5.7 Bcf to 9.0 Bcf ─ an increase of approximately 58 percent. This increase occurred because of increased compression on the transmission system and the achievement of other operational efficiencies by NWE's Natural Gas Transmission division. The added capacity was allocated among all firm storage contract holders. The maximum daily withdrawal amount was not affected by this increase in storage capacity, and remains at 121,000 Dkt for Energy Supply.

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. This range is accurate until the field reaches an inventory of 7.0 Bcf. After the 7.0 Bcf level is reached, increased storage pressure will hinder the injection capability. The Energy Supply injection capability at Dry Creek is approximately 16,500 Dkt/day. Because of the limitations at Cobb, an Energy Supply storage plan in excess of 7.0 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 all natural gas load requirements. Energy Supply provides natural gas to approximately 182,000 customers, with an estimated annual load requirement (including fuel) 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 30%. 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 peak day consumption is estimated at 223,700 Dkt/day, while the minimum summer day load requirement is approximately 16,100 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, natural gas price volatility has increased. Prices in 2008 reached all time high levels and now at the end of 2010, natural gas prices are at 10-year lows.

Energy Supply Load Sensitivity and Shape

A review of 15 previous years' loads with actual temperatures reveals annual load variations surrounding the 20 Bcf annual load estimate of between 18.2 Bcf/year (during a warm year) and 21.2 Bcf/year (during an extremely cold year). These variations of about 3 Bcf result in a total temperature-based annual load sensitivity of approximately 15 percent. Table 3 below shows the natural gas consumption for Energy Supply for the past ten years (actual 2001 through 2009, plus 10-months of actual and 2-months of estimated consumption for 2010).

NWE's load forecasts utilize weather-normalized loads. Load forecasts are computed utilizing the heating degree days (HDD)[1] derived from 15 years of

[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.

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**
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	**3,132**	**2,772**	**2,255**	**1,655**	**1,119**	**704**	**476**	**458**	**694**	**1,332**	**2,229**	**3,107**	**19,934**
% of Total	**15.7%**	**13.9%**	**11.3%**	**8.3%**	**5.6%**	**3.5%**	**2.4%**	**2.3%**	**3.5%**	**6.7%**	**11.2%**	**15.6%**	**100.0%**

The 10 year (2001 – 2010) average for the annual load is 19.9 Bcf; the 10 year average for the heating season load is 13.5 Bcf. Note, in Table 3, the months November and December 2010 are estimates.

Current Supply Components

The single most important factor in maintaining a reliable supply is NWE's ability to obtain contracts for sufficient volumes of flowing natural gas for its peak day, winter heating season, and total annual demands. Historically, these contracts provide approximately 49,000 Dkt per day to NWE's system.

However, as discussed above, Energy Supply's load can range from a low of about 16,100 Dkt on a summer day to a peak of nearly 223,700 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). The price for injections is typically determined as either the market price at the first of the month when the injection took place, or as the average of the daily prices in the month that the injection occurred.

Energy Supply procures and manages a natural gas portfolio of diverse flowing natural gas contracts 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. A summary of the existing contracts 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	8,000	Annual Base Load	11/1/2013
Supplier	Aden Border	10,000	Annual Base Load	11/1/2013
Supplier	Havre Area	2,700	Annual Base Load	1/1/2011
Supplier	Multiple (Havre Area)	16,000	Annual Base Load	4/1/2012
Suppliers	System, North	4,450	Annual Base Load	Various
Suppliers	System, North	13,000	Winter Only (Dec-Feb)	4/1/2011
Suppliers	Carway, System, BC3	48,605	Dec. - Feb.	3/1/2011
	Total:	102,755		

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 121,000 Dkt, together with its flowing gas contracts, to serve the Energy Supply peak day load of 223,700 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 6.5 Bcf of working gas supply storage must be maintained at the beginning of each winter season.

However, the 6.5 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)	91,404	Dkt per Day
Winter Flowing Gas (Daily)	48,900	Dkt per Day
Average Storage Withdrawal (Daily)	42,504	Dkt per Day
Total Minimum Storage	**6.5**	**Bcf**

The quantity of stored working gas procured in excess of this 6.5 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 102,700 Dkt/day. Flowing natural gas and callable supply sources, combined with the Energy Supply storage deliverability of 121,000 Dkt/day, enable NWE to meet the design peak day capacity of 223,700 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.