service Commission ("MPSC" or "Commission") pursuant to terms of Order No. 6683d issued in Docket No. N2005.6.101. The Plan sets forth NWE's procurement strategies for meeting the natural gas supply needs of its retail customers for the next two years (2013 - 2015 tracking periods).

As discussed below, the Plan is consistent with previous plans submitted under the provisions of Order No. 6683d as well as with the Natural Gas Tariff Guidelines ("Tariff Guidelines") approved by the Commission in Order No. 6683d. NWE believes the Plan represents a solid procurement strategy that is consistent with the Commission's directives, requirements, and comments. Further, NWE believes the Plan will ultimately be a valuable asset to the Commission and assist in the decision-making process related to natural gas supply procurement because (1) the Plan is an open and transparent means of documenting NWE's procurement strategies for meeting its obligation to serve the natural gas supply needs of its retail customers; and (2) the Plan will provide the Commission and stakeholders a valuable context for determining the prudency of costs associated with procurement and management of natural gas supply.

A brief discussion on the background of NWE's plan for the 2011 - 2013 tracking periods ("2010 Plan") and its relationship to the procurement strategies for the 2013 - 2015 tracking periods is set forth in the next section.

Implementation of the 2010 Plan

NWE closely followed the 2010 Plan during the 2011 - 2013 tracking periods. Prior to winter 2010/2011, approximately 67% of NWE's potential supply costs were fixed-price hedged. Prior to 2011/2012 this percentage was 69%. NWE monitored market trends and adjusted the hedged percentage, as market conditions justified, within the acceptable range stated in the plan. Storage and

Asset Monetization were valuable tools in reducing cost to NWE's customers during these periods. Overall, NWE's procurement strategies for the 2011 - 2013 tracking periods and execution of the 2010 Plan resulted in rate stability for customers and a reliable natural gas supply at a reasonable cost.

Relationship between the 2010 Plan and the current Plan

The Plan set forth in this document contains many of the same basic principles included in the 2010 Plan, but there are some notable differences, due mainly to fundamental changes in supply and demand of natural gas since 2008. The Plan reflects comments and concepts noted in the scrutiny of the 2010 Plan, the Tariff Guidelines, and the experience NWE gained implementing the 2010 Plan during the 2011 - 2013 tracking periods. NWE has also made adjustments to reflect actual and expected changes in market fundamentals for the 2013 - 2015 tracking periods. Market prices for natural gas are currently trading near 10-year lows, and the U.S. economy continues to experience difficulty in recovering from the recession. In addition, winter-versus-summer price spreads have changed significantly since 2008, and there is currently very little difference in prices between the two time periods. In part, NWE has adjusted its hedging strategy to take advantage of these market changes and to purchase more of its supply at index values rather than at known, fixed prices. While there is increased risk associated with moving away from fixed prices to index based prices, given the market conditions that currently exist, NWE believes the incremental risk is justified.

Other notable changes incorporated in the Plan include (1) a discussion centered on NWE's ongoing evaluation and procurement of natural gas reserves as a long-term physical hedge when the price makes sense for customers; (2) implementing a process that over time will limit fixed price swaps (if utilized) to 2 billion cubic feet ("Bcf") per year; (3) continuing to not enter into fixed price swaps when the price is greater than $7.00 per dekatherm ("Dkt"), (4) continuing to document the analysis and decision-making process associated with the timing and execution of fixed price swaps; (5) presenting a survey of other U.S. local

distribution companies to determine the extent of their hedging activity and the types of hedges that are utilized, and (6) summarizing a two-year study regarding the use of natural gas call options versus fixed price swaps.

The Plan is well grounded in the experience NWE gained in implementing the 2010 Plan and is consistent with Commission directives and approved Tariff Guidelines. The Plan has, however, evolved and been adjusted accordingly to reflect the expected market conditions and opportunities in the 2013 - 2015 tracking periods. Thus, NWE believes the Plan represents a solid approach to procurement of natural gas supply for its retail customers for the 2013 - 2015 tracking periods.

NWE understands that the MPSC will review this Plan, set forth in detail in the following pages, including the proposed acquisition strategies for the following two tracker periods and beyond. NWE looks forward to comments received from the MPSC and others on this Plan. It is important to note that situations or events may occur that will cause NWE to deviate from the strategy described here. If so, those circumstances and associated actions will be documented.

SECTION 1. GOALS AND OBJECTIVES

NWE's objectives in operating the Natural Gas Supply procurement function are (1) to provide customers with reliable natural gas supply at reasonable and stable prices that reflect market conditions over time, and (2) to assure NWE cost recovery for all prudently incurred natural gas supply-related expenditures.

This Plan describes NWE's procurement strategy for the 2013 - 2015 tracking periods, which is designed to achieve these objectives. Specifically, NWE proposes to (1) enter into sufficient contracts for flowing natural gas to help assure reliability during the winter heating season (typically defined as November through March of the following year); (2) place natural gas into storage during the injection season (typically defined as April through October); (3) use its system

storage rights to provide additional reliability and peak day supply during the winter heating season; (4) use, where appropriate, storage for ratepayer economic benefit; and (5) NWE will continue to evaluate purchase opportunities for additional company-owned production when the purchase price makes sense for customers.

SECTION 2. SEPARATION OF NATURAL GAS SUPPLY, TRANSMISSION, AND STORAGE

Code of Conduct and Functional Separation

Statute, tariffs and rules all require separation between Natural Gas Supply and the Natural Gas Transmission and Storage functions. The following discussion provides an overview of the structure under which Energy Supply operates.

Section 69-3-1404(1), MCA, provides, in part, as follows:

> (1) A natural gas utility that provides customer choice and open access on its system shall:
>
> (a) functionally separate its natural gas production and gathering from its natural gas transmission, storage, and distribution services and remove natural gas production and gathering from the rate base;
>
> (b) adopt and comply with commission-approved standards of conduct to be included in a tariff to govern its natural gas transmission, storage, and distribution services….

Consistent with (b), NWE's Natural Gas Tariff, Schedule No. GTC-1, General Terms and Operating Conditions ("GTC-1"), contains provisions implementing this section of law.

Under statute, MPSC rules, and tariffs, the Storage function is separated from the Energy Supply function. Storage capacity is calculated and allocated by the Transmission division. The Energy Supply unit communicates, at arms-length (according to GTC-1, section 21), with the NWE Gas Transmission division to ensure adequate supply and reliability.

NWE Energy Supply personnel receive the same information that others in the market receive. Therefore, the Energy Supply function does not have access to daily information that other marketers do not have; does not have access to detailed storage information that other marketers do not have; and, in general, operates independently of the transmission and storage function.

SECTION 3. NWE NATURAL GAS SYSTEM

Pipeline Interconnections

A substantial but declining volume of natural gas is produced in close proximity to the NWE transmission pipeline system in Montana. In addition to this "on-system production," NWE transmission pipeline has connections to major third party pipelines, as listed in Table 1. (Please also refer to the system map at Attachment 1.)

Table 1

NWE Pipeline Connections				
Pipeline	Connection Point	Capacity Dkt/d	Total Contract Dkt/d	Energy Supply Contracted Dkt/d
TCPL (NOVA)	Carway	125,000	80,000	46,105
Aden	Aden Border	50,000	16,000	15,500
Havre Pipeline	Blaine Co. #3 / #1	30,000	20,000	16,000
Colorado Interstate (CIG)	Grizzly	40,000*	18,000	0
Williston Basin	Warren	20,000*	0	0
* Interruptible capacity only.				

On-System Storage

Energy Supply, as part of its portfolio approach to natural gas procurement, utilizes its natural gas storage to (1) reliably meet peak day requirements; (2) mitigate market price fluctuations through seasonal price diversity, and (3) provide economic benefit to ratepayers.

Natural gas storage is a physical tool that allows Energy Supply to accumulate natural gas during periods when prices are sometimes lower than the forward

prices for the following heating season (the injection season) and to withdraw the natural gas during periods when consumption and prices may be higher. Energy Supply enters into base-load natural gas contracts for flowing natural gas with multiple parties at specified quantities for deliveries at points across its pipeline system. When not needed to serve load, this flowing natural gas is often stored for later use (generally during the upcoming heating season) to ensure reliability and provide price stability.

The provision of peak-day reliability on the NWE natural gas transmission system depends in part on this on-system storage capacity. Operationally, NWE's transmission system is divided into two primary load zones. The north and west portion is one zone and the south and east portion is the other zone. Each of the main storage fields is essential in maintaining reliability for ratepayers within the respective load zones.

The two primary natural gas storage fields are Cobb and Dry Creek. However, Energy Supply is allocated only a portion of the storage rights in each of these fields by the NWE transmission division as discussed above. The Cobb storage field is on the north end of the system and is essential in serving peak day load requirements on the NWE system. The Cobb field is a depleted production reservoir storage field with total working gas capability of 11.25 Bcf and maximum daily withdrawal capability of 152,000 Dkt/day. (Working gas is the term for natural gas that is injected, generally in the months from April through October, for withdrawal during the traditional heating season from November through March). The Dry Creek storage field is on the south end of the system. Like the Cobb field, Dry Creek is also essential to augment the flowing natural gas supply to meet peak day load requirements and to enhance pressure mainly on the south end of the NWE system. The Dry Creek field is a depleted production reservoir storage field with a total working gas capacity of 6.0 Bcf and maximum daily withdrawal capability of 40,000 Dkt/day.

The Cobb field is supplied from the north end of the system, from NWE's interconnection with TransCanada's NOVA pipeline at Carway and from North-end Montana natural gas production. NOVA provides access to the very liquid natural gas trading hub, AECO, which is located in Alberta. The Dry Creek field can be supplied from either the north end or the south end of the NWE system.

NWE's third storage field is Box Elder. Box Elder is located in the Havre area and is primarily used to augment deliveries to the Havre area during cold weather events. It is a critical resource for load balancing in the Havre area, though its total impact on the balance of NWE's system is minimal.

The total peak deliverability of the three on-system storage fields is approximately 197,000 Dkt/day. However, Energy Supply only holds contractual rights to approximately 120,500 Dkt/day of that deliverability. The total deliverability of each field is shown in Table 2.

Table 2

NWE System Storage Summary		
Storage Field	**Deliverability Dkt / d**	**Working Gas Capability Bcf**
Cobb	152,000	11.25
Dry Creek	40,000	6.00
Box Elder	5,000	0.50
Total	**197,000**	**17.75**

While the working gas storage capability for the entire NWE system is roughly 17.75 Bcf, the maximum working natural gas storage capacity allocated to Energy Supply is approximately 9.0 Bcf. NWE's Natural Gas Transmission division is responsible for operating and maintaining the storage fields in order to ensure reliability on the system. While the contractual working gas allocation for Energy Supply totals 9.0 Bcf of natural gas, the allocation of storage inventory between Cobb and Dry Creek storage fields is determined by NWE's Gas Transmission division.

It is important to recognize that physical limitations on the NWE system and finite compression capacity at the storage fields will, at times, limit the maximum amount of natural gas that can be injected into storage on a daily basis. NWE Energy Supply, like other storage contract holders, must comply with the standards as set forth by NWE's Natural Gas Transmission division. The Energy Supply injection capability at Cobb ranges from 50,000 Dkt/day up to 100,000 Dkt/day, depending on the storage reservoir pressure and the level of injections by other parties who also hold storage rights. The injection capability at Dry Creek is approximately 25,000 Dkt/day. Because of the potential for late-season injection limitations at Cobb, an Energy Supply storage plan in excess of 7.5 Bcf for the heating season necessitates a more consistent or layered injection plan throughout the injection season.

SECTION 4. RESOURCE NEEDS ASSESSMENT

Existing Energy Supply Requirements

NWE'S Energy Supply division is responsible for meeting its customer's natural gas load requirements. Energy Supply provides natural gas to approximately 182,000 customers, with an estimated annual load requirement of approximately 20 Bcf. However, this load is highly seasonal and weather dependent in nature (i.e., consumption is heavily weighted to the heating months).

The Energy Supply load is highly temperature dependent and is predominantly a heating load, as evidenced by an annual load factor (average load/peak load) of less than 25%. This means that the majority of consumption (approximately 69% of the annual total or 13.8 Bcf) occurs during the winter period (November – March) when market prices have historically been the highest.

While the annual or winter load shapes typically do not fluctuate widely from year to year, the temperature-driven daily load requirements vary substantially. The Energy Supply peak day consumption is estimated at 230,000 Dkt/day, while the minimum summer day load requirement is approximately 13,600 Dkt.

The weather-normalized load forecast does not indicate appreciable load growth in the short term. However, while loads have been (and are expected to be) relatively flat, some natural gas price volatility still exists.

Energy Supply Load Sensitivity and Shape

A review of 12 previous years' loads with actual temperatures reveals annual load variations surrounding the 20 Bcf annual load estimate of between 19.1 Bcf/year (during a warm year) and 21.1 Bcf/year (during an extremely cold year). These variations of about 2 Bcf result in a total temperature-based annual load sensitivity of approximately 10 percent. Table 3 shows the natural gas consumption for Energy Supply for the past 12 years (actual 2001 through 2011, plus 10 months of actual and 2 months of estimated consumption for 2012).

NWE's load forecasts utilize weather-normalized loads. Load forecasts are computed utilizing the heating degree days ("HDD")[1] derived from 15 years of weather data. Projected loads are adjusted, as part of operational management, as weather conditions become increasingly certain.

Table 3

NorthWestern Energy Actual Total Supply Requirements (000's) Dekatherms of Natural Gas													
Year	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
2012	2,910	2,715	2,170	1,480	1,035	737	443	421	619	1,258	2,294	3,017	19,099
2011	3,321	3,124	2,634	1,856	1,281	792	498	430	571	1,202	2,252	3,112	21,073
2010	3,225	2,681	2,157	1,693	1,217	814	504	501	659	1,318	2,381	3,079	20,229
2009	3,347	2,867	2,386	1,791	1,085	630	481	440	737	1,474	2,474	3,257	20,969
2008	3,208	2,942	2,418	2,059	1,459	849	556	521	743	1,283	2,101	2,823	20,962
2007	3,215	2,792	2,092	1,459	1,006	628	429	423	681	1,191	2,154	3,120	19,190
2006	2,743	2,681	2,469	1,659	982	655	449	470	755	1,170	2,084	2,963	19,080
2005	3,195	2,439	2,044	1,585	1,092	714	485	474	724	1,140	2,082	3,355	19,329
2004	3,377	2,686	1,935	1,280	1,017	771	500	452	704	1,320	2,188	3,205	19,435
2003	2,913	2,802	2,318	1,550	1,043	619	433	422	639	1,341	2,421	3,229	19,730
2002	2,987	2,906	2,587	1,817	1,188	709	478	473	776	1,600	2,381	2,993	20,895
2001	3,106	2,926	2,146	1,655	1,103	652	446	404	518	1,487	2,026	3,050	19,519
Average	**3,129**	**2,797**	**2,280**	**1,657**	**1,126**	**714**	**475**	**453**	**677**	**1,315**	**2,237**	**3,100**	**19,959**
% of Total	**15.7%**	**14.0%**	**11.4%**	**8.3%**	**5.6%**	**3.6%**	**2.4%**	**2.3%**	**3.4%**	**6.6%**	**11.2%**	**15.5%**	**100.0%**

[1] A heating degree day is a tool used to estimate the energy required for heating. One heating degree day occurs for each degree the daily mean temperature is below 65 degrees Fahrenheit. Thus, the larger the HDD number, the colder the temperature and the higher the heating load.

The 12-year (2001 – 2012) average for the annual load is 20.0 Bcf; the 12-year average for the heating season load is 13.5 Bcf. Note, in Table 3, the months November and December 2012 are estimates.

Current Supply Components

The single most important factor in maintaining a reliable supply is NWE's ability to obtain gas supply contracts coupled with "NWE-owned production" to provide sufficient volumes of flowing natural gas for its peak day, winter heating season, and total annual demands. Currently, these sources provide approximately 42,000 Dkt per day to NWE's system.

However, as discussed above, Energy Supply's load can range from a low of about 13,600 Dkt on a summer day to a peak of nearly 230,000 Dkt on a winter day. On any day when Energy Supply demand is less than the contracted natural gas volumes, the difference is ordinarily placed into storage (an injection). Energy Supply procures and manages a natural gas portfolio of diverse flowing natural gas contracts and NWE-owned production from various sources to assist in meeting the peak day winter load requirement. In order to ensure a reliable supply, the majority of its supply of flowing natural gas contracts must be firm in nature (i.e., interruptible contracts cannot be used for this purpose). Flowing natural gas supply is almost always priced by reference to a market index, with only slight variations among the contracts. NWE-owned production is included in natural gas supply rates at the authorized regulated cost of service. A summary of the existing sources of supply within the Energy Supply portfolio is provided in Table 4.

Table 4

NWE Energy Supply Portfolio				
Supplier	**Delivery Point**	**Dkt / day**	**Annual / Seasonal**	**Expires**
Supplier	Aden Border	5,000	Annual Base Load	11/1/2013
Supplier	Aden Border	10,000	Annual Base Load	11/1/2013
Supplier	Havre Area	1,000	Monthly Base Load	11/30/2012
Supplier	Multiple (Havre Area)	16,000	Monthly Base Load	11/30/2012
Suppliers	System, North	3,000	Annual Base Load	Various
Supplier	System, South	800	Winter Only (Dec-Mar)	4/1/2013
NWE	System, North	4,600	Annual Base Load	NA
Suppliers	Carway	69,100	Dec. - Feb.	3/1/2013
	Total:	109,500		

NWE Supply, as part of its risk management strategy, has secured multiple counterparties with whom it contracts for flowing natural gas. In addition to counterparty diversity, these contracts also have a range of termination dates. Per NWE's Risk Management Policy, potential counterparties are evaluated in terms of credit risk before contracts are executed and appropriate credit terms are applied.

Energy Supply Storage Utilization

In addition to Energy Supply's flowing natural gas supply contracts, its allocated storage capacity is used to meet peak day requirements and provide economic benefits to customers. Storage utilization partially mitigates the impact of the low load factor of the Energy Supply market by taking advantage of seasonal price variations. Energy Supply utilizes its contractual and operational storage withdrawal rights of 120,500 Dkt, together with its flowing gas contracts, to serve the Energy Supply peak day load of 230,000 Dkt.

The level of storage inventory at the end of any annual injection season is a function of both reliability and economics. For reliability planning, Energy Supply personnel have determined that a minimum of approximately 7.5 Bcf of working gas supply storage must be maintained at the beginning of each winter season.

However, the 7.5 Bcf base level of storage does more than provide reliability. It is also a very important price hedge that contributes to rate stability. Table 5 illustrates the calculation of the base reliability storage requirement.

Table 5

NWE Energy Supply Base Storage Requirement		
5 Months of Winter (151 Days)		
Winter Demand (Seasonal)	13.8	Bcf
Average Demand (Daily)	91,400	Dkt per Day
Winter Flowing Gas (Daily)	42,000	Dkt per Day
Average Storage Withdrawal (Daily)	49,400	Dkt per Day
Total Minimum Storage	**7.5**	**Bcf**

The quantity of stored working gas procured in excess of this 7.5 Bcf base volume is a function of perceived economic value and system limitations.

Peak Day Supply Adequacy

The total winter daily delivery capacity from flowing and callable supply sources is 109,500 Dkt/day. Flowing natural gas and callable supply sources, combined with the Energy Supply storage deliverability of 120,500 Dkt/day, enable NWE to meet the design peak day capacity of 230,000 Dkt. While the counterparties, prices, and terms of specific contracts vary from time to time, the primary receipt points and supply sources do not vary significantly due to system design and resulting constraints.

SECTION 5. LONG-TERM HEDGING ASSESSMENT

The procurement plans that have been guiding purchasing and hedging activities for the past five years have focused on each upcoming winter heating season as well as one, two, and three years out. The plans have provided guidance, structure, and discipline to the natural gas supply procurement function. With this procurement timeframe stabilized and functioning properly, attention should be focused on long-term hedging strategies, meaning locking in a portion of each

year's supply for a long period of time at known fixed prices. The goal of short-term hedging is to dampen volatility, but it does not provide protection against overall market price trends and movements. Long-term hedging, meaning transactions covering anywhere from five to 30 years, provides protection against overall upward price movements or trends by locking in future prices based on market conditions known at the time the transactions are entered into. Such long-term hedging is in addition to price stability already provided by short-term hedging. NWE has determined that ownership of natural gas reserves and production at appropriate prices is the preferred form of long-term hedging, and NWE will continue to pursue reasonable opportunities.

Ownership of Natural Gas Reserves and Production

NWE has been actively engaged in activities regarding the acquisition of natural gas reserves.

A substantial volume of natural gas is produced in close proximity to NorthWestern's transmission pipeline system in Montana. NWE also has additional pipeline interconnections with NOVA Gas Transmission Ltd. ("NOVA"), Spur Resources, Havre Pipeline, Colorado Interstate Gas Company L.L.C. ("CIG"), and Williston Basin Interstate Pipeline Company ("WBI") that provide access to natural gas reserves and production in Wyoming, Alberta, and British Columbia.

Over the past several years, NorthWestern has analyzed a number of properties and extended several formal offers, with some accepted and others rejected. The natural gas acquisition process includes short timelines to submit bids, acquire the assets, and complete the closing of the transaction.

In the summer of 2010, NWE successfully acquired a majority interest in the Battle Creek Natural Gas Field located in north central Montana. In the summer of 2012, NWE successfully acquired the interest from NFR Energy in the Bear Paw Natural Gas Field located in north central Montana. Together these

acquisitions represent just under 10% of the forecasted baseload usage of NorthWestern's customers in year 2013. NWE continues to analyze and pursue additional opportunities to acquire natural gas production resources as they arise.

In Docket No. N2010.12.111 regarding NorthWestern Energy's December 2010 Natural Gas Biennial Procurement Plan, the Commission did not take a position in its comments on NWE's actual or potential acquisitions of natural gas reserves or producing properties. However, the Commission was very specific with regard to NorthWestern's potential pursuit of the acquisition of major natural gas reserves going forward (MPSC July 27, 2011 Comments, Paragraph No. 49), which states:

> *"Should NWE pursue the acquisition of major natural gas reserves, it must strive to find transactions which provide compelling customer benefit over buying natural gas at market prices. The main factors that NWE needs to evaluate are volumes, price, and term. Given that a large amount of capital will be required to purchase significant natural gas reserves, the Commission notes that such a transaction will be best presented to the Commission in the form of a stipulated agreement concerning the acquisition between NWE and MCC.*"

Given this background, NorthWestern utilizes the following distinct components in its process for review and acquisition of natural gas production resources:

1) <u>Acquisition Properties Criteria</u>

   NorthWestern will pursue, evaluate, and attempt to purchase natural gas properties that are strategically located to its system, meaning in close geographic proximity to the markets served by NWE. This includes natural gas reserves that have traditionally been relied upon to supply natural gas customers that are directly connected to NWE's natural gas transmission pipeline, or that are easily transported to NWE's natural gas transmission pipelines via available third-party transport capacity at economical rates. Such properties should provide a long-term available and reliable supply of

natural gas from previously developed proven natural gas production resources, which satisfy the following general criteria and/or characteristics:

A. Natural Gas Producing Properties that are located within these areas:

   i. Montana, Alberta, and British Columbia if properties are physically connected to the existing NWE natural gas transmission system or if they could be connected with the installation of new natural gas gathering or transmission pipelines, to the extent it would be economically feasible, and

   ii. Montana, North Dakota, Wyoming, the Rockies and Canada, realizing that the purchase of properties in these areas may require gas swaps or transportation agreements with other entities.

B. Properties with the following characteristics:

   i. At least 80% of the gas reserves' value in the proved producing category;

   ii. At least 80% of the gas reserves' value attributed to natural gas;

   iii. Well-established, mature production history of greater than 5 years, and,

   iv. At least 15 years of remaining estimated production life.

NorthWestern will consider acting as the operator in acquisitions where NWE has majority interest and the expertise exists, but will also consider purchases in which another entity operates the properties.

2) <u>Utilization of Natural Gas Tracker as Interim Cost Recovery Method</u>

NorthWestern is utilizing a bridging concept for cost recovery of its acquisitions whereby the revenue requirement of the purchases is included in the Monthly Natural Gas Tracker Filings and NWE is allowed to recover these costs on an interim basis until a revenue requirement filing can be made and processed in the future. This is an acceptable process for cost recovery of additional natural gas production resources.

3) Analytical Evaluation Approach (Financial Modeling)

NorthWestern has developed a Model that is acceptable for use in analyzing the economics of each natural gas production resource acquisition.

The Model establishes a proposed purchase price guided by the net present values ("NPVs"), in total dollars, of (1) the estimated future stream of annual revenue requirements of the purchased and rate-based natural gas reserves, given the proposed purchase price, expected operating costs and taxes, and the projected annual depletion rate of the particular property being evaluated; (2) the purchase of the equivalent amount (both timing and volume) of natural gas at the current annual natural gas market price forecast;[2] and (3) the valuation of any other attributes of material value, which may also factor into a determination of the ultimate bid.

Natural gas production resource acquisitions will only be considered when:

(1) the NPV of the estimated future stream of annual revenue requirements for the entire estimated useful life is less than the NPV of the estimated future stream of purchased natural gas costs at then-current natural gas market prices;

(2) the estimated production or volume weighted 20-year levelized unit revenue requirement of the owned reserves is less than the 20-year levelized natural gas market price, based on the natural gas market price forecast at the time of bidding; and

(3) the estimated future cost of service of the natural gas production resource, in dollars per Dkt, is approximately equal to or less than the estimated future natural gas market price, in dollars per Dkt, based on the natural gas market price forecast at the time of bidding, within three to five years of the acquisition, as specified in Paragraph 5, Table 1, below.

If the production resource acquisition under consideration satisfies these three requirements, it will meet the "*compelling customer benefit over buying natural gas at market prices*" objective that is contained in the Commission's July 27, 2011, Comments, in Docket No. N2010.12.111.

[2] Forecasted on an Alberta Energy Company ("AECO") or a Colorado Interstate Gas Company ("CIG") Natural Gas Trading Prices Basis.

4) Volume of Owned Natural Gas Production (Bcf)

NorthWestern's natural gas acquisitions are divided into the following two categories:

(1) Strategic natural gas acquisitions of up to 20 Bcf of the natural gas required on an annual basis to serve NorthWestern's Retail Natural Gas Customers' loads; and

(2) Natural gas acquisitions of up to 5 Bcf on an annual basis to be used by NorthWestern's existing Electric Utility natural gas-fired generation facilities.

Such volumes may be considered collectively as part of NorthWestern's natural gas acquisitions.

NorthWestern may use a pro-rata allocation of natural gas production resource acquisitions that will serve both its Retail Natural Gas Customers and Electric Utility natural gas-fired generation. NWE will designate such an allocation at the time of signing an Asset Purchase Agreement.

5) Natural Gas Production Resource Acquisition Thresholds to Serve Retail Customers

Future natural gas acquisitions will be subject to specific thresholds, based on the estimated future unit revenue requirements of the production and the natural gas market price forecast at the time of bidding. These natural gas acquisitions thresholds, established in conjunction with Part 3 and Item 1 of Part 4 above, are shown in Table 6 below:

Table 6

Natural Gas Utility Acquisition Thresholds to Serve Retail Customers			
20-Year Levelized Unit Revenue Requirement In Part 3 Above	Future Unit Revenue Requirement/ Market Price Crossover – In Years	Percent of Natural Gas Volume In Part 4, Item 1 Above	Natural Gas Utility Annual Bcf Levels
Less than $4.00	5 or Less	75%	15.0
$4.00 to $5.00	4 or Less	50%	10.0
$5.00 to $6.00	3 or Less	25%	5.0

It should be noted that the above thresholds were established based on the future natural gas market prices and shape of the forward curve at the time NWE and the MCC were drafting the Stipulation Agreement that was filed and approved by the MPSC in Docket No. D2012.3.25. To the extent future natural gas market prices are greater than the ranges established in Table 6 above and NWE believes a purchase is still warranted, NWE shall discuss this and any other attributes that may have material value as part of such a purchase determination with the MCC in advance of finalizing a purchase.

Additionally, these thresholds only apply to the associated Natural Gas Production and any gathering/delivery assets. They do not apply to any Natural Gas Transmission or Distribution Pipeline assets that may be part of a purchase.

Finally, any changes in the basic fundamentals of the Natural Gas Market that may alter the prices, terms, and quantities of the above thresholds may require that they be modified.

SECTION 6. DEMAND SIDE MANAGEMENT

The process of developing the 2011 Electricity Supply Resource Procurement Plan produced an updated forecast of natural gas prices and natural gas avoided costs that were useful in reviewing the cost-effectiveness of natural gas Demand Side Management ("DSM") measures. These updated natural gas DSM avoided costs were slightly higher than the previous avoided costs NorthWestern had been using. For this Plan, these new natural gas avoided costs were used to screen the list of possible natural gas DSM measures for cost-effectiveness and review and revise the various rebates and incentives that are offered in NorthWestern's natural gas DSM programs.

Because the change in natural gas DSM avoided costs was minimal, the analysis produced no change in the number of qualifying natural gas DSM measures or associated levels of rebates and incentives that were included in NorthWestern's ongoing natural gas DSM programs since the 2010 Natural Gas Biennial Procurement Plan (2010 Plan) was developed and implemented. During the 2010 - 2012 program period, NorthWestern continued its contracts with outside service providers working on its natural gas DSM programs and maintained its DSM program rebates and incentives at levels approximately equal to 50% of incremental DSM measure cost.

Natural Gas Demand Side Management (DSM) Program

Funding for Natural Gas DSM program activities comes primarily from natural gas supply rates. The natural gas DSM program activities associated with that funding source are the focus of this natural gas DSM Plan. Certain other natural gas DSM activities that complement NorthWestern's natural gas DSM effort are funded by the Universal System Benefits ("USB") Charge; these activities are noted here but are not extensively detailed in this Plan.[3]

[3] These activities include E+ Home Energy Audit for the Home or Business, Building Operator Certification, and E+ Free Weatherization Program.

There are two general components to the natural gas supply-funded E+ Natural Gas DSM program portfolio:

A. DSM programs that provide prescriptive mail-in rebates for programmable thermostats, certain heating equipment, increased insulation levels for attics, above-grade walls, basement walls and crawl space walls, and more[4] are offered to NorthWestern natural gas space heat customers. These natural gas DSM programs are organized into two major categories, residential and commercial, with each category further subdivided into existing construction and new construction.

For the time period covered by this Plan, NorthWestern intends to offer and operate DSM programs as described in the following, incorporating the qualified DSM measures listed in Table 7 below. However, the results of the DSM evaluation discussed below and future updates to natural gas avoided costs may result in the addition or removal of certain DSM measures and/or other changes to program design.

Supporting these programs will be ongoing education, marketing and outreach campaigns that utilize mass media, targeted mailings, direct personal contact, interaction with trade allies and associations, electronic media, and other techniques to solicit customer interest and build participation. These DSM programs are well established, and NWE expects they will be continued with minimal changes.

A brief description of these programs follows, and additional details are available at www.northwesternenergy.com.

[4] Certain restrictions apply based on existing insulation levels. Details on qualifying beginning and ending insulation levels, along with additional program details, are available at http://www.northwesternenergy.com/display.aspx?Page=Insulation_Rebate&Item=102

1. E+ Residential Rebate Programs (existing and new construction):

   NorthWestern offers prescriptive rebates as a primary technique to encourage its customers to install approved DSM measures, including insulation (attic/ceiling, crawlspace, slab, exterior above grade wall), programmable thermostats, water heater tank insulation, boiler controls, boiler/furnace diagnostic testing and repair, high efficiency water heater, high efficiency boiler/furnace/room heater, faucet aerators, low-flow showerheads, and self-install weatherization and window treatments. NorthWestern maintains a list of Preferred Contractors who enter into an agreement with NorthWestern to meet certain requirements.[5] Different levels of rebates are paid depending on whether or not customers use Preferred Contractors to install insulation measures.

   Participating customers are responsible for purchasing and installing approved measures and/or programmable thermostats and applying to NorthWestern for incentives or rebates. Interested customers are provided program information, forms, a rebate schedule, and step-by-step instructions on how to participate in the program process. To receive a rebate, customers are required to submit proof-of-purchase (receipts and paid invoices) along with a completed rebate application. NorthWestern, or its agent KEMA, verifies installations by performing site inspections on a randomly selected sample of projects.

2. E+ Commercial Rebate Programs:

   E+ Natural Gas Savings for New Businesses: This program offers prescriptive rebates for qualifying natural gas energy saving measures in new construction. Rebates are offered for high efficiency furnace/boiler or water heater, stack heat exchanger, air conditioning heat recovery, Energy Management System ("EMS") optimization, and water heater tank wrap insulation.

   E+ Natural Gas Savings for Existing Businesses: This program offers prescriptive rebates for qualifying natural gas energy saving measures in existing facilities. Eligible measures include high efficiency furnace/boiler or water heater, stack heat exchanger, infrared fryer, boiler tune-up, DHW circulation pump time clock, EMS optimization, water heater tank wrap insulation, boiler pipe insulation, service hot water pipe insulation, heating duct sealing and insulation, ceiling insulation, exterior wall insulation, and high efficiency windows.

[5] The list of Preferred Contractors can be found on the NorthWestern Energy website at http://www.northwesternenergy.com/documents/E+Programs/HVACContractors.pdf.

3. E+ Business Partners Program:

This program provides customized incentives to commercial and industrial customers for electric and natural gas conservation. Examples of projects include measures to improve lighting, heating and cooling ("HVAC") systems, refrigeration, air handling, and pumping systems. Program eligibility extends to both new facilities and retrofit of existing facilities.

Table 7 below presents a list of qualifying measures for the 2012-2013 program period.

Table 7: 2012-2013 Natural Gas DSM Program Qualifying Measures

Residential: Existing Buildings
Attic/Ceiling R-0 to R-49 Insulation
Attic/Ceiling R-11 to R-49 Insulation
Attic/Ceiling R-19 to R-49 Insulation
Crawlspace R-0 to R-19 Insulation
Exterior Wall R-0 to Blow-In R-13 Insulation
Slab Insulation R-0 to R-5 (4 ft)
Service Hot Water Pipe/Boiler Pipe Insulation
Water Heater Tank Insulation
Boiler Controls
Boiler Diagnostic Testing, Repair and Maintenance
Furnace Diagnostic Testing, Repair and Maintenance
Heater Diagnostic Testing, Repair and Maintenance
High Efficiency Condensing Boiler
High Efficiency Condensing Furnace
High Efficiency Gas Room Heater
High Efficiency Water Heater
Programmable Thermostat
Faucet Aerators
Low-Flow Showerheads
Self Install Weatherization
Self Install Window Treatment
Residential: New Buildings
Natural Gas Boiler Controls
High Efficiency Condensing Boiler
High Efficiency Condensing Furnace
Northwest Energy Star Manufactured Home (Natural Gas)
Commercial: Existing Buildings
Boiler Tune-Up
DHW Circulation Pump Time clock retrofit system
Heating Duct Sealing & Insulation
Energy Management System (EMS) Optimization (commissioning)
High Efficiency (power burner/premium) furnace/boiler > 90%
High Efficiency Windows (Multiple Glazed, Low Emissivity)
High Efficiency Water Heater EF > 0.62 or > 90% TE
Service Hot Water Pipe/Boiler Pipe Insulation
Infrared Fryer

Commercial: Existing Buildings cont.
Ceiling Insulation
Exterior Wall Insulation (above grade)
Stack Heat Exchanger
Domestic water heater tank insulation
Commercial: New Buildings
Energy Management System (EMS) Optimization
Heat Recovery from AC
High Efficiency (Power Burner/ Premium) Furnace/Boiler 90% Efficiency
High efficiency water heater EF equal to or greater than 0.62 or 90% thermal efficiency
Stack Heat Exchanger
Water Heater Tank Blanket/Insulation

Additional details on program participation and various rebates and incentives offered for each of these measures can be found at www.northwesternenergy.com.

B. Home Energy Events sponsored by NorthWestern that are offered during the fall months at numerous community locations across the NorthWestern natural gas service territory in Montana. The purpose of these events is to promote energy efficiency and distribute free weatherization and energy savings kits to natural gas customers.

These events also provide consumer education on several topics, including proper installation of energy saving measures, electrical safety, renewable energy and various tax credits and incentives that are available. NorthWestern provides free home weatherization starter kits to NorthWestern residential natural gas customers.[6] These community events are popular with customers and are well attended.

Table 8 presents summary figures on locations of and participation at the Home Energy Events during the previous six years.

[6] Kits include door weather-stripping, door sweeps, window plastic, insulating foam, outlet/switch plate gaskets, low-flow showerheads and faucet aerators.

Table 8: E+ Residential Gas Savings Program Home Energy Events

Dates	Locations	Participants
2005	15	5,903
2006	59	9,527
2007	39	5,255
2008	43	5,286
2009	44	6,604
2010	28	9,429
2011	39	3,527
2012	37	3,059

NorthWestern will again conduct Home Energy Events in fall 2013 at approximately 30 locations around Montana.

Other Natural Gas Energy Efficiency Activities

During 2011 and 2012, NorthWestern also operated USB-funded DSM programs that provide energy efficiency services to NorthWestern's customers and contribute to the overall annual energy savings acquired. These programs include the E+ Free Home Weatherization Program and the E+ Energy Audit for the Home.[7] These two programs will be continued unchanged for the foreseeable future.

Education, Marketing and Promotion

NorthWestern plans to continue its many marketing, promotional, and outreach activities to increase awareness of the programs and encourage participation. NorthWestern sponsors many training seminars during the year to increase awareness of energy conservation and energy efficiency opportunities in residential and commercial/industrial buildings and facilities. NorthWestern's objectives are to educate and inform consumers, building operators, designers, builders, and trade allies about using electric equipment efficiently and to promote the E+ programs, services, information resources, and incentives.

[7] These programs are not funded by NorthWestern's energy supply rates and, therefore, are not considered to be included in the scope of this Plan. More information on these programs is available at http://www.northwesternenergy.com/display.aspx?Page=Energy_Efficiency_Home_MT&Item=102

A blend of USB and DSM funds covers the cost of these activities. The following is a list of training seminars that NorthWestern has sponsored in the past and will continue to sponsor in 2013-2014:

1. *Preferred Contractor Training* – Each year NorthWestern provides training to various contractors that install energy savings measures in the residential homes of consumers who participate in its DSM programs.
2. *Building Operator Certification* – This is targeted at public schools, non-profit hospitals, state and local government with funding provided for tuition and travel.
3. *Northwest ENERGY STAR Verifier Training* – This Home Energy Rating System week-long course includes Northwest Energy Star Homes Program administration, Home Energy Rater System administration, performance testing, and use of home analysis software.
4. *Northwest ENERGY STAR Builder Training* – This educational effort targets builders, trade allies, lenders, and realtors interested in the details of how to build *ENERGY STAR* homes with an emphasis on the whole-house system.

To communicate information about DSM and other NorthWestern programs to its customers, NorthWestern will continue to sustain a presence in Montana communities through media, events, appearances, meetings, speaking engagements, booth sponsorships, trade fairs and shows, conferences, and other special events.

NorthWestern will continue to maintain its networks of retailers, distributors, and other trade allies and provide a steady stream of information about its natural gas DSM programs through print, radio, television, distribution literature, and personal contact. The following list provides examples of the many activities NorthWestern plans to promote its DSM programs:

1. *Trade Shows* - NorthWestern will sponsor and staff exhibits and educational display booths at eight home improvement trade shows around Montana providing educational materials and promoting its natural gas DSM programs.

2. *"Game Day" Exhibits* - NorthWestern will sponsor and staff educational exhibits about its DSM programs at University of Montana, Montana State University, Montana Tech, and Carroll College football games.

3. *Display Booths:*
    a. Montana Lodging and Hospitality Association Conference
    b. Montana Joint Engineers Conference
    c. Montana School Association
    d. Montana Building Code Education Conference
    e. Montana Hospital Association Conference
    f. Montana American Institute of Architects Conference
    g. Montana Society of Health Care Engineers/ASHRAE[8]
    h. Home & Garden Improvement Shows
    i. Farmers Markets

4. *Other Efforts:*
    a. Parade of Homes Sponsorships
    b. E+ Audit for the Home – direct mail campaigns in fall and spring of each year. Spot placement of television, radio, and newspaper promotion.

Cost-effective DSM Potential and Annual DSM Goals

In 2008, NorthWestern completed a detailed Natural Gas DSM Assessment as described in the 2008 Natural Gas Biennial Procurement Plan. The scope of the study included new and existing residential and commercial buildings. The focus of the study was on the 10-year, 2008–2017 period of time. The results of that Natural Gas DSM Assessment included natural gas DSM Supply curves showing energy efficiency potential at various levels of avoided costs (refer to Figure 1).

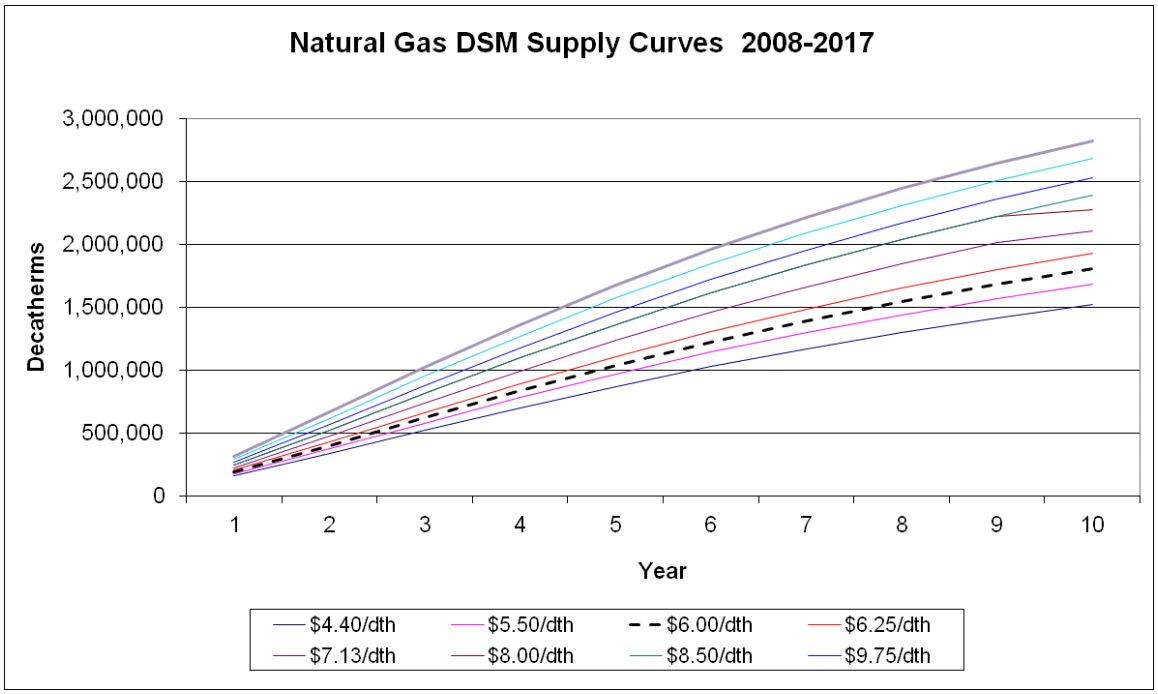
As previously noted, natural gas prices have changed recently and the expected future natural gas prices are different than the prices used in the 2008 Natural Gas Biennial Procurement Plan. Consequently, the natural gas avoided cost that NorthWestern is now using for DSM program planning is calculated at $5.92/Dkt (nominal 20-year levelized).

Examination of the Natural Gas DSM Supply Curves developed in the 2008 DSM Assessment and presented in Figure 1 show that at an avoided cost level of approximately $5.92/Dkt (refer to the black dotted line in Figure 1 below) the estimated total cost-effective achievable DSM potential is approximately 1.8

[8] The American Society of Heating, Refrigerating and Air Conditioning Engineers is an international technical society for all individuals and organizations interested in heating, ventilation, air-conditioning, and refrigeration. See www.ashrae.org.

million Dkt per year. This amount is a revised estimate of the cost-effective natural gas DSM potential over the period covered by the Assessment using the updated avoided cost of $5.92/Dkt.

Figure 1: Natural Gas DSM Supply Curves 2008-2017



NorthWestern has operated successful natural gas DSM programs during 2008-2012 and has acquired natural gas DSM that is producing an estimated 399,520 Dkt/year. Using the results of the 2008 Natural Gas DSM Assessment, adjusting gas DSM potential for avoided costs as indicated by the Gas DSM Supply Curves shown in Figure 1, and then netting out the 399,520 Dkt/year of natural gas DSM that has been acquired through previous DSM program activity, NorthWestern estimates that approximately 1.4 million Dkt/year of cost-effective natural gas DSM remains available.

In the 2008 Natural Gas Resource Plan, NorthWestern established a 10-year Natural Gas DSM Plan to acquire a total of 2,100,000 Dkt of cumulative installed annual energy savings capability. This, in turn, resulted in establishment of annual natural gas DSM goals (over a 10-year period) equal to one-tenth of that

total amount, or 210,000 Dkt/year. Although NorthWestern has fallen somewhat short of its aggressive annual natural gas DSM target at 210,000 Dkt/year in recent years, the annual target will remain at 210,000 Dkt for the 2013-2014 program period.

A new natural gas DSM Potential Assessment will be completed before the end of the 2013-2014 program period (see below). Updated natural gas avoided costs will be used for that assessment and revised estimates of cost-effective achievable DSM potential, associated budgets, and qualifying measures will be developed. This updated information will be used to inform future DSM acquisition plans and specific program elements and activities.

In the interim, NorthWestern will strive to continue operate cost-effective natural gas DSM programs that produce natural gas savings equal to or greater than its annual goal.

Table 9 summarizes NorthWestern's annual goals and revised budgets for its Natural Gas DSM program portfolio.

Table 9: Natural Gas DSM Plan Goals and Annual Budget

Year	**DSM Goal (dKt)**	**Budget***
2013	210,000	$ 3,122,553
2014	210,000	3,578,680
2015	210,000	3,442,614
2016	210,000	3,614,745
2017	210,000	3,795,482
2018	210,000	3,985,257
2019	140,000	4,184,519
Total	**1,400,000**	**$ 25,723,850**

*Note: The annual budget escalates at 5% per year; an estimate of $300,000 for expenses related to the Natural Gas DSM Potential Assessment is included in year 2014.

Updated Study of Natural Gas DSM Potential

Long-run natural gas avoided costs underpin the cost-effectiveness analysis and ultimate derivation of estimates of natural gas DSM potential. The previous assessment of cost-effective natural gas DSM potential was completed in 2008. Because natural gas supply costs and energy efficient technologies and associated costs have changed since completion of the 2008 DSM Assessment, the estimates of remaining cost-effective natural gas DSM potential may no longer be valid. It is good practice to periodically update these estimates with a new Natural Gas DSM Potential study, and NorthWestern plans to complete this work during the time period covered by this Plan.

An outside firm will be selected through a blind competitive bidding process and retained to complete the customary scope of work for a Natural Gas DSM Potential Assessment. The Request for Proposals will be issued in 2013 and the winning bidder will be selected by year end 2013. Work will proceed to completion during 2014 in time to inform the next Natural Gas Procurement Plan with a new Natural Gas DSM Acquisition Plan developed, in part, from the results of this work.

DSM Evaluation

A comprehensive evaluation of all of NorthWestern's DSM programs (both electric and natural gas) operated during the period 2007-2011 is nearing completion. This DSM Evaluation is being performed by an outside, independent third party that was retained by NorthWestern as a result of a competitive bidding process. The final report covering the findings, conclusions and recommendations of this outside firm is expected no later than December 14, 2012.

NorthWestern will carefully review and consider the results of this work as natural gas DSM program operation continues into the future.

SECTION 7. MODELING AND ANALYSIS

Regarding the use of modeling for portfolio planning and natural gas procurement, the Tariff Guidelines state:

1. The utility's natural gas supply portfolio planning and resource procurement and decision-making processes should incorporate cost-effective computer modeling and analyses.

2. The modeling employed by the utility should contribute to prudent and informed judgments in the portfolio planning and resource acquisition process.

The nature of NWE's natural gas supply has many characteristics that reduce the amount and type of modeling that must be performed as NWE carries out the Energy Supply function. Two key characteristics associated with meeting Energy Supply obligations are natural gas load growth stability and natural gas market liquidity. Given the stability of Energy Supply's load growth, planning requirements are simplified. Also, natural gas markets are relatively liquid, and, even if there are unanticipated loads, additional supply is usually available as long as adequate transportation exists.

The Energy Supply Market Operations function ("Operations") does employ computer modeling (primarily using cost-effective spreadsheets), and the use of market forecasts, in its work. However, Operations has, and will continue to, primarily employed a combination of disciplined market purchases (consistent with this Plan) and opportunistic purchases informed by market intelligence and experience – both of which are informed by long-term forecasts that are discussed below.

<u>Natural Gas Price Market Trends</u>

NWE uses commodity price forecasts (including electricity and fuels) in many facets of its business: to mark certain fixed price contracts to market, to estimate earnings and cash flows, to forecast debt levels, to place value on potential natural gas and electric asset purchases, etc. In doing so, NWE is consistent in

its creation and application of forecasted values. The methodology and construction of forward price curves should be the same regardless of the individual application for which they are being used. If not, decisions could be made in one business area that may lack consistency with decisions made in other business areas.

To guard against this, a fundamental component of NWE's risk management policy is that forward price curves must be constructed using the same methodology regardless of the application for which they are used. To meet the objectives outlined above, NWE bases its gas price forecast using the then-current forward price information published by NYMEX for AECO. Hence, a price forecast assembled in June 2012 will have a different value than one assembled in November 2012, but the difference will be due to changes in forward prices and not changes to the methodologies used to make the price forecast. Escalators based on the implicit price deflator for Gross Domestic Product are applied to periods beyond the forward price strip timeline. Also, depending on the activity for which the utility is constructing the price forecast, adjustments may be made to the base forecast to consider delivery of the commodity to Montana end users.

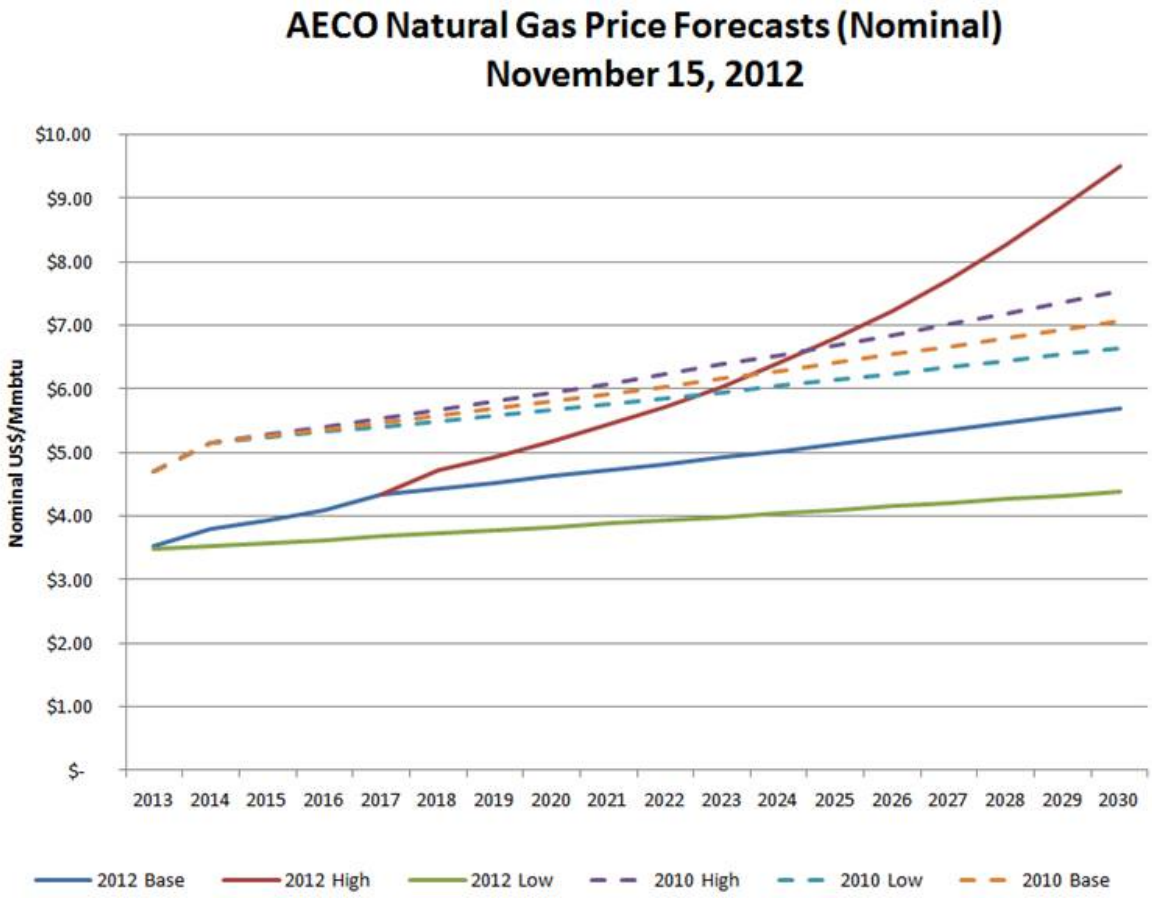
The natural gas market continues to experience a fundamental shift downward since the natural gas price forecast was developed for the 2010 Natural Gas Biennial Procurement Plan. Reasons for this shift include a decrease in demand due to the current national economic recession, and, to a greater extent, the increase in the amount of recoverable natural gas reserves due to the increasingly wider use of "horizontal drilling and fracking" technologies to access previously unobtainable natural gas reserves.

The base case natural gas price forecast developed for the 2012 Plan is based on the forward price strip at AECO dated November 15, 2012. Prices beyond December 2017 were determined by applying a simple annual escalation factor of 2.10%. The annual escalation was computed using an average of the GDP

Implicit Price Deflator from 1992 through 2011. This method is consistent with the forecast methodology used in NWE's 2011 Electricity Supply Resource Procurement Plan, although AECO prices and the IPD escalator have been updated to reflect current conditions.

In order to consider deviations from the base case forecast, high and low cases were developed. The High Price Case was computed by applying gradual increases in the escalation rate to the Medium, or Base, Case forecast: 3% in 2018; 5% in 2019-2022; 6% in 2023-2026; and 7% in 2027-2032. The Low Price Case was computed by simply applying the three-year implicit price deflator average (2008-2010) of 1.35% to the Medium Case beginning in 2013. Figure 2 below shows the 2012 natural gas price forecast along with the 2010 Plan natural gas price forecast for comparison purposes.

Figure 2: AECO Natural Gas Price Forecasts



Although long-term natural gas forecasts have inherent limitations, the information shown above provides NWE another set of reference price trajectories to consider in its resource acquisition decision-making process. Natural gas price assumptions are important for natural gas acquisition planning. However, both long and short-term uncertainties make over-reliance on these tools problematic if not considered in the context in which they were created.

NWE understands that its acquisition strategies must take uncertainty into account. (In fact, short-term uncertainties and price volatility are factors that argue strongly for a systematic purchasing approach such as NWE describes below in its hedging proposals). Actual resource acquisition decisions, while utilizing some perspectives from long-term forecasts, are based more on short-term fundamentals.

NWE also uses natural gas forward market prices to observe the prices at which market participants are willing to transact for delivery in future months. This provides information, but only at a particular point in time. Forward prices augment the information provided in the longer-term fundamental natural gas price forecasts.

SECTION 8. RISK MANAGEMENT AND MITIGATION

Hedging Plan Going Forward from January 2013

The goal of NWE's short-term hedging strategy is to dampen natural gas price volatility in an effective, systematic, and efficient manner. NWE currently purchases approximately 87% of its physical natural gas supply based on an index (market) price. The hedging strategy NWE proposes for this plan involves four main areas:

1) Utilizing storage to provide reliability and remove a portion of the expected price volatility;
2) When applicable, using storage to capture the difference between winter and summer priced natural gas, resulting in transactions that are beneficial to NWE. The net value of these transactions is credited to

customers and, therefore, reduces rates. This is referred to as "asset monetization";

3) Entering into transactions that convert index priced purchases to fixed or known values, and

4) Continuing to pursue opportunities to purchase natural gas reserves and production in order to provide long-term price stability.

While these strategies seek to mitigate supply price volatility and provide supply cost stability and affordability, they cannot shield customers from natural gas market price trends. NWE will work diligently to dampen price volatility and currently proposes to have, at a minimum, 60 to 75 percent of the upcoming winter heating season fixed price hedged.

Storage

Storage has proven to be an effective and flexible tool to mitigate short-term price impacts. When natural gas is placed in storage, the index-priced natural gas becomes a known price, and, therefore, becomes a fixed price hedge. NWE has developed the following storage plan for future injection and withdrawal periods.

Energy Supply is proposing to use roughly 8.5 Bcf of the 9 Bcf of storage natural gas capacity that is available for its use (see Table 10 below). Of this 8.5 Bcf, NWE is proposing to use up to 1.0 Bcf for asset monetization, with any credit given back to ratepayers. The remainder, or 7.5 Bcf, is the amount of storage that will be available for use during heating seasons (see Table 11). Energy Supply can inject another 0.5 Bcf of additional storage to reach the total of 9.0 Bcf, and may do so, depending on changing supply and market conditions.

Asset Monetization

Asset monetization is simply capturing, when available, the price spread between when natural gas is injected in storage and when it is withdrawn and sold. For example: If natural gas can be purchased for injection in May – July at an average price of $3.00/Dkt and can simultaneously be sold to a third party for

withdrawal in the following Jan – Mar for $5.00/Dkt, there is a $2.00 spread. The carrying cost at these prices would be approximately $0.17/Dkt. The incremental transportation cost to deliver this natural gas to a liquid market (AECO) would be $0.70/Dkt. So, whenever the average injection month's price is greater than the average withdrawal month's price by more than $0.87/Dkt, it makes sense to optimize or fill storage and flow the residual revenue back to customers through reductions to natural gas cost. Obviously, NWE will attempt to time these transactions to maximize customer benefit. If the spread is not large enough to recover the cost, asset monetization will not occur and the total storage inventory target will be reduced by the proposed asset monetization volume of 1.0 Bcf. The differential between summer and winter prices is very small right now. This means that spreads greater than $0.87/Dkt may be unlikely for the next two heating seasons.

Table 10. Physical Natural Gas Storage Injection Plan (April - October xxxx)

Est. beginning balance (March 31, xxxx)	0 .3 Bcf
Injection during March-Oct. (flowing gas less load)	8.2
Total	8.5 Bcf

Table 11. Proposed Natural Gas Storage Usage

Estimated natural gas withdrawn for winter needs	7.5 Bcf
Natural gas available for asset monetization	1.0
Total	8.5 Bcf

Table 12 below provides an illustration of how storage should refill during the injection season and how it could be used during the withdrawal season. These numbers are for illustrative purposes only and are subject to numerous conditions. Weather (heating degree days), for example, is one of the most significant variables that will affect the injections and withdrawals of natural gas to/from NWE's storage. The 1.0 Bcf of asset monetization will only be utilized

when the price spread between the injection price and the withdrawal price allows for additional reductions to natural gas cost after recovery of all carrying and transport costs.

Table 12. Systematic Natural Gas Storage Usage

Systematic use of natural gas storage (volumes in 000's cubic feet)

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Total	Nov-Mar
Apr	450	-	-	-	-	-	-	-	-	(310)	(280)	(310)	(450)	(900)
May	-	800	-	-	-	-	-	-	-	-	-	-	800	-
Jun	-	-	1,500	-	-	-	-	-	-	-	-	-	1,500	-
Jul	-	-	-	1,900	-	-	-	-	-	-	-	-	1,900	-
Aug	-	-	-	-	1,800	-	-	-	-	-	-	-	1,800	-
Sep	-	-	-	-	-	1,500	-	-	-	-	-	-	1,500	-
Oct	-	-	-	-	-	-	250	-	-	-	-	-	250	-
Nov	-	-	-	-	-	-	-	(1,100)	-	-	-	-	(1,100)	(1,100)
Dec	-	-	-	-	-	-	-	-	(1,750)	-	-	-	(1,750)	(1,750)
Jan	-	-	-	-	-	-	-	-	-	(1,800)	-	-	(1,800)	(1,800)
Feb	-	-	-	-	-	-	-	-	-	-	(1,700)		(1,700)	(1,700)
Mar	-	-	-	-	-	-	-	-	-	-	-	(1,000)	(1,000)	(1,000)
Starting Bal -> 300	450	800	1,500	1,900	1,800	1,500	250	(1,100)	(1,750)	(2,110)	(1,980)	(1,310)	(250)	(8,250)
Cumulative Month End Bal ->	750	1,550	3,050	4,950	6,750	8,250	8,500	7,400	5,650	3,540	1,560	250	Winter Hedge	(7,500)

The amount of available winter storage hedge (7.5 Bcf) is a function of storage available in October (8.5 Bcf) less the 1.0 Bcf NWE has proposed to make available for asset monetization.

Hedging

NWE'S preferred method of long-term hedging is the continued purchase of natural gas production assets.

NWE has not entered into any fixed price swaps in more than two years. NWE reserves the right to use this hedging vehicle in the future, when and if the need arises. Any transactions would be subject to the limitations set out below.

The primary vehicle for medium-term hedging will be fixed price swaps (agreements that allow for settlement between an agreed-upon fixed price and an agreed-upon index) executed at prices less than $7.00/Dkt. NWE proposes the following medium-term or multi-year hedging strategy:

a. Continue to have the ability to enter into 2 Bcf of "layered" fixed forward contracts for delivery in each November through March of the years 2012/2013, 2013/2014 and 2014/2015;

b. The result will be a declining volume of fixed price contracts over the next year;

c. Continue similar purchases annually thereafter until a minimum of 2 Bcf is available at fixed prices from these hedges during November through March in each year, and

d. Once the existing fixed price hedges are fully reduced to the 2 Bcf level, the seasonal, short-term hedging activity will be reviewed to ensure that the total volume of natural gas being fixed price hedged is appropriate. Currently, the target is 60% - 75% of the total winter supplies.

NWE will document its analysis of market conditions at the time it enters into fixed price hedges. This documentation will include (1) NWE's view of North American supply versus demand for the next two years, including Western U.S. and Western Canada supply versus demand; (2) economic factors both globally and locally; (3) extrinsic factors such as weather disruptions or infrastructure disruptions to supplies in North America or locally, and (4) localized supply versus demand growth on the NWE natural gas system.

Call Option Study

NWE studied the practical value of purchasing call options compared with fixed price swaps for the 2011 and 2012 heating seasons. NWE investigated the use of call options with three categories of strike price: at-the-money (ATM), $0.50 out-of-the-money (OTM), and $1.00 OTM. Market quotes for call options at each of these three levels were obtained on dates when NWE considered entering into fixed price swaps. Total volume for the heating season was assumed to be 2 million MMBtu.

The results of these comparisons were mixed. See Attachment 3 for detailed results.

In 2011, forward market prices were declining as the heating season approached. The price of a financial swap for the heating season purchased at the end of October was lower than the strike prices on the call options. Because of this, call options purchased during the spring and summer of that year would have expired unexercised and NWE would have purchased the financial swap for the heating season at the end of October. All three call option strategies would have been more beneficial than the fixed price swap strategy. The fixed price swap strategy would have cost $4.151 per MMBtu for a total of $8.3 million. The most beneficial option strategy in this case – purchasing $1.00 OTM call options – would have resulted in costs of $3.610 per MMBtu, or a total of $7.2 million.

In 2012, the fixed price swap strategy would have been more beneficial than buying call options. Forward prices for the heating season increased during the late summer and early fall. The ATM call options would have been in the money at expiration, and therefore NWE would have exercised them. The OTM call options would not have been in the money at expiration. The strategy of hedging with fixed price swaps would have resulted in costs of $3.125 per MMBtu for a total of $6.25 million. The most attractive option strategy – ATM calls – would have resulted in costs of $3.460 per MMBtu and a total of $6.9 million.

Liquidity

Liquidity is a serious issue that must be taken into account by NWE and policy makers. NWE is raising the liquidity issue in this Plan to begin discussion on how best to address these concerns. NWE is not seeking to use this Plan as the forum for resolving the issues surrounding liquidity; rather, NWE is using this opportunity to outline the issue and to note that liquidity concerns are significant and must be addressed.

A liquid asset is commonly thought of as cash or an asset easily converted into cash. Ensuring the availability of sufficient liquidity is necessary to guarantee that a company can meet its short-term liabilities. NWE, like all businesses, has a finite amount of liquidity available to meet all of its business functions. Thus, there are ongoing competing business demands between all of the various business functions for the available liquidity. For example, the functions of Electricity and Natural Gas supply both require the use of large amounts of liquidity as does maintenance, refurbishment, and organic growth of the transmission and distribution systems.

NWE is continuously working to assure it has sufficient liquidity to operate all of its business functions, including Energy Supply. Currently, Energy Supply has limited ability to generate or gain access to liquid assets (such as short-term lines of credit) and thus it must “borrow” or lean on other areas of the company for its liquidity. In doing so, it is in a sense taking the liquidity of the other areas (regulated transmission and distribution) to operate Energy Supply functions.

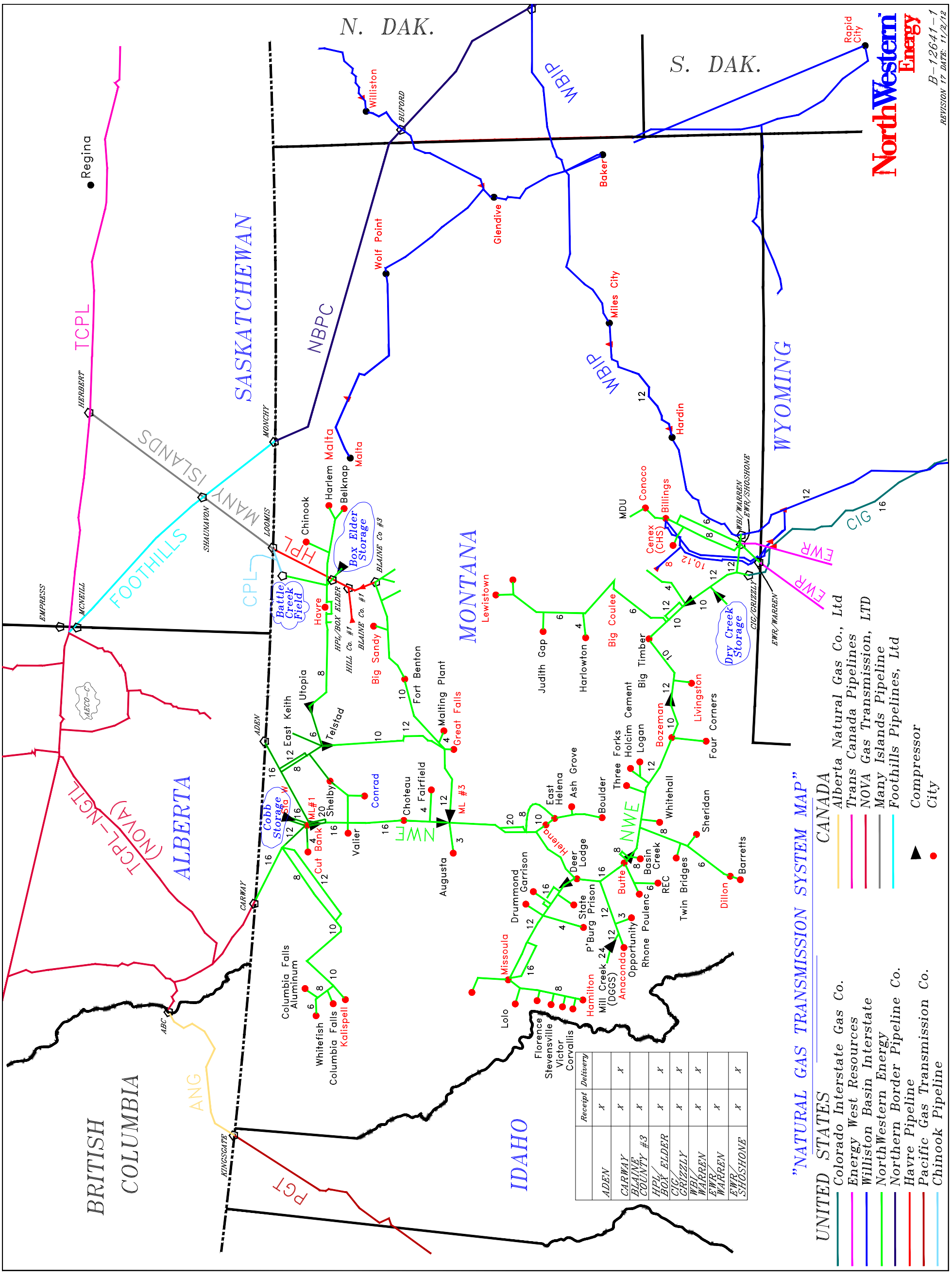
Implementation of natural gas hedging actions can impact the liquidity of NWE and the effects (depending on the type and term of hedging actions, and the volume of the hedges) may become significant to NWE’s operations. For example, for every 1.0 Bcf of natural gas secured at a fixed price, a one-dollar move in the market would cause the mark-to-market to change by $1 million. In addition to mark-to-market concerns, substantial upfront-cash outlays are required to fill storage. For instance, if natural gas prices are $3.50 per Dkt, a $3.5 million outlay is required for each 1.0 Bcf of natural gas placed in storage.

Each of these scenarios would require substantial amounts of liquidity. As explained above, these Energy Supply-related liquidity demands must compete with other business areas of NWE.

SECTION 9. TRANSPARENCY AND DOCUMENTATION

NWE believes this Natural Gas Procurement Plan provides a clear and transparent description of the approach Energy Supply will take in serving customers' needs. Energy Supply will follow this Plan (unless NWE, using its judgment, believes modifications are necessary). The procurement environment is highly complex; developments can be swift and often require experience to properly interpret, and transactions are numerous. That said, any deviations from this Plan will be clearly documented by Energy Supply and communicated to stakeholders. The importance of documentation in the regulatory process is clear.

NWE has attempted to provide a clear and defined acquisition strategy in this Plan and awaits feedback from the MPSC concerning its strategies. Discussions with the MPSC and MCC about the Plan, strategies and actions have been ongoing. NWE believes this method of communication should continue and will schedule discussions throughout the upcoming plan period.


"NATURAL GAS TRANSMISSION SYSTEM MAP"
UNITED STATES
Colorado Interstate Gas Co.
Energy West Resources
Williston Basin Interstate
NorthWestern Energy
Northern Border Pipeline Co.
Havre Pipeline
Pacific Gas Transmission Co.
Chinook Pipeline
CANADA
Alberta Natural Gas Co., Ltd
Trans Canada Pipelines
NOVA Gas Transmission, LTD
Many Islands Pipeline
Foothills Pipelines, Ltd
Compressor
City
NorthWestern Energy
B-12641-1
REVISION 17 DATE: 11/2/12
BRITISH COLUMBIA
ALBERTA
SASKATCHEWAN
MONTANA
N. DAK.
S. DAK.
WYOMING
IDAHO
TCPL
TCPL-NGTL (NOVA)
FOOTHILLS
MANY ISLANDS
CPL
HPL
NBPC
WBIP
NWE
EWR
CIG
ANG
PGT
ABCO-C
Regina
Williston
Glendive
Baker
Rapid City
Wolf Point
Miles City
Hardin
Malta
Harlem
Belknap
Chinook
Havre
Big Sandy
Lewistown
Judith Gap
Harlowton
Big Coulee
Big Timber
Livingston
Four Corners
Bozeman
Whitehall
Sheridan
Dillon
Barretts
Twin Bridges
Butte
Basin Creek
REC
Anaconda
Opportunity
Rhone Poulenc
Three Forks
Holcim Cement
Logan
Boulder
Ash Grove
East Helena
Helena
Deer Lodge
State P'Burg Prison
Hamilton
Mill Creek (DGGS)
Drummond
Garrison
Missoula
Lolo
Florence
Stevensville
Victor
Corvallis
Columbia Falls Aluminum
Whitefish
Columbia Falls
Kalispell
Augusta
Great Falls
Malting Plant
Fort Benton
Choteau
Fairfield
Conrad
Valier
Shelby
Cut Bank
Utopia
Telstad
East Keith
Cobb Storage
Battle Creek Field
Box Elder Storage
Dry Creek Storage
Cenex (CHS)
Billings
Conoco
MDU
EMPRESS
MCNEILL
HERBERT
SHAUNAVON
LOOMIS
MONCHY
ADEN
CARWAY
KINGSGATE
ABC
HPL/BOX ELDER
HILL Co. #1
BLAINE Co. #1
BLAINE Co #3
WBI/WARREN
EWR/SHOSHONE
CIG/GRIZZLY
EWR/WARREN
ML#1
ML #3
Receipt
Delivery
ADEN
CARWAY
BLAINE COUNTY #3
HPL/BOX ELDER
CIG/GRIZZLY
WBI/WARREN
EWR/WARREN
EWR/SHOSHONE

NorthWestern Energy
Summary of Neighboring Natural Gas Local Distribution Companies (LDC) Hedging Activities
Great Divide Energy Consulting
September 30, 2012

Great Divide Energy Consulting ("GDEC") was engaged by NorthWestern Corporation (NorthWestern) to gather information about hedging activities of neighboring natural gas local distribution companies (LDCs).

GDEC reviewed LDC's in Washington, Idaho, North Dakota, South Dakota, Oregon, Wyoming, Colorado, Nebraska, California, Utah, Arizona, New Mexico, and Nevada that had residential volume exceeding 5 Bcf annually (as a filter for review) according to the U.S. Energy Information Administration (EIA) Natural Gas Annual Respondent Query System (EIA-176 Data through 2010). GDEC also examined LDC's in Montana (excluding NorthWestern) that had residential volumes exceeding 2 Bcf using the EIA report described above. (Please see Table 1 at the end of the report for a list of the LDCs reviewed.) As background for the project, GDEC reviewed regulatory filings, natural gas procurement plans, annual reports, integrated resource planning documents, and articles. Additionally, some phone contact was made with staff of the LDCs and regulatory bodies.

While efforts were made to be thorough, additional information may be available regarding the hedging activity of the LDCs that GDEC reviewed.

Key Observations

- There is a wide array of hedging strategies used by LDCs
- There is not uniform transparency in hedging strategies
- There is a wide spectrum in hedging activity
    - From 1) very little to no hedging to 2) very actively managed hedging strategies
- Hedging windows varied from the prompt heating season to multi-year strategies
- Hedging strategies mention the use of one or more of the following:
    - Fixed price physical purchases
    - Storage
    - Financial swaps
    - Use of physical and financial options
    - Purchasing supply from multiple basins that may have different prices
    - Purchasing from multiple counterparties
    - Price or time triggers that would require activity
    - Quarterly updates with regulatory bodies to discuss the hedging strategy
    - Statements that there was benefit in reducing price spikes and the realization that the hedging strategy may not result in the lowest price

Summary by Company

Southern California Gas Company (SoCalGas) – California
In 2010, SoCalGas's residential volume in California was 245.7 Bcf. Hedging and procurement plans are confidential. Little information was obtained regarding their hedging activity.

Pacific Gas – California
In 2010, Pacific Gas's residential volume in California was 201.4 Bcf. Hedging and procurement plans are confidential.

From (page 77 of 399) the 2011 Annual Report of Pacific Gas and Electric Company to California Public Utilities Commission:

> Natural Gas Procurement (Core Gas Supply Portfolio)
> The Utility enters into physical natural gas commodity contracts to fulfill the needs of its residential and smaller commercial customers known as "core" customers. (The Utility does not procure natural gas for industrial and large commercial, or "non-core," customers.) Changes in temperature cause natural gas demand to vary daily, monthly, and seasonally. Consequently, varying volumes of natural gas may be purchased or sold in the multi-month, monthly, and to a lesser extent, daily spot market to balance such seasonal supply and demand. The Utility purchases financial instruments such as swaps and options as part of its core winter hedging program in order to manage customer exposure to high natural gas prices during peak winter months. These financial instruments are considered derivative instruments.

Public Service Company of Colorado (PSCO) – Colorado
In 2010, PSCO's residential volume in Colorado was 95.6 Bcf.

PSCO has a Gas Price Volatility Mitigation Plan (GPVM). The GPVM has very limited public visibility.

The following was taken from a Stipulation Agreement adopted on March 17, 2010 regarding Docket No. 10A-027G regarding the PSCO Gas Price Volatility Mitigation Plan for its Gas Utility Operation for the gas purchase year July 1, 2010 through June 20, 2011:

- The GPVM Plan details the circumstances under which Public Service plans to use natural gas storage, fixed price contracts, and Commission-authorized financial instruments in hedging natural gas prices as part of its portfolio for acquiring natural gas supplies for its gas utility operations.
- On March 11, 2010, Public Service and Staff filed a Stipulation and Agreement, a non-confidential copy of which is attached to this Order as Attachment A. The Stipulation and Agreement applies to the GPVM Plan for the Gas Purchase Year July 1, 2010 through June 30, 2011 and to the remaining two Gas Purchase Years, ending June 30, 2013.
    - It largely applies to long-term hedging (beyond the current year), but it also contains new price floors and annual gas hedging budgets that apply to current year hedging as well.

- The Stipulation and Agreement represents an agreement between the parties on several key areas:
    - Long-Term Strategy and Use of Over-the-Counter Based fixed-for-Float and Costless Collar Instruments: Public Service believed that the Commission had approved GPVM plans that allowed it to target up to 25 percent of its seasonal electric and heating gas requirements for hedging long-term gas supplies.
        - It further noted that it had implemented long-term hedges as part of a 2 to 5 year strategy under previous GPVM plans.
        - Staff did not believe that Public Service had transacted for any hedges out that far and that previous authority approved such long-term hedging. In the Stipulation and Agreement, the parties agree that Public Service may enter into long-term hedges of 2 to 3 years when gas prices are at or below the floor price on the date of hedge purchase.
        - The Stipulation and Agreement provides that Public Service is limited to long-term hedges out 2 to 3 years.
        - Further, total hedged quantities will not exceed more than 25 percent of either the forecasted electric generation or gas heating seasonal requirements
        - Hedge Budget and Floor Price: One significant aspect of the Stipulation and Agreement established a new method for determining the floor price. In prior GPVM applications, a simple dollar level was proposed for a floor price. Public Service and Staff now propose to use an average of the previous four years' heating season index price to determine the floor price.

Questar Gas Company (Questar) – Utah
In 2010, Questar's residential volume in Utah was 65.5 Bcf.
From pages 5-4 to 5-5 of the Questar Gas Company Integrated Resource Plan (For Plan Year: June I, 2012 to May 31, 2013), submitted: June 8, 2012 to the Public Service Commission of Wyoming (*Note: the Price Stabilization is applicable to Wyoming and Utah)*:

Price Stabilization

During the winter of 2000-2001, the Office, Division and the Utah Commission developed a working depth of knowledge through information provided by the Company and seminars from outside consultants.

On May 31, 2001, the Utah Commission approved a Stipulation submitted May 1, 2001, in Docket Nos. 00-057-08 and 00-057-10 proposing price stabilization measures be used in conjunction with natural gas purchases during the winter months (October - March). Pursuant to the Stipulation, the Company proceeded to hedge portions of its base-load winter natural gas portfolio.

In Wyoming Docket No. 30010-GP-01-62, the Company requested to include costs to reduce price volatility such as occurred during the winter of 2000-2001. In its October 30, 2001 Order, the Wyoming Commission approved the Company's request to include

stabilization costs in the 191 Account. The Company does not engage in any speculative hedging transactions by limiting these price stabilization efforts to contracts or contract amendments that fix or cap prices for gas supplies that are contractually committed to Questar Gas' system for delivery to end-use retail customers.

For the October 2011 - March 2012 time period, the Company hedged 32 percent of its base load purchased gas supplies. This resulted in 6.3 Bcf being hedged at an average price of $4.27/MMBtu.

The Company plans to continue a hedging program for the 2012 - 2013 winter heating season.

Puget Sound Energy (PSE) – Washington
In 2010, PSE's residential volume in Washington was 60 Bcf. Little information was obtained regarding their hedging activity.

Northwest Natural Gas Co (NW Natural) – Oregon
In 2010, NW Natural's residential volume in Oregon was 32.8 Bcf.

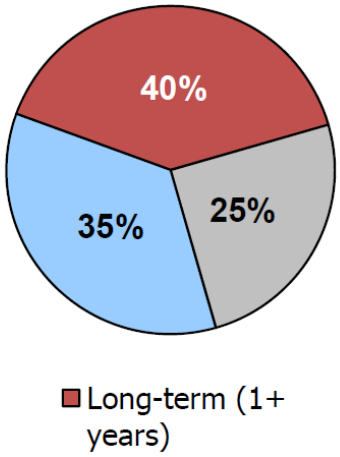
The following is described in the NW Natural 2011 Modified Integrated Resource Plan (pages 3.1 – 3.11)

- The Company's current supply portfolio consists of both contracted natural gas supplies, which can be used year-round and transported on the interstate pipeline system, and storage gas supplies, which are stored either underground or as liquefied natural gas (LNG) in tanks.
- Joint Venture for Gas Reserves
    - In April of 2011, NW Natural entered into agreements with Encana Oil & Gas, under which NW Natural and Encana agreed to participate in a joint venture to develop gas reserves located in the Jonah Field, located in the Green River Basin in Sublette County, Wyoming. Under these agreements, NW Natural pays a portion of the costs of drilling in the Jonah field, and in return receives rights to the production of gas from certain sections of the field.
    - NW Natural expects that the venture will help provide long-term supplies for NW Natural's Oregon utility customers over about a 30-year period. During the first 10 years of the agreement, NW Natural expects the volume of gas received under the transaction (or the volumes of gas to which its proceeds from the joint venture will be applied) to be approximately 8-10 percent of the company's average annual requirements for its utility operations. It also expects its investment to result in the availability of about 93 billion cubic feet (Bcf) of gas at a highly competitive price as compared to equivalent gas supply purchase alternatives over the same term.
    - The joint venture with Encana serves an important role in the Company's overall portfolio because it operates somewhat like a long-term physical and financial hedge. And, rather than being limited to a duration of several years, which is the term that is normally available in the market, the transaction gives NW Natural's customers price stability for a portion of their portfolio that is of a much longer term. As was developed in the proceeding where the transaction with Encana was

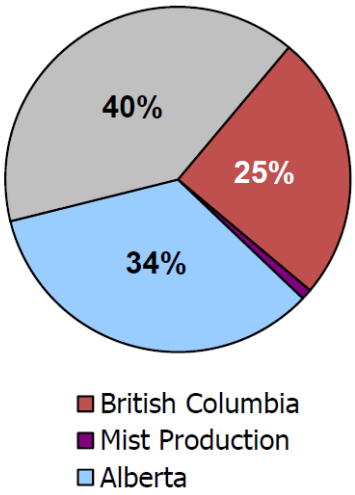
reviewed by the OPUC, NW Natural believes that this transaction offered NW Natural's customers the lowest reasonable cost available for long-term price stability, with a significant expected value benefit to customers relative to fixed price hedging alternatives.

- Supply Diversity
  - NW Natural's pipeline contracts enable it to purchase roughly one-third of its supplies from each of the major supply regions in the area: British Columbia, Alberta and the U.S. Rockies.
  - In general, spot purchases had been less than 10% of total purchases due to this heavy reliance on term contracts.
  - More recently, with the surge in supplies represented by shale gas, the Company has decreased its reliance on term contracts and allowed spot purchases to be much higher.

Gas Supply Diversity by Contract Length for Calendar Year 2010



Gas Supply Diversity by Source for Calendar Year 2010



- Physical and Financial Hedging
  - Four goals guide the physical and financial hedging of gas supplies: 1) reliability, 2) lowest reasonable cost, 3) price stability, and 4) cost recovery.
  - The use of selected financial derivative products provides NW Natural with the ability to employ prudent risk management strategies within designated parameters for natural gas commodity prices

The NW Natural 2012 Annual Purchased Gas Cost and Technical Rate Adjustments filed with the Public Utility Commission of Oregon on August 31, 2012 (page 63 of 143) describe the following:

- NWN "swaps" monthly index prices for fixed prices and other price structures through the use of financial instruments in order to increase price stability across the year.
- Volumes in storage, including any supply-basin storage arrangements, provide another form of hedging.
- In addition, the Encana gas reserves deal provides a hedge for Oregon customers in a completely different form. Overall, NWN's target this year is to hedge the prices of approximately 75% of its expected annual purchase volumes for the upcoming 12-month period commencing in November, the traditional start month for its supply contracts. As storage currently accounts for about 19% of annual purchase quantities, gas reserves will amount to roughly 7% for this tracker year and local (Mist, Oregon) gas production adds another 1%, approximately 48% is left to be financially hedged. This is a drop from prior years when typically 57% to 59% of expected purchases were hedged with financial derivatives.
- Actual financial hedging targets are set by an executive level oversight committee within the company (the Gas Acquisition Strategy & Policies Committee or GASP) and could change from time-to-time in reaction to market conditions or other factors as the year progresses.
- In addition to financial swaps, the company's derivative policies allow the use of financial options (puts and calls) to limit exposure to gas price fluctuations. For example, these instruments can be used in combination in order to "collar" the price of gas for specific purchases.

The following is from the 2012 NW Natural 2011 Form 10-k:

Gas Cost Management Strategy (page 8)

We engage in a number of strategies to mitigate the cost of gas sold to utility customers. Our primary strategies for managing gas commodity price risk include:

- negotiating fixed prices directly with gas suppliers;
- negotiating financial derivative instruments that effectively convert the floating index price in a physical gas supply contract to a fixed price (referred to as commodity price swaps);
- negotiating financial derivative instruments that effectively set a ceiling or floor price, or both, on a floating price physical supply contract (referred to as commodity price options such as calls, puts, and collars);
- buying gas and injecting it into storage;
- buying a physical supply of gas reserves for longer term price stability; and

- using an asset management service provider to produce revenues that reduce our utility's net cost of gas sold

Managing gas prices and supplies (page 42)
We typically hedge gas prices on approximately 75 percent of our anticipated year-round sales volumes based on normal weather. For the 2011-12 gas year (November 1, 2011 – October 31, 2012), we entered the gas year hedged at a level of approximately 75 percent of our forecasted sales volumes, including 51 percent financially hedged and 24 percent physically hedged with a combination of gas inventories in storage, local production from the Mist, Oregon area, and production of gas reserves from our investment with Encana Oil & Gas (USA) Inc. (Encana). The production of gas reserves is related to a new investment we made beginning in 2011 to hold working interests in leases related to both currently producing and new wells in Encana's Jonah gas field located in Rock Springs, Wyoming. For further discussion of gas reserves, see Investments in Gas Reserves under Strategic Opportunities below and Gas Reserves under Rate Mechanisms below.

In addition to the amount of gas hedged for the current gas contract year, we are also hedged at approximately 32 percent for the 2012-13 gas year and between 9 and 13 percent hedged for annual requirements over the following five gas years. Our hedge levels are subject to change based on actual load volumes, which depend to a certain extent on weather and economic conditions. Also, our storage levels may increase or decrease based on storage expansion or storage recall by the utility.

Foreign Currency Risk (page 79)
The costs of certain natural gas commodity supplies and certain pipeline services purchased from Canadian suppliers are subject to changes in the value of the Canadian currency in relation to the U.S. currency. Foreign currency forward contracts are used to hedge against fluctuations in exchange rates for our commodity and commodity related demand charges paid in Canadian dollars.

The joint venture that NW Natural entered into with Encana is described in NW Natural Stipulation [Applications for Deferred Accounting Order Regarding Purchase of Natural Gas Reserves (UM 1520) and Proposed Purchase of Natural Gas Reserves (UG 204)] approved on May 25, 2011 by the Public Utility of Oregon (pages 3 and 5):

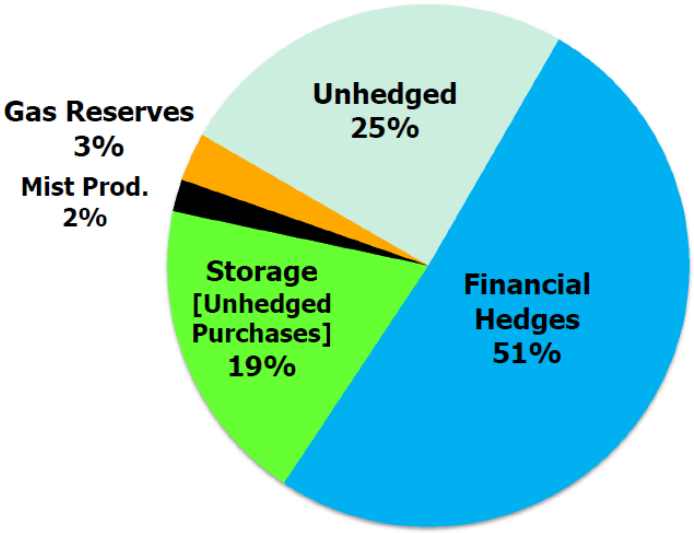
> Under the Proposed Transaction, NW Natural will invest about $251 million over 5 years and expects to receive approximately 93 billion cubic feet (BCF) of gas over a 30-year term. NW Natural expects to receive about 26 percent of the gas in the first 5 years, 63 percent in the first 10 years, 83 percent in the first 15 years, and 94 percent by year 20. The remaining volume would be received until the wells are capped at the end of their useful life. NW Natural either can take its gas in kind, or it can have Encana sell the gas at market prices, allowing the Company to purchase replacement gas at market prices. NW Natural proposes to finance its investment with a mix of debt and equity. The Company proposes to include the drilling costs in rate base, while the operational costs will be recovered as ordinary gas cost expenses.

Under the Proposed Transaction, NW Natural estimates that it will pay an average price of approximately $5.15 per dekatherm.

Slides (58 and 66) from the Oregon Public Utilities Commission 2012 Natural Gas Outlook Workshop held on July 26, 2012:

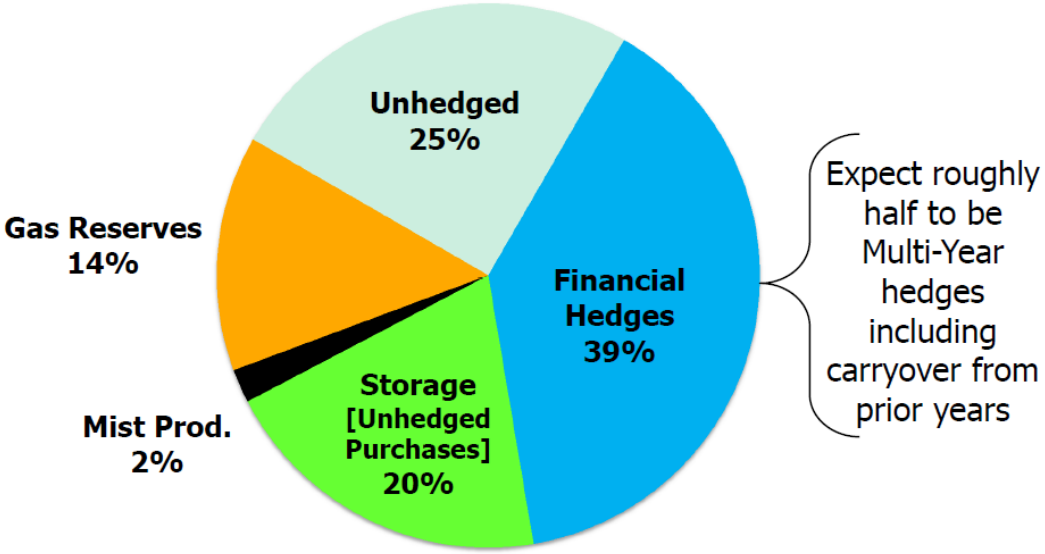
NW Natural

Managing Price Volatility – 2011/12



NW Natural

Estimated Portfolio – 2015/2016



San Diego Gas and Electric Gas Corporation (SDG&E) – California
In 2010, SDG&E's residential volume in California was 31.2 Bcf.

According to the California Energy Commissions 2009 Report entitled Natural Gas Procurement by Utilities (page 5):

> In April 2008, SoCalGas began procuring natural gas for San Diego Gas & Electric (SDG&E) core customers.

For more information regarding SDG&E, please see the information later in the report for Southern California Gas Company (SoCalGas).

Southwest Gas Corporation (Southwest) – Nevada
In 2010, Southwest's residential volume in Nevada was 30.7 Bcf.

On pages 3 and 4 of their 2011 10-k, Southwest states:

> To mitigate customer exposure to market price volatility, Southwest seeks to fix the price on a portion (ranging from 25 percent to 50 percent, depending on the jurisdiction) of its forecasted annual normal-weather volume requirement, primarily using firm, fixed-price purchasing arrangements that are secured periodically throughout the year. The firm, fixed-price arrangements are structured such that a stated volume of gas is required to be scheduled by Southwest and delivered by the supplier. If the gas is not needed by Southwest or cannot be procured by the supplier, the contract provides for fixed or market-based penalties to be paid by the non-performing party.
>
> Southwest has a hedging program utilizing standalone derivative instruments as part of its price volatility mitigation program. This hedging program is currently utilized in both Arizona and Nevada. The combination of fixed-price contracts and derivative instruments is designed to increase flexibility for Southwest and increase supplier diversification. The costs of such derivative financial instruments are recovered from customers through the PGA mechanisms.

On page 49 and pages 62-70 of Southwest's 2012 Nevada Annual Resource Planning Information Report dated June 4, 2012 filed with the Public Utility Commission of Nevada, the following information was obtained:

> Southwest Gas endeavors to acquire the best-cost portfolio considering price, reliability, flexibility, and protection from short-term market volatility, while still providing security of supply to meet sales customer demands. Balancing these factors against the costs of competing resource alternatives determines the ever-changing "mix" (flexible and non-flexible, index and fixed-price, with and without interstate capacity, short-term, mid-term, and long-term) of the supply portfolio. The Company's portfolio has evolved with the industry to include spot market purchases (interruptible, one month or less), term (firm, generally one year or less), and firm volatility mitigation purchases. While most of the term contracts are annual or seasonal, Southwest Gas also considers long-term alternatives.

The portfolio of supplies includes acquisitions that are identified and selected under three programs:

- Volatility Mitigation Program (VMP)
    - The purpose of the VMP is to identify and secure contracts that will mitigate short-term market price volatility and reduce customer rate volatility.
    - The Company typically schedules solicitations every three to six weeks throughout the year (excluding the months of September and October).
    - Southwest Gas incorporated financial fixed-for-floating swaps into the VMP for gas supplies that start flowing November 1, 2008, for the 2008/2009 gas year and have been incorporated into all portfolio years since then.
        - These financial transactions compete directly with, and are an alternative to, firm fixed-price physical transactions.
        - The combination of a financial fixed-for floating swap and a purchase of a firm indexed-price gas supply achieves the same price volatility mitigation Southwest Gas previously achieved purchasing firm fixed-price physical gas supplies.
    - Southwest Gas negotiated bilateral contracts conforming to International Swaps and Derivatives Association (lSDA) standards with multiple financial trading counter-parties.
        - Currently, Southwest Gas maintains ISDA agreements with seven counter-parties and will enter into additional ISDA agreements as opportunities present themselves
        - Through the use of swaps, additional counter-parties are added to Southwest Gas' potential supplier mix. This reduces Southwest Gas' counter-party credit risk by spreading the agreements among more counter-parties and reduces the risk that counter-party credit concerns would limit the number of participating suppliers.
- Term Purchases
    - Southwest Gas solicits proposals from potential suppliers through an annual process held each spring.
    - The solicitation outlines Southwest Gas' supply needs for a 12-month period beginning the following November 1, which marks the beginning of Southwest Gas' traditional natural portfolio period.
    - The Company will also consider long-term proposals, which may span multiple natural gas years. Southwest Gas considers all bona fide proposals that it can practically implement and selects the most economically favorable proposals, which are added to the existing supply portfolio, creating the supply "mix."
- Spot Purchases
    - Monthly
        - Subject to review of anticipated demands and available term and VMP purchases, Southwest Gas may acquire monthly baseload supplies from the spot market.
        - Such supplies can be purchased either at a fixed or indexed price

- Daily

Southwest Gas has a diversified, broad base for its sources of supply of natural gas for its operations. Geographically, the sources are located in both the Lower 48 States (in the western portions of the U.S.) and in Canada. In the Lower 48 States Southwest Gas' sources originate in the Rocky Mountain area, the San Juan Basin and the Permian Basin. In Canada the source is the Western Canadian Sedimentary Basin (WCSB).

Southwest Gas believes that the current design of the VMP is prudent and provides an appropriate level of volatility mitigation in customers' rates. "Optimizing" the hedging program is not a realistically achievable goal. However, during 2009 and 2010, discussions with Commission Staff and the Bureau of Consumer Protection (BCP) prompted Southwest Gas to examine the impact of its hedging programs on customer rates, considering the effect of current recovery mechanisms. Because of these discussions, Southwest Gas modified the VMP goal, reducing it from 50 percent to 30 percent. The remaining question is the timing of acquisitions. The timing of the indexed-price term portfolio is based on certainty of supply and liquidity. Price and price volatility are not significant in determining the timing, since the indexed-price bids move with the market.

Southwest Gas selects the indexed-price portfolio in the early summer months prior to each portfolio period. This portion of the portfolio consists primarily of flexible peaking contracts. The timing of the indexed-price portfolio means that suppliers will have a firm idea of the supplies available to them for the upcoming winter and most supplies likely have not yet been sold to others. In other words, liquidity is high.

For the indexed-price portfolio, Southwest Gas' practices ensure certainty of supply while taking advantage of market liquidity. It should be noted that the recent economic downturn, combined with increasing supplies due to exploitation of shale gas have led to increasing supply with decreased demand. As a result, market liquidity has improved.

For the VMP portfolio, Southwest Gas bases the timing of purchases to attempt to both reduce short-term volatility and achieve the best-cost result. By spreading the purchases over time, the result is a time-averaged cost. For each year's portfolio, 15 separate solicitations are made. These solicitations are spread over a 22-month period. Southwest Gas completes VMP purchases at least two months prior to the beginning of a new portfolio year. Price volatility generally increases in the two months prior to the actual flow month. By completing purchases prior to this period, Southwest Gas avoids purchasing during the period of potentially high volatility.

Purchasing VMP supplies further in advance would have advantages and disadvantages. One advantage is that prices would be averaged over a longer period. Thus, year-over-year price volatility would be further reduced. However, there are disadvantages. Splitting the portfolio into more solicitations would require smaller package sizes. Smaller packages, particularly in northern Nevada, are less likely to appeal to suppliers who must carry the same administrative burden with smaller revenue. The likely result would be fewer bidders and/or higher prices. Another disadvantage is the reduced market

liquidity experienced when buying further in advance. Markets become less liquid as one goes further into the future. A liquid market is one in which sufficient trading activity exists to make the buying and selling relatively easy and transparent. Most activity in the forward natural gas market is centered on the upcoming two months. The upcoming year to two years is fairly active. Beyond that, liquidity drops dramatically. To the extent that discussions with Staff and BCP result in changes to the VMP, the timing and frequency of solicitation may be modified.

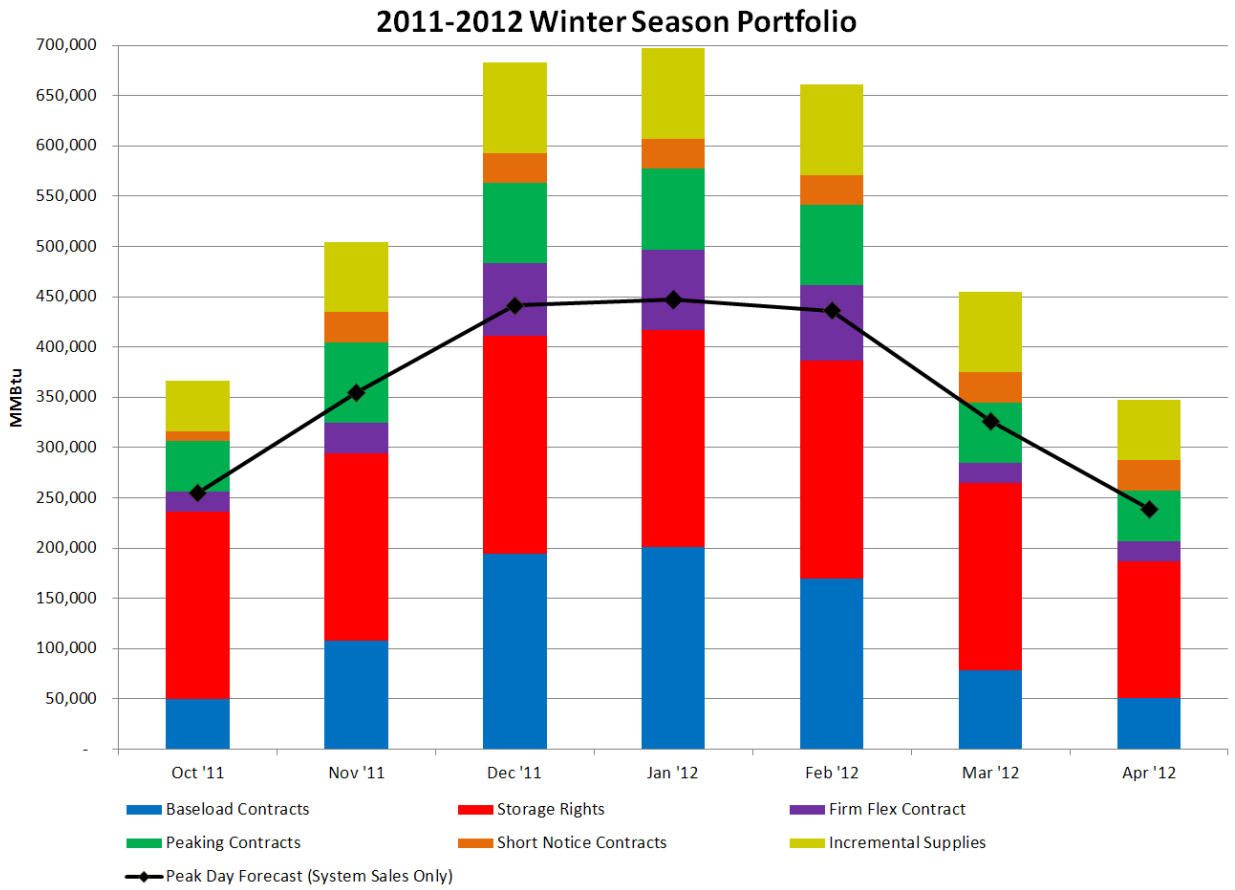
New Mexico Gas Company (NMGC) – New Mexico
In 2010, NMGCO's residential volume in Arizona was 30.3 Bcf.

On page 2 of a NMGC filing (Original Rule No. 25, Rate Rider No. 4) with the New Mexico Public Regulation Commission effective January 30, 2009. Financial Risk Management Expenses are defined as:

> The costs, including fees, premiums and derivative gains and losses, incurred by the Company to financially manage future gas cost in a manner consistent with generally accepted practices in the natural gas industry.

The following information regarding the NMGC portfolio was found on pages 15 to 22 of the 2012-2022 NMGC Natural Gas Integrated Resource Plan dated April 02, 2012:

- NMGC does not own or control natural gas production or processing, but rather contracts with producers and marketers for supplies to be received at market pooling points or processing plant tailgates
- NMGC employs a portfolio of gas supply contracts, transportation contracts with interstate pipelines, and gas storage contracts to provide natural gas to its customers.
- NMGC utilizes a diverse portfolio of short-term and long-term gas supply contracts to meet expected demand and unforeseen demand requirements.
- Each year, NMGC analyzes historic system demand and updates its forecasts. This forecasted load is separated into two classes: baseload demand and swing demand.
    - Baseload demand is the minimum demand expected every day.
    - Swing demand is any incremental demand above baseload.
- Purchases of baseload gas are comprised of a mix of monthly, daily and fixed price contracts.
    - This approach is intended to provide reliability to the gas supply, and reduce price volatility.
- NMGC purchases natural gas from the San Juan basin and Permian basin in order to supply gas to its customers.
    - The San Juan and Permian basins contain numerous market hubs where natural gas is traded.
- Storage is an important component of the NMGC supply portfolio. NMGC currently has rights to 3.2 Bcf of storage capacity.
- Volatility as a whole has been significantly less than in past years. This is due in large part to the supply-demand balance favoring supply.
- The figure below shows NMGC's 2011/2012 winter supply portfolio:



NMGC also contracts for longer-term supplies to help fulfill baseload requirements. These long-term supplies allow NMGC to have many supply contracts in place before the next winter's heating season. Going forward, NMGC will continue to evaluate long-term supplies as part of its overall supply portfolio. The figure below summarizes NMGC's contracted long-term supplies through 2021-2022. (They do not say whether contracts are index or fixed price.)

Existing Long-Term Volumes Under Contract (MMBtu/d)

	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22
October	32,000	32,000	22,000	22,000	15,000	15,000	15,000	15,000	15,000	15,000
November	84,600	84,600	48,000	48,000	35,000	25,000	25,000	25,000	25,000	25,000
December	124,600	124,600	83,000	73,000	55,000	40,000	40,000	40,000	40,000	40,000
January	124,600	124,600	73,000	55,000	55,000	40,000	40,000	40,000	40,000	40,000
February	109,600	109,600	63,000	50,000	50,000	40,000	40,000	40,000	40,000	40,000
March	64,600	64,600	38,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000
April	28,000	27,000	27,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
May	27,000	17,000	17,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
June	27,000	17,000	17,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
July	27,000	17,000	17,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
August	27,000	17,000	17,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
September	27,000	17,000	17,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000

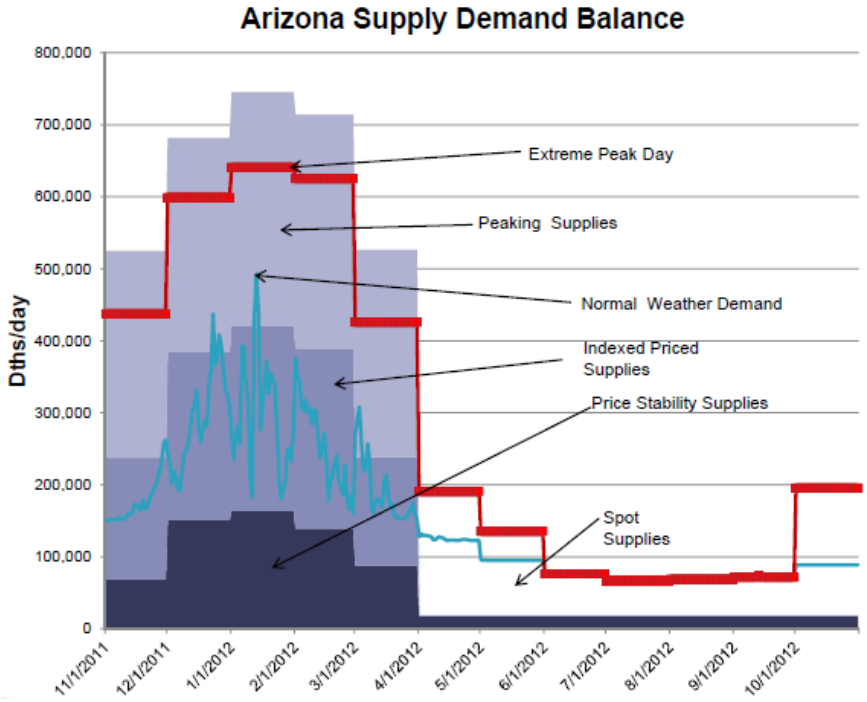
Southwest Gas Corporation (Southwest) – Arizona
In 2010, Southwest's residential volume in Arizona was 28.6 Bcf.

On pages 3 and 4 of their 2011 10-k, Southwest states:

> To mitigate customer exposure to market price volatility, Southwest seeks to fix the price on a portion (ranging from 25 percent to 50 percent, depending on the jurisdiction) of its forecasted annual normal-weather volume requirement, primarily using firm, fixed-price purchasing arrangements that are secured periodically throughout the year. The firm, fixed-price arrangements are structured such that a stated volume of gas is required to be scheduled by Southwest and delivered by the supplier. If the gas is not needed by Southwest or cannot be procured by the supplier, the contract provides for fixed or market-based penalties to be paid by the non-performing party.
>
> Southwest has a hedging program utilizing standalone derivative instruments as part of its price volatility mitigation program. This hedging program is currently utilized in both Arizona and Nevada. The combination of fixed-price contracts and derivative instruments is designed to increase flexibility for Southwest and increase supplier diversification. The costs of such derivative financial instruments are recovered from customers through the PGA mechanisms.

In its 2011-2012 Winter Preparedness Slides presented to the Arizona Corporate Commission, Southwest describes the following regarding its 2011-2012 portfolio:

- Firm contracts for both capacity and gas supply to meet design peak day
- 33% of normal load purchased at fixed price
  - Purchased 6 to 18 months in advance
  - Go to market every 4 to 6 weeks
- Remainder is firm market index contracts



Intermountain Gas – Idaho
In 2010, Intermountain's residential volume in Idaho was 19.5 Bcf.

The parent company of Intermountain is MDU Resources Group. On page 69 of MDU Resources Group Inc.'s 2011 Form 10-k it is stated that:

> The Company's policy allows the hedging of monthly forecasted purchases of natural gas at Cascade and Intermountain for a period up to three years.

Intermountain discusses the following items related to its hedging on pages 54 – 56 of its 2011-2015 Integrated Resource Plan dated August 31, 2010.

- Intermountain uses long-term firm supplies (year-round and winter-only) that have historically been priced flat to, or at a small premium to, the applicable monthly index priced.
- The Company also actively manages its various firm receipt points so that to the extent possible, purchases are made at the lowest price possible
- Intermountain frequently purchases firm spot supplies for a given month and as a rule, targets those suppliers with reputation for reliability.
- Intermountain is also active in the spot market as it manages its daily position with the various pipelines on which it flows gas supplies.
- The Company may use interruptible supplies when a failure to delivery would not result in a risk of serving its firm customers.
- To help manage price risk, the Company also utilizes NYMEX based products to "hedge" forward prices.
- Intermountain most often uses price swaps or fixed for floating agreements. The instruments provide Intermountain with the opportunity to lock-in future prices and avoid the sometimes wild market volatility
- While the Company does not utilize a fully mechanistic approach, its Gas Supply Committee meets frequently to discuss all gas portfolio issues, including price hedging, in order to provide stable and competitive prices for its customers.
- Intermountain utilizes storage capacity in four different facilities from western Washington to northeastern Utah.
    - All four locations allow Intermountain to inject excess gas into storage during off-peak periods and then hold it for withdrawal whenever the need arises.
    - The advantage is three-fold: one, the Company can serve the winter peak and while minimizing year-round firm gas supplies; two, storage allows the Company to minimize the amount of the year-round interstate capacity resource and helps it to use existing capacity more efficiently; and three, storage provides a natural price hedge against the typically higher winter gas prices.
    - Storage allows the Company to meet its winter loads more efficiently and at a generally lower a cost.

Metropolitan Utilities District of Omaha (MUD) – Nebraska
In 2010, MUD's residential volume in Nebraska was 17.2 Bcf. MUD is the fifth largest public gas utility in the United States.

Little information was obtained regarding their hedging activity.

The following information was available regarding their use of prepay structures to acquire physical gas at a discount to published indices.

MUD is part of the Central Plains Energy Project (CPEP). According to the CPEP website (www.cpepgas.org):

> CPEP is a governmental agency formed under the provisions of the Nebraska Interlocal Cooperation Act and the Nebraska non-profit corporations law. CPEP operates for the benefit of the participating municipalities.
>
> CPEP was created in August 2006 pursuant to an Interlocal Cooperation Agreement for the purpose of, among other things, securing reliable and economical supplies of natural gas for the benefit of municipal utilities. CPEP's current members include the Metropolitan Utilities District of Omaha, Nebraska ("MUD"), the City of Hastings, Nebraska ("Hastings"), and the Municipal Gas Utility of the City of Cedar Falls, Iowa ("CFU").
>
> CPEP is a joint action entity formed by an agreement executed under the Nebraska Interlocal Act. CPEP was formed to:
>
> - Seek out and secure supplies of long-term, reliable natural gas at below market prices;
> - Create economies of scale through aggregation of participant volumes;
> - Adopt a "portfolio" strategy of natural gas purchasing to attain diversification of supply and suppliers;
> - Minimize the costs and risks of natural gas acquisition to individual participants through joint action; and
> - Form supportive long-term business relationships with similarly situated public entities
>
> CPEP has entered into three financing gas acquisition projects through the issuance of tax-exempt bonds. Over the term of the contracts, the gas supply will serve a portion of MUD's customer needs at a substantial discount to market prices. The broker for the gas purchase is J. Aron & Co., a subsidiary of the Goldman Sachs.
>
> - Project 1 (2007): issued $529 million in revenue bonds – discount to gas market prices of $60 million over 20 years
> - Project 2 (2009): issued $718 million in revenue bonds – variable gas discount to market over 30 years
> - Project 3 (2012): issued $609 million in revenue bonds – discount to gas market prices of $90 million over 30 years

Black Hills Energy (Black Hills) – Nebraska

In 2010, Black Hill's residential volume in Nebraska was 12.6 Bcf.

From a Nebraska Public Service Commission filing on February 24, 2012 with an attached report by Dively and Associates, PLLC, the following information regarding Black Hills hedging program can be gleaned:

- All financial derivatives are executed by Black Hills Corporation Treasury
- Gas supply involves numerous suppliers and ten interstate pipelines
- Gas supply contracts cover three timeframes labeled as Term Supply, Monthly Supply, and Daily Supply
- Portfolio uses dollar cost averaging
- Black Hills assigns targets to a set of strategies
    - Fixed price purchases (40%)
    - Near term market purchases including monthly and daily contracts (33%)
    - Convertible call options (27%)
    - Share assignments should be viewed as general targets
- Black Hills uses hedging as a matter of insurance and the general approach is intended to protect against unusually high prices during peak demand seasons
- The combination of fixed prices and convertible call options covering 67% of supply would mitigate the effects of potentially high price movements during winter peak demand
- Under Black Hills approach of using the assignment shares, 60% of the portfolio appears to provide for the participation by some 60% of the portfolio in declining near term gas prices

Colorado Springs Utility (CSU) – Colorado

In 2010, CSU's residential volume in Colorado was 12 Bcf. CSU is a community owned utility.

From page 24 of the Colorado Springs Utilities Board Meeting Minutes dated Wednesday, January 18, 2012:

> Colorado Springs Utilities strives to reduce price uncertainty in an effort to allow customers to better plan the utilization of utility services and their respective costs. For the natural gas service, a tolerance has been established requiring specific volumes to be hedged according to a defined schedule for the purpose of reducing exposure to price volatility.
>
> As of year end, 2011, the natural gas hedging program has appropriately managed natural gas price risk by stabilizing natural gas prices to retail customers. The current natural gas hedging program requires positions be taken ratably through the year.

The following information is from pages 4.9 and 4.10 of 2011 CSU's 2011 Gas Integrated Resource Plan:

- CSU has designed a natural gas acquisition process that seeks to competitively acquire natural gas supplies while reducing exposure to short term price volatility.
- The acquisition strategy includes hedging, storage utilization, term purchases and spot purchases. Although the specific provisions of the plan are dynamic as a result of

ongoing changes in market fundamentals, the following principles guide development of the acquisition plan.

- Structuring the gas contract portfolio to meet the load shape is essential from both a reliability standpoint and an economic standpoint
- In the winter the utility typically has a portfolio of gas contracts that includes "base load" supplies that provide uniform daily supply volumes over a month or longer, and "swing" or "peaking" contracts that can be called on a day-to-day basis as needed.
- Master agreements are maintained with many suppliers to buy daily "spot" supplies as loads vary.
- Many variations on these contracts are negotiated, including different term (length of contract), receipt locations, market price formulae, timing and frequency of calls, and other volume and price adjustments.
- The data below shows the diversity in the number and type of supply contracts held by CSU.
    - Number of Supplier Contracts: 40
    - Contracted Base Load Supplies: 8
    - Contracted Swing Supplies: 7
- Most gas supply prices are negotiated relative to spot "index" prices calculated by independent publishers for actual transactions occurring for the daily and monthly periods.
- Under the hedging program gas traders negotiate financial derivative structures to temper the impact of market price volatility on our customer bills. The derivative transactions and spot index transactions fit together financially in accordance with hedge policy requirements for hedge levels and types.
- Colorado Springs Utilities' gas supply portfolio is diversified to balance changing market conditions and risk while maintaining reliable deliveries.
    - Base-load volumes are purchased under contracts ranging from three months to 30 years.
    - The base-load contracting approach for the heating season, November through April, is to cover the expected customer base-load requirements.
    - For the other period May-October, the approach is to have firm contracted supplies to cover the summer customer base-load and storage injection volumes.
    - Approximately 20% of the monthly base-load supply is acquired through a pre-paid 30 year supply contract executed in October 2008.
    - Pre-paid gas supply contracts are funded by revenue bonds at below market prices. Springs Utilities' existing pre-paid contract includes a price discount of approximately $0.98/Dth or 20% below current market prices.
    - Swing supplies are firm supply contracts with volumes nominated on a daily basis and are usually priced on a market price index. Spot supplies are negotiated on a daily basis at daily market rates.

Cascade Natural Gas Corp (Cascade) – Washington
In 2010, Cascade's residential volume in Washington was 10.3 Bcf.

On pages 44 to 46 of the Cascade's 2011 Integrated Resource Plan dated December 15, 2011, the following information is provided:

Financial Derivatives

- Cascade constantly seeks methods to ensure ratepayers of price stability.
- In addition to methods such as long-term physical fixed price gas supply contracts and storage, another means for creating stability is through the use of hedges, or financial derivatives.
- The general concept is to lock-in a forward natural gas price with a hedge, consequently eliminating exposure to significant swings in rising and falling prices.
- Financial derivatives include futures, swaps, options on futures or some combination of these.
    - Natural gas futures contracts are actively traded on the New York Mercantile Exchange.
    - In a "swap", parties agree to exchange an index price for a fixed price over a defined period.
    - Futures and swaps are typically called "costless" because they have no up-front cost.
    - Unlike futures and swaps, an option on futures only provides protection in one direction—either against rising or falling prices.
        - This arrangement would give the Company the right (but not the obligation) to buy the futures contract at a previously determined price ("strike price"). Similar to insurance, this transaction only protects the company from volatile price spikes, via a premium.
        - The premium is typically a function of the variance between the strike price compared to the underlying futures price, the period of time before the option expires, and the volatility of the futures contract.

Portfolio Purchasing Strategy

- Cascade has contracted for physical supplies for up to three years (based on a warmer-than-normal weather pattern).
- The Company's current gas procurement strategy is to have physical gas supplies under contract for 100% of year one's warmer than normal core needs, 66% of year two, and 33% of year three.
- This strategy results in the need to contract annually for one-third of the core portfolio supply needs for the upcoming three-year period.
- Under this procurement strategy, this leaves roughly 10 to 20% of the annual portfolio to be met with spot purchases. Spot purchases consist of either "First of the Month" deals executed during bid week for the upcoming month, or day purchases which are utilized to meet incremental daily needs.
- Cascade employs a bidding process when procuring Fixed physical, Indexed Spot physical, as well as financial swaps used to hedge the price of index based physical supplies.

- The Company's current gas hedging strategy is to hedge 45% of the contracted physical supplies of year 1, 30% of year 2 and 15% of year three.
- Depending on market conditions, the strategy allows for the ratchets to increase to 75%, 50% and 30%, respectively, provided current market information supports moving to a higher level.
- Currently, depressed market prices have significantly reduced the need for financial swaps; the Company's current strategy is to rely primarily on fixed-priced physical supplies for hedging purposes.
- Cascade's programmed buying approach has Cascade negotiating with suppliers and/or financial institutions throughout the year, loosely grouped during three specific time periods (Spring, Summer, and Fall).
- Utilizing the consistency of a programmed buying method as described above should help ensure that any locked-in prices provide stability over time, in addition to preventing Cascade from being over or under hedged.
- Cascade believes its gas procurement strategy is achieving diversity and flexibility in its gas supply portfolio through a combination of physical and financial structures.
- This goal encompasses not only supply basin origination and capacity limitations, but also includes a combination of pricing options that will assist Cascade in minimizing exposure to price volatility.
- The programmed buying approach to locking in a significant portion of gas prices maintains a market sensitive and balanced supply portfolio that continues to represent stable pricing as well as secure physical supplies for the Company's core customers.

The parent company of Cascade is MDU Resources Group. On page 69 of MDU Resources Group Inc.'s 2011 Form 10-k it is stated that:

> The Company's policy allows the hedging of monthly forecasted purchases of natural gas at Cascade and Intermountain for a period up to three years.

Southwest Gas Corporation (Southwest) – California
In 2010, Southwest's residential volume in California was 9.7 Bcf.

On page 3 of their 2011 10-k, Southwest states:

> To mitigate customer exposure to market price volatility, Southwest seeks to fix the price on a portion (ranging from 25 percent to 50 percent, depending on the jurisdiction) of its forecasted annual normal-weather volume requirement, primarily using firm, fixed-price purchasing arrangements that are secured periodically throughout the year. The firm, fixed-price arrangements are structured such that a stated volume of gas is required to be scheduled by Southwest and delivered by the supplier. If the gas is not needed by Southwest or cannot be procured by the supplier, the contract provides for fixed or market-based penalties to be paid by the non-performing party.

In 2005, Southwest adopted a gas procurement incentive mechanism. In the California Energy Commissions 2009 Report entitled Natural Gas Procurement by Utilities, the document explains the basics of it Gas Procurement Incentive Mechanism:

> While the basic structure is the same for the gas procurement incentive mechanisms, each utility's mechanism incorporates its own unique facets. All mechanisms have deadbands,

> where ratepayers receive 100% of any gains or incur 100% of the losses within the deadband around the benchmark. If a utility procures gas at prices lower than the benchmark, then "savings" are realized. Ratepayers and shareholders share these savings. On the other hand, if the utility procures gas at prices higher than the benchmark, then losses are realized. In this instance, ratepayers and shareholders share these losses. Benchmarks are based on gas price indices published by industry journals such as Inside FERC and Gas Daily.

In testimony regarding Gas Utilities' Incentive Mechanisms and the Treatment of Hedging Under Those Incentives (filed by Southern California Edison on August 10, 2009), Southwest's hedging program is described on page 5:

> Southwest Gas' hedging program is comprised of volume-limited purchases of physical, fixed price contracts; Southwest Gas does not execute financial hedging transactions.

Avista Corporation (Avista) – Washington

In 2010, Avista's residential volume in Washington was 9.6 Bcf

From Section 5.4 of Avista's 2012 Natural Gas Integrated Resource Plan dated August 31, 2012, Avista states the following regarding its procurement strategy:

- Competitively acquires natural gas supplies while reducing exposure to short-term price volatility
- Includes hedging, storage utilization, and index purchases
- Employs a time, location and counterparty diversified hedging strategy
    - Hedges over a period of time and establishes hedge periods within which portions of future demand are physically and/or financially hedged
    - Hedges may not be completed at the lowest possible price but they will protect our customers from price volatility
    - Access multiple supply basins
    - Transact with a range of counterparties.
- Establishes a disciplined but flexible hedging approach
    - Establishing hedge periods within which hedges are to be completed and also set upper and lower pricing points (In a rising market this reduces Avista's exposure to extreme price spikes. In a declining market this encourages capturing the benefit associated with lower prices.)
- Regularly reviews its procurement plan in light of changing market conditions and opportunities
    - Establish various targets in the initial plan design, policies provide flexibility to exercise judgment to revise/adjust targets in response to changing conditions
- A number of tools are utilized to help mitigate financial risks
    - Purchases gas in the spot market as well as the forward market
    - Many of these tools are financial instruments or derivatives that can be utilized to provide fixed prices or dampen price volatility
    - Continue to evaluate how to manage daily demand volatility, whether through option tools available from counterparties or through access to additional storage capacity and/or transportation

On page 2 of Avista's Annual Purchased Gas Adjustment (PGA) filed September 13, 2012 with the Washington Utilities & Transportation Commission, Avista states:

> Approximately 63% of estimated annual load requirements for the PGA year (November 2012 through October 2013) will be hedged at a fixed price, comprised of: 1) 10% of volumes hedged for a term of one year or less, 2) 31% of volumes from prior multi-year hedges, and 3) 22% of volumes from underground storage.

Sierra Pacific Power Company/NV Energy (Sierra Pacific) – Nevada
In 2010, Sierra Pacific's residential volume in Nevada was 8.7 Bcf.

From the 2012 Sierra Pacific's Natural Gas Information Report for the period of 2013-2015 (p.58-59) filed with the Public Utility Commission of Nevada, Sierra Pacific proposed hedging strategy contained the following:

- For delivery periods April 2013 to March 2014, the Company's gas hedging strategy is to cover 10% fixed physical contracts and 25% $1.00 out of the money (OTM) call options.
- The expected option premium cost associated with the Company's gas hedging strategy is less than 1.5% of the expected total gas expenditures per season, based upon March 2012 prices.
- Nevada Power will continue quarterly workshops with Staff and Bureau of Consumer Protection to review implementation of the approved gas hedging strategy.
- It will also continue to analyze the opportunity to use other hedging tools including the potential for fixed physical purchases.
- It diversifies the portfolio by not relying entirely on products priced at first of the month index. The degree of coverage (35%) and the strike price ($1 OTM) are currently expected to allow the Company to maintain a notification threshold for option premium expense of 1.5%.
- In the course of execution, business and common sense work together with the modeling and supporting analytics, including the quarterly review mentioned above.

Source Gas Distribution LLC – Colorado
In 2010, Source Gas's residential volume in Colorado was 7.6 Bcf. Little information was obtained regarding their hedging activity.

Montana Dakota Utility Co (MDU) – North Dakota
In 2010, MDU's residential volume in North Dakota was 7.5 Bcf. Little information was obtained regarding their hedging activity.

Atmos Energy Corporation (Atmos) – Colorado
In 2010, Atmos's residential volume in Colorado was 7.3 Bcf.

In Atmos Energy's Schedule of Rates for Gas filed with the Colorado Public Utility Commission (updated on July of 2012), Atmos states:

> "gas price management costs, incurred to mitigate the volatility of gas prices, as an approved part of Atmos' gas procurement strategy, shall include but are not limited to

> those resulting from Atmos' use of the following financial instruments: swap agreements, basis swap agreements, and call options."

On page 81-82 of the Atmos 2011 10-k., Atmos states:

> "…our customers are exposed to the effects of volatile natural gas prices. We manage this exposure through a combination of physical storage, fixed-price forward contracts and financial instruments, primarily over-the-counter swap and option contracts, in an effort to minimize the impact of natural gas price volatility on our customers during the winter heating season.
>
> Our natural gas distribution gas supply department is responsible for executing this segment's commodity risk management activities in conformity with regulatory requirements. In jurisdictions where we are permitted to mitigate commodity price risk through financial instruments, the relevant regulatory authorities may establish the level of heating season gas purchases that can be hedged. Historically, if the regulatory authority does not establish this level, we seek to hedge between 25 and 50 percent of anticipated heating season gas purchases using financial instruments. For the 2010-2011 heating season (generally October through March), in the jurisdictions where we are permitted to utilize financial instruments, we hedged approximately 35 percent..."

UNS Gas Inc – Arizona

In 2010, UNS's residential volume in Arizona was 7.2 Bcf. In a 2005 presentation to the Arizona Corporation Commission (ACC) Natural Gas Workshop, UNS outlined the following details of its Price Stabilization Policy:

- Timeframe – next 3 years in varying %'s
- Target fixed price hedges = 45%
- Utilizes "trigger dates" and "discretionary" purchases
- Discretionary purchases must be approved by Risk Management Committee
    - Includes purchases made before trigger dates
    - Includes purchases over 45%
- Products used
    - Physical gas
    - Options evaluated but not currently used
- Remainder of gas is purchased at First Of Month and Gas Daily index

In May of 2012, Decision no. 73142, Docket no. G-04204A- 1 1-0 158, the ACC recommended that UNS Gas should consider modifying its price hedging program to:

- lift the prohibition on non-discretionary purchases during the months of August, September, and October;
- utilize other financial transactions, in addition to swaps;
- and reduce the initial stabilization purchase quantities for delivery months that are two and three years out to reduce the risk of over-hedging due to overly-optimistic long-term sales forecasts

Black Hills Energy (BHE) – Colorado
In 2010, BHE's residential volume in Colorado was 6.4 Bcf. Little information was obtainable regarding their hedging activity. The 2012 Schedule for Gas that BHE filed with the Colorado Public Utilities Commission states: "Commodity Gas Cost may include separate, but specifically identifiable, hedging costs, if applicable."

Montana Dakota Utility Co (MDU) – Montana
In 2010, MDU's residential volume in Montana was 5.9 Bcf. Little information was obtained regarding their hedging activity.

Source Gas Distribution LLC – Wyoming
In 2010, Source Gas's residential volume in Wyoming was 5.8 Bcf. Little information was obtained regarding their hedging activity.

Mid American – South Dakota
In 2010, Mid American's residential volume in South Dakota was 5.5 Bcf. Little information was obtained regarding their hedging activity.

City of Long Beach – California
In 2010, City of Long Beach's residential volume in California was 5.3 Bcf. City of Long Beach Gas and Oil Department (LGBO) serves load in and around Long Beach, California. LBGO serves customers through interstate supplies delivered into the Southern California Gas Company's intrastate pipeline system, with storage withdrawals, and local gas delivered directly to LBGO's pipeline system.

In 2007 LGBO and the Long Beach Bond Finance Authority entered into a prepay structure with Merrill Lynch to acquire physical gas at a discount to published indices. The transaction is described on page 84 of the City of Long Beach Comprehensive Financial Report for the Fiscal Year Ended September 30, 2010:

> In October 2007, the Long Beach Bond Finance Authority (Issuer) issued fixed and variable rate debt of $635.7 million and $251.7 million, respectively (the Bonds). The proceeds were used to prepay the costs of the acquisition of a specified supply of natural gas to be delivered over approximately 30 years under a Prepaid Natural Gas Purchase and Sale Agreement, between Merrill Lynch Commodities, Inc. (the Seller) and the Issuer. The daily quantity of gas to be purchased by the City during this period varies month to month, but not year to year. The City projected that the daily contract quantity to be delivered in any month represents between 80 and 90 percent of the City's projected natural gas requirements. For each British Thermal Unit (MMBtu) of contract gas delivered to the City, the City shall pay an applicable Index Price for the month the delivery occurs, less $0.83 per MMBtu (the Contract Price).

In a letter dated October 8, 2011, LGBO received permission from the City Council to execute International Swap and Derivatives Association (ISDA) Agreements with several energy market risk management product providers to allow various physical and financial natural gas transactions to protect against natural gas price spikes for customers:

Natural gas price hedges would be sought primarily to protect against price spikes during winter seasons (when residential gas consumption peaks and price exposure is greatest) with terms meeting or exceeding the following conditions: 1) pricing terms indexed to the Southern California Border price; 2) market price ceilings possibly combined with price floors in hedge structures designed to prevent the average peak winter residential monthly gas bill from exceeding $100; and 3) hedges transacted incrementally in steps of no less than 25 percent, and not to exceed 100 percent cumulatively, of forecast monthly demand depending on market conditions.

Source Gas Distribution LLC – Nebraska
In 2010, Source Gas's residential volume in Nebraska was 5 Bcf. Little information was obtained regarding their hedging activity.

Energy West – Montana
In 2010, Energy West's residential volume in Montana was 2 Bcf. Energy West serves load in and around Great Falls, Montana. From reviewing Energy West's September 13, 2012 monthly tracking filing made with the Montana Public Service Commission, a combination of fixed price purchases (20%), storage withdrawals (44%) and market purchases (36%) are used to cover the November through March heating season. It does not appear that fixed price purchases are made for beyond the upcoming heating season.

Table 1: Residential Volumes

		2010 Residential Volume
California	SOUTHERN CALIFORNIA GAS COMPANY	245,673,381
California	PACIFIC GAS	201,382,753
Colorado	PUB SERVICE CO OF COLORADO	95,633,532
Utah	QUESTAR GAS COMPANY	65,508,561
Washington	PUGET SOUND ENERGY	50,993,102
Oregon	NORTHWEST NATURAL GAS CO	32,770,316
California	SAN DIEGO GAS AND ELECTRIC COMPANY	31,246,192
Nevada	SOUTHWEST GAS CORPORATION	30,678,139
New Mexico	NEW MEXICO GAS COMPANY	30,336,216
Arizona	SOUTHWEST GAS CORPORATION	28,579,080
Idaho	INTERMOUNTAIN GAS COMPANY	19,552,333
Nebraska	METROPOLITAN UTILITIES DIST OF OMAHA	17,247,501
Montana	NORTHWESTERN ENERGY *(not reviewed)*	12,723,687
Nebraska	BLACK HILLS ENERGY	12,582,985
Colorado	COLORADO SPRINGS UTILITIES	11,995,490
Washington	CASCADE NAT GAS CORP	10,304,207
California	SOUTHWEST GAS CORPORATION	9,675,617
Washington	AVISTA CORPORATION	9,647,671
Nevada	SIERRA PACIFIC POWER COMPANY	8,700,642
Colorado	SOURCE GAS DISTRIBUTION LLC	7,616,421
North Dakota	MONTANA DAKOTA UTILITIES CO	7,450,515
Colorado	ATMOS ENERGY CORPORATION	7,279,993
Arizona	UNS GAS INC	7,236,212
Colorado	BLACK HILLS ENERGY	6,354,944
Montana	MONTANA DAKOTA UTILITIES CO	5,857,449
Wyoming	SOURCE GAS DISTRIBUTION LLC	5,799,586
South Dakota	MIDAMERICAN ENERGY COMPANY	5,554,057
California	LONG BEACH CITY OF	5,310,114
Nebraska	SOURCE GAS DISTRIBUTION LLC	5,063,055
Montana	ENERGY WEST INC	2,003,152

Winter 2011-2012 Call Option Analysis

Total Quantity 2,000,000 total for the season

	Hedge With Swaps		
Quote Date	Purchase Volume	Swap Price	Cost to Hedge with Swaps
4/1/2011	285,714	$ 4.343	$ 1,240,907
5/1/2011	285,714	$ 4.576	$ 1,307,543
6/1/2011	285,714	$ 4.503	$ 1,286,629
7/1/2011	285,714	$ 4.111	$ 1,174,571
8/1/2011	285,714	$ 3.913	$ 1,118,086
9/1/2011	285,714	$ 4.019	$ 1,148,263
10/1/2011	285,714	$ 3.592	$ 1,026,400
Total	2,000,000	$ 4.151	$ 8,302,399
			$ 4.151 per MMBtu

	Hedge With ATM Calls								
Quote Date	Purchase Volume	ATM Strike	ATM Call Cost per MMBtu	ATM Call Cost	Forward Mkt at Expiration	In the Money?	Commodity Price	Commodity Cost	Total Cost to Hedge with ATM Calls
4/1/2011	285,714	$ 4.350	$ 0.473	$ 135,278	$ 3.496	FALSE	$ 3.496	$ 998,857	$ 1,134,135
5/1/2011	285,714	$ 4.600	$ 0.468	$ 133,577	$ 3.496	FALSE	$ 3.496	$ 998,857	$ 1,132,434
6/1/2011	285,714	$ 4.500	$ 0.436	$ 124,545	$ 3.496	FALSE	$ 3.496	$ 998,857	$ 1,123,402
7/1/2011	285,714	$ 4.100	$ 0.370	$ 105,617	$ 3.496	FALSE	$ 3.496	$ 998,857	$ 1,104,475
8/1/2011	285,714	$ 3.900	$ 0.318	$ 90,822	$ 3.496	FALSE	$ 3.496	$ 998,857	$ 1,089,679
9/1/2011	285,714	$ 4.000	$ 0.298	$ 85,230	$ 3.496	FALSE	$ 3.496	$ 998,857	$ 1,084,087
10/1/2011	285,714	$ 3.600	$ 0.221	$ 63,172	$ 3.496	FALSE	$ 3.496	$ 998,857	$ 1,062,029
Total	2,000,000		$ 0.369	$ 738,241	$ 3.496		$ 3.496	$ 6,992,000	$ 7,730,241
									$ 3.865 per MMBtu
									$ (0.286) vs. Swaps per MMBtu
									$ (572,157) vs. Swaps total

	Hedge With $0.50 OTM Calls								
Quote Date	Purchase Volume	$0.50 OTM Strike	ATM Call Cost per MMBtu	$0.50 OTM Call Cost	Forward Mkt at Expiration	In the Money?	Commodity Price	Commodity Cost	Total Cost to Hedge with OTM Calls
4/1/2011	285,714	$ 4.850	$ 0.296	$ 84,461	$ 3.496	FALSE	$ 3.496	$ 998,857	$ 1,083,318
5/1/2011	285,714	$ 5.100	$ 0.289	$ 82,439	$ 3.496	FALSE	$ 3.496	$ 998,857	$ 1,081,296
6/1/2011	285,714	$ 5.000	$ 0.259	$ 74,115	$ 3.496	FALSE	$ 3.496	$ 998,857	$ 1,072,972
7/1/2011	285,714	$ 4.600	$ 0.201	$ 57,362	$ 3.496	FALSE	$ 3.496	$ 998,857	$ 1,056,219
8/1/2011	285,714	$ 4.400	$ 0.157	$ 44,916	$ 3.496	FALSE	$ 3.496	$ 998,857	$ 1,043,773
9/1/2011	285,714	$ 4.500	$ 0.139	$ 39,634	$ 3.496	FALSE	$ 3.496	$ 998,857	$ 1,038,491
10/1/2011	285,714	$ 4.100	$ 0.080	$ 22,862	$ 3.496	FALSE	$ 3.496	$ 998,857	$ 1,021,719
Total	2,000,000		$ 0.203	$ 405,789	$ 3.496		$ 3.496	$ 6,992,000	$ 7,397,789
									$ 3.699 per MMBtu
									$ (0.452) vs. Swaps per MMBtu
									$ (904,610) vs. Swaps total

	Hedge With $1.00 OTM Calls								
	Purchase Volume	$1.00 OTM Strike	ATM Call Cost per MMBtu	$1.00 OTM Call Cost	Forward Mkt at Expiration	In the Money?	Commodity Price	Commodity Cost	Total Cost to Hedge with OTM Calls
4/1/2011	285,714	$ 5.350	$ 0.183	$ 52,161	$ 3.496	FALSE	$ 3.496	$ 998,857	$ 1,051,018
5/1/2011	285,714	$ 5.600	$ 0.177	$ 50,621	$ 3.496	FALSE	$ 3.496	$ 998,857	$ 1,049,478
6/1/2011	285,714	$ 5.500	$ 0.153	$ 43,630	$ 3.496	FALSE	$ 3.496	$ 998,857	$ 1,042,487
7/1/2011	285,714	$ 5.100	$ 0.110	$ 31,439	$ 3.496	FALSE	$ 3.496	$ 998,857	$ 1,030,296
8/1/2011	285,714	$ 4.900	$ 0.078	$ 22,402	$ 3.496	FALSE	$ 3.496	$ 998,857	$ 1,021,259
9/1/2011	285,714	$ 5.000	$ 0.065	$ 18,562	$ 3.496	FALSE	$ 3.496	$ 998,857	$ 1,017,419
10/1/2011	285,714	$ 4.600	$ 0.031	$ 8,719	$ 3.496	FALSE	$ 3.496	$ 998,857	$ 1,007,576
Total	2,000,000		$ 0.114	$ 227,533	$ 3.496		$ 3.496	$ 6,992,000	$ 7,219,533
									$ 3.610 per MMBtu
									$ (0.541) vs. Swaps per MMBtu
									$ (1,082,866) vs. Swaps total

Conclusion: In this example of decreasing market prices, hedging with out of the money calls is the most efficient strategy.

Winter 2012-2013 Call Option Analysis

Total Quantity 2,000,000 total for the season

	Hedge With Swaps			
Quote Date	Purchase Volume	Swap Price	Cost to Hedge with Swaps	
5/16/2012	1,000,000	$ 3.050	$ 3,050,000	
8/27/2012	1,000,000	$ 3.200	$ 3,200,000	
Total	2,000,000	$ 3.125	$ 6,250,000	
			$ 3.125	per MMBtu

	Hedge With ATM Calls									
Quote Date	Purchase Volume	ATM Strike	ATM Call Cost per MMBtu	ATM Call Cost	Forward Mkt at Expiration	In the Money?	Commodity Price	Commodity Cost	Total Cost to Hedge with ATM Calls	
5/16/2012	1,000,000	$ 3.050	$ 0.380	$ 380,000	$ 3.456	TRUE	$ 3.050	$ 3,050,000	$ 3,430,000	
8/27/2012	1,000,000	$ 3.200	$ 0.290	$ 290,000	$ 3.456	TRUE	$ 3.200	$ 3,200,000	$ 3,490,000	
Total	2,000,000		$ 0.335	$ 670,000	$ 3.456		$ 3.125	$ 6,250,000	$ 6,920,000	
									$ 3.460	per MMBtu
									$ 0.335	vs. Swaps per MMBtu
									$ 670,000	vs. Swaps total

	Hedge With $0.50 OTM Calls									
Quote Date	Purchase Volume	$0.50 OTM Strike	ATM Call Cost per MMBtu	$0.50 OTM Call Cost	Forward Mkt at Expiration	In the Money?	Commodity Price	Commodity Cost	Total Cost to Hedge with OTM Calls	
5/16/2012	1,000,000	$ 3.550	$ 0.210	$ 210,000	$ 3.456	FALSE	$ 3.456	$ 3,456,000	$ 3,666,000	
8/27/2012	1,000,000	$ 3.700	$ 0.130	$ 130,000	$ 3.456	FALSE	$ 3.456	$ 3,456,000	$ 3,586,000	
Total	2,000,000		$ 0.170	$ 340,000	$ 3.456		$ 3.456	$ 6,912,000	$ 7,252,000	
									$ 3.626	per MMBtu
									$ 0.501	vs. Swaps per MMBtu
									$ 1,002,000	vs. Swaps total

	Hedge With $1.00 OTM Calls									
Quote Date	Purchase Volume	$1.00 OTM Strike	ATM Call Cost per MMBtu	$1.00 OTM Call Cost	Forward Mkt at Expiration	In the Money?	Commodity Price	Commodity Cost	Total Cost to Hedge with OTM Calls	
Quote Date	1,000,000	$ 4.050	$ 0.120	$ 120,000	$ 3.456	FALSE	$ 3.456	$ 3,456,000	$ 3,576,000	
5/16/2012	1,000,000	$ 4.200	$ 0.058	$ 57,500	$ 3.456	FALSE	$ 3.456	$ 3,456,000	$ 3,513,500	
Total	2,000,000		$ 0.089	$ 177,500	$ 3.456		$ 3.456	$ 6,912,000	$ 7,089,500	
									$ 3.545	per MMBtu
									$ 0.420	vs. Swaps per MMBtu
									$ 839,500	vs. Swaps total

Conclusion: In this example of increasing market prices, hedging with swaps is the most efficient strategy.