SECTION 4. RESOURCE NEEDS ASSESSMENT

Existing Energy Supply Requirements

NWE'S Energy Supply is responsible for meeting all Natural Gas load requirements. Energy Supply provides natural gas to approximately 180,000 customers, with an estimated annual load requirement (including fuel) of approximately 20 Bcf per year. However, this load is highly seasonal 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 greatest consumption (approximately 68% 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 do not fluctuate widely from year to year, the temperature-driven daily load requirements vary substantially. The peak day consumption is estimated at 234,500 Dkt/day, while the minimum summer day load requirement is approximately 15,600 Dkt.

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

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) to 21.2 Bcf/year (during an extremely cold year). These variations of about 3 Bcf result in a total temperature-based load sensitivity of approximately 15 percent. Table 3 below shows the actual Natural Gas consumption for Energy Supply for the past seven years.

NWE's load forecasts utilize weather-normalized loads. Load forecasts are computed utilizing the heating degree days (HDD)[2] derived from 15 years of weather data. Projected loads are adjusted, as part of operational management, as weather conditions become increasingly certain.

[2] 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.

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**
2008	3,208	2,942	2,418	2,059	1,459	820	556	521	743	1,234	2,261	3,027	21,248
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	**3,093**	**2,772**	**2,251**	**1,633**	**1,111**	**696**	**472**	**455**	**693**	**1,310**	**2,200**	**3,118**	**19,803**
% of Total	**15.6%**	**14.0%**	**11.4%**	**8.2%**	**5.6%**	**3.5%**	**2.4%**	**2.3%**	**3.5%**	**6.6%**	**11.1%**	**15.7%**	**100.0%**

The 7-year (2001 – 2008) average for the annual load is 19.8 Bcf; the 7-year average for the heating season load is 13.5 Bcf. Note, in Table 3, the months November and December 2008 are estimates.

Current Supply Components

The single most important factor in maintaining system reliability is NWE's ability to obtain contracts for sufficient volumes of flowing gas for its peak day, winter heating season, and total annual demands. Historically, these contracts provide approximately 53,000 Dkt per day to NWE's system.

However, as discussed above, system requirements can range from a low of about 15,600 Dkt on a summer day to a peak of nearly 234,500 Dkt on a winter day. On any day when ratepayer demand is less than the contracted gas volumes, the difference between contracted flowing gas volumes and demand 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 gas contracts from various sources to assist in meeting the peak day winter load

requirement. In order to ensure the physical reliability of the system, the majority of its supply of flowing gas contracts must be firm in nature (i.e., interruptible contracts cannot be used for this purpose). Flowing gas supply is almost always priced by reference to 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	8,750	Annual Base Load	11/1/2010
Supplier	Aden Border	11,250	Annual Base Load	11/1/2010
Supplier	Havre Area	3,600	Annual Base Load	7/1/2009
Supplier	Multiple (Havre Area)	13,000	Annual Base Load	4/1/2010
Suppliers	System, North	6,800	Annual Base Load	Various
Suppliers	System, North	10,000	Winter Only (Nov-Mar)	4/1/2009
Suppliers	Carway, System, BC3	64,000	Dec. - Feb.	3/1/2009
	Total:	117,400		

NWE, as part of its risk management strategy, has developed multiple counterparties with whom it contracts for flowing 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 gas supply contracts, NWE's 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 121,800 Dkt, together with its flowing gas contracts, to serve the Energy Supply peak day load of 234,500 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 6.0 Bcf of working gas supply storage must be maintained at the beginning of each winter season.

However, the 6.0 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)	91,650	Dkt per Day
Winter Flowing Fas (Daily)	52,400	Dkt per Day
Average Storage Withdrawl (Daily)	39,250	Dkt per Day
Total Minimum Storage	**6.0**	**Bcf**

The quantity of stored working gas procured in excess of this 6.0 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 117,400 Dkt/day. Flowing gas and callable supply sources, combined with the Energy Supply storage deliverability of 121,800 Dkt/day, enable NWE to meet the design peak day capacity of 234,500 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 the system design and resulting constraints.