EB-2005-0551

Economic Regulation of Natural Gas Storage in Ontario

Study Prepared for the Ontario Energy Board

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1. EXECUTIVE SUMMARY

This study addresses the issue of whether the market for natural gas storage in Ontario is competitive and whether the Board should refrain from regulating the rates charged for natural gas storage. Traditional antitrust analysis to determine whether a market is competitive is a three step process that looks at:1) determination of the relevant product and extent of the geographic market; 2) firm size and concentration; and 3) ease of entry and other competitive factors.

The geographic market typically includes those areas that have gas storage facilities and are reachable, directly or indirectly, by pipelines interconnected to Ontario. By this definition, the relevant geographic market could include: Michigan, Illinois, Indiana, Iowa, New York, Pennsylvania, Ohio, and West Virginia. However, at this time, the relevant geographic market is limited to gas storage in Ontario due to the limited ability to move gas stored in the U.S. to Ontario (i.e., transmission constraints). Also, there are no suitable product substitutes to replace the function of underground storage.

Using traditional antitrust measurement of market concentration (HHI and Four-Firm Market Share), the market for gas storage is highly concentrated. The four-firm market share shows that Union is among the top four firms and has a market share of 100 percent. This market power analysis combined with a lack of market transparency and barriers to entry indicate the existence of market power sufficient to prevent or substantially lessen competition. Furthermore, Union's control of transmission in and around Dawn provides it with access to customer and market information that is not available to other market participants and therefore, Union could use this information to enhance its position in the market.

Therefore, it was concluded that Union is in a position to exercise market power. Enbridge has little or no excess storage capacity and thus, is unlikely to be able to exercise market power in the Ontario natural gas storage market. Given the market power conclusions, with the exception of transactional services, this study recommends that all of Enbridge and Union storage be priced at cost-of-service (in setting the 2007 base rates for the upcoming Incentive Regulation plan).

To encourage the development of competition in Ontario's natural gas storage, the Board should consider a number of changes to the current market structure. These changes could be

implemented over the next few years and could include: (1) the establishment of reporting requirements for both transmission and storage services to support market transparency, (2) functional separation of Union's transmission facilities from its storage operations, (3) mandatory open and non-discriminatory access to the transmission system, (4) the separation of gas customers into two groups: core and non-core customers, and (5) a Board complaint process whereby customers can register a complaint of potential market power.

2. INTRODUCTION AND STRUCTURE OF STUDY

On March 30, 2005, the Ontario Energy Board (“OEB” or "Board") released its Natural Gas Forum Report (the "NGF Report"). The NGF Report outlines a regulatory framework for the province’s natural gas sector. It also provides the Board’s analysis of current issues and its conclusions to support the long-term evolution of a more efficient natural gas sector.

The NGF Report’s conclusions focus on three areas, namely rate regulation, storage and transportation, and the regulated gas supply (or system gas).

On December 29, 2005, the Board issued a Notice of Proceeding directing that a hearing be held to determine, among other things, whether to refrain, in whole or in part, from exercising its power to regulate the rates charged for the storage of gas in Ontario by considering whether, as a question of fact, the storage of gas in Ontario is subject to competition sufficient to protect the public interest. In conducting this proceeding, the Board will be guided by the objectives set out for it in the *Ontario Energy Board Act, 1998* (“the Act”) and by the requirements of section 29 of the Act which states:

> “On an application or in a proceeding, the Board shall make a determination to refrain, in whole or part, from exercising any power or performing any duty under this Act if it finds as a question of fact that a licensee, person, product, class of products, service or class of services is or will be subject to competition sufficient to protect the public interest”.

This study addresses the issue of whether the market for natural gas storage in Ontario is competitive and whether the Board should refrain from regulating the rates charged for natural gas storage.

The study is organized as follows:

Section 3: provides a description of gas storage development in Canada.

Section 4: describes the criteria that the Competition Tribunal uses to assess whether there is a competitive market, especially as it pertains to potential mergers.

Section 5: reviews regulation of gas storage by the Federal Energy Regulatory Commission.

Section 6: describes the Ontario gas storage market.

Section 7: defines the product and geographic market. This includes an examination of whether Canadian gas storage customers use gas storage facilities in the U.S and whether U.S. facilities are

comparable in price to gas storage in Ontario. Also, the issue of whether there is sufficient gas transmission available to move gas from U.S. gas storage facilities to Ontario during peak winter months is assessed.

Section 8: determines the market share and concentration in the Ontario gas storage market.

Section 9: reviews vertical market power issues concerning the gas market in Ontario.

Section 10: discusses barriers to entry to gas storage in Ontario.

Sections 11 and 12: present the study's conclusion and the impacts of the competitive analysis.

Section 13: outlines future considerations for the Board to examine.

3. NATURAL GAS STORAGE IN CANADA

Natural gas storage in Canada was developed in Ontario, Alberta, British Columbia, Saskatchewan and Quebec in conjunction with developing gas markets. Starting in 1958, the TransCanada Pipelines Limited ("TCPL") brought gas from the producing provinces in western Canada to the markets in eastern Canada under long-term contracts, bundling the gas commodity and transportation services. Storage was primarily used for seasonal balancing, security of supply and to mitigate demand charges on TCPL. Initially, the natural gas utilities in Ontario (Union Gas Limited, Consumers Gas Company Limited and ICG Utilities) were the dominant owners of gas storage in Canada.

In 1985, Alberta, British Columbia, Saskatchewan and the federal government signed "The Agreement on Natural Gas Markets and Prices," which essentially deregulated the price of the natural gas commodity and allowed end-users to purchase gas directly from producers. It also unbundled the TCPL pipeline rates and mandated open and non-discriminatory access to transmission by all transmission customers. As a result of this agreement, local distribution companies ("LDCs") switched from procuring gas under long-term contracts to procuring gas under short-term time frames. In 1992, NOVA Gas Transmission Ltd required shippers to balance their shipments on a daily rather than monthly basis. This requirement was the impetus to the development of gas storage in Alberta.

Another outcome of gas deregulation in Canada, as well as in the U.S., was the development of market centers or hubs. Market hubs are where customers have access to multiple pipelines and there is price transparency because prices are reported on a frequent basis to market participants. Canadian market hubs include AECO in western Canada and Dawn in Ontario. U.S. market hubs include Henry Hub on the Gulf coast and Chicago in the Midwest. As shown below, there is a high correlation of prices in North American market hubs.

Table 1

Correlation of Gas Prices at North American Gas Hubs

	Henry Hub	AECO	Chicago	Dawn
Hub:				
Henry Hub	1	0.92935	0.99349	0.99383
AECO	0.92935	1	0.94546	0.94883
Chicago	0.99349	0.94540	1	0.99632
Dawn	0.99383	0.94883	0.99632	1

Source: Gas Daily, Spot Prices, 1991 through February 2006.

Today, Alberta storage accounts for 47.5 percent of the total working gas in Canada; Ontario accounts for 39.1 percent; British Columbia accounts for 7.6 percent; Saskatchewan accounts for 5.1 percent; and Quebec for 0.7 percent.

Independent storage developers and gas pipeline interests developed gas storage in Alberta. Gas storage rates in Alberta are not regulated, with the exception of the Carbon facility owned by ATCO Gas. Independent storage providers negotiate with customers on a contract-by-contract basis. None of the gas storage facilities are owned by an integrated gas utility and as a result, are not rate regulated. ATCO Gas storage is priced at cost-of-service rates to its utility customers and ATCO Gas is permitted to charge market-based rates to third parties for capacity that is in excess of its utility customers' needs.

Gas storage in Ontario is regulated by the Board. Enbridge Gas Distribution Inc. ("Enbridge") and Union Gas Limited ("Union") storage is priced at cost-of-service rates for its utility customers and any excess storage capacity over their utility customer needs is priced based on market rates. Storage developed by independent storage developers (not affiliated with the gas utilities) can be priced at market-based rates.

Gas storage in British Columbia is not regulated. Unocal owns the storage in British Columbia and it prices its storage capacity at market-base rates. However, any storage capacity purchased by a gas utility is subject to financial regulation oversight.

In Saskatchewan, gas storage is wholly-owned by a subsidiary of the Provincial Crown. Storage rates are not formally regulated but rates are based on cost-of-service.

4. CANADIAN COMPETITION CRITERIA AND ASSESSMENT

In Canada as in the United States, the assessment of whether a market is competitive requires an analysis of whether a company has market power. The Competition Tribunal (the "Tribunal") of the Competition Bureau Canada (the "Bureau") may make an order under s.92 (1) of the *Competition Act*, R.S.C. 1985, c.C-34 (the " Competition Act") when it finds that a merger 'prevents or lessens, or is likely to prevent or lessen, competition substantially'. The substantial prevention or lessening of competition results from mergers that create, maintain or enhance the ability of the merged entity, alone or with others, to exercise market power. The analytical framework used to assess market power is contained in the Bureau's *Merger Enforcement Guidelines* (the 'MEGs').[1]

The framework assesses the market power of a seller or a buyer of a product or service. The market power of a seller means the ability of a single firm or group of firms to profitably maintain prices above the competitive level for a significant period of time. Competitive harm results when market power is exercised unilaterally or through coordinated behaviour. A unilateral exercise of market power can arise when a merger enables the merged entity to profitably sustain higher prices than would otherwise exist in the absence of the merger without relying on an accommodating response from its competitors.[2]

The framework:

(a) Defines the relevant market, both by product and geographically;

[1] Competition Bureau, *Merger Enforcement Guidelines*, (Ottawa: Ministry of Supply and Services Canada, 2004). The introduction stresses that the Guidelines set out a general approach only and that the specific facts of a case, as well as the nature of the information available, will determine the assessment made, and may sometimes require different methodologies.

[2] Ibid., paras. 2.3-2.6

(b) Determines the market shares and concentration levels of the participants in the market; and if the shares and levels exceed certain thresholds, undertakes a competitive effects analysis based on the factors listed in section 93 of the Competition Act, if the shares and levels exceed certain thresholds ("section 93 factors");

(c) Considers whether timely entry by potential competitors would likely occur on a sufficient scale and scope to constrain a material price increase; and,

(d) Determines whether one or more buyers have a countervailing ability to constrain an exercise of market power, if a merger is likely to result in a material price increase.

The Relevant Market

The overall objective of market definition in merger analysis is to identify a set of buyers that could potentially face increased market power due to the merger. Conceptually, a relevant market is defined as the smallest group of products and the smallest geographic area in which a sole profit-maximizing seller could impose and sustain a price increase. In most cases the Bureau considers a five percent price increase to be significant and a one year period to be non-transitory, though market characteristics may sometimes necessitate using a different price increase or time period.[3] Relevant markets are defined by product and by geographic area.

A relevant product market consists of a given product and close substitutes for it; a relevant geographic market consists of all supply points that are regarded as close substitutes by buyers.[4] Various functional indicators help to determine what products are considered close substitutes, including end use, physical and technical characteristics, price relationships and relative price levels. Products purchased for similar end uses may not be close substitutes from the perspective of buyers and therefore, functional inter-changeability is not sufficient to warrant inclusion of two products in the same relevant market. Products are not included in the same relevant market when costs that must be incurred by buyers are sufficient to render switching unlikely in response to a five per cent price increase.[5]

For the purpose of geographic market definition what matters is the buyers' ability or willingness to switch their purchases in sufficient quantity from one location to another in response to changes in relative prices. A relevant geographic market consists of all supply points that are regarded as

[3] MEGs, supra., note 1, paras. 3.1-3.5

[4] Ibid., paras. 3.11, 3.19

[5] Ibid., paras. 3.15-3.17

close substitutes by buyers. Various functional indicators can assist in determining whether geographic areas are considered to be close substitutes, including particular characteristics of the product, switching costs, transportation costs, price relationships and relative price levels, shipment patterns and conditions regarding foreign competition. As with product market definition, high switching costs incurred by buyers may also discourage substitution between geographic areas. In addition, transportation costs play a central role in defining the geographic scope of relevant markets because they directly affect price. For example, if the price of a product in a distant area plus the cost of transporting that same product to a candidate geographic market is found to exceed the price in the candidate market including a five percent price increase, the products of sellers located in the distant area will not generally be included in the relevant market.[6]

Market Share and Concentration

Once relevant markets have been defined, the next step is to identify participants in the relevant markets in order to determine market shares and concentration levels. Such participants include current sellers of relevant products and those that would begin selling relevant products if the price rose by five per cent. A firm is deemed a participant in a relevant market if it does not require significant sunk investments to enter or exit the market, and would be able to do so within a one year period.[7]

Market shares are calculated for all sellers who have been identified as participants in the relevant market. Market shares can be measured in terms of dollar sales, unit sale, capacity or in certain natural resource industries, reserves.

Information that demonstrates that market share or concentration is likely to be high does not, in and of itself, provide a sufficient basis to justify a conclusion that a merger is likely to prevent or lessen competition substantially. The Bureau has established thresholds to identify mergers that are unlikely to have anti-competitive consequences from those that require a more detailed analysis. Generally a merger conferring unilateral market power will not be challenged when the post-merger market share of the merged entity is less than 35 percent, and interdependent market power will not be challenged when the post-merger four-firm concentration ratio (which is the sum of

[6] MEGs, supra., note 1, paras. 3.19, 3.22, 3.24

[7] Ibid., para. 4.1

the market shares of the four largest firms in the relevant market) is less than 65 percent or where the merged entity's share is less than 10 percent.[8]

In addition to the four-firm concentration ratio, the Bureau may examine changes in the Herfindahl-Hirschmann Index ("HHI") to observe the relative change in concentration before and after a merger. The HHI is calculated by summing the squares of the individual market shares of all market participants. While the change in HHIs may provide useful information about changes in the market structure, the Bureau does not use HHI levels as a safe harbour threshold.[9]

The Bureau also examines the distribution of market shares across competitors and the extent to which market shares have changed or remained the same over a significant period of time. When evaluating market share information, the Bureau considers the nature of the market and the impact of forthcoming change and innovation on the stability of existing shares.[10]

Section 93 Factors

When market share and concentration thresholds are exceeded, or other information suggests that a merger may result in a substantial lessening or prevention of competition, the Bureau undertakes a competitive effects analysis of the merger based on the factors listed in section 93. Those factors include the extent to which foreign products or competitors provide or are likely to provide effective competition; whether acceptable substitutes are likely to be available; the existence of any barriers to entry into the market and any other factor relevant to competition that would be affected by the merger.[11]

Entry to the Market

When entry is likely, timely and sufficient in scale and scope, an attempt to increase price is not likely to be sustainable as buyers of the product in question turn to other sources of supply. The longer it takes for potential entrants to become effective competitors, the lesser the likelihood that incumbent firms will be deterred from exercising market power.[12]

Barriers to entry affect the timeliness, likelihood and sufficiency of entry. Substantial sunk costs directly affect the likelihood of entry and, where present, constitute a significant barrier to entry.

[8] Ibid., paras. 4.11-4.12

[9] MEGs, supra., note 1, page 18, footnote 51

[10] Ibid., paras. 4.13, 4.15, 4.17

[11] The Competition Act, supra., page 6, section 93

[12] MEGs, supra., note 1, paras. 6.2-6.3

Long-term exclusive contracts with automatic renewals, rights of first refusal and termination fees may constitute a barrier to entry.[13]

Countervailing Power

Where credible options are available to buyers, buyer concentration can prevent a price increase and make it difficult for sellers to exercise market power. Buyers may constrain the ability of a seller to exercise market power if they have the ability to switch to other sellers in a reasonable amount of time; they can vertically integrate their operation into the upstream market; or the promise of substantial orders can induce expansion of an existing smaller play or prompt the entry of a potential seller not currently in the market.[14]

Conclusions

The MEG*s* set out an analytical framework for assessing the existence of a competitive market which requires an analysis of market power based upon a review of the concentration and market share of the participants in the relevant product and geographic market. Like the methodology employed by the Federal Energy Regulatory Commission ("FERC" or "Commission") in the United States, which is described in section 5, a significant concentration or market share does not in and of itself establish market power but rather prompts a careful consideration of other factors, such as ease of entry and the existence of foreign competitors, in finding the existence of market power sufficient to prevent or substantially lessen competition.

5. FERC CRITERIA AND ASSESSMENT

Interstate storage facilities in the United States are regulated by FERC, while state regulatory commissions regulate intrastate facilities. Federal and state reporting requirements and rate setting mechanisms are different for storage owners among these jurisdictions.

In the United States, where there is a movement towards "light-handed" regulation, FERC has ruled that in markets where applicants do not possess market power, market-based rates are appropriate. FERC has devised an analytical framework to determine whether an applicant has market power in

[13] Ibid., paras. 6.10, 6.14

[14] Ibid., paras. 7.1, 7.3

connection with gas storage services. This section reviews the FERC policy towards market-based rates for gas storage services.

In 1996, the Commission issued its Policy Statement[15] providing guidelines about the standards for approving market-based rates. The purpose of the Policy Statement was to develop a framework for analyzing proposals involving alternative pricing methods for natural gas pipelines. The foundation of FERC's guidelines is drawn from basic antitrust market power analysis used by the Federal Trade Commission and others. Notably, FERC reviewed three other industries (railroads, telecommunications and airlines) before creating the guidelines.

This framework for analyzing market-based rates proposals formalized FERC's assessment of market power for gas pipelines and storage services. Market power is defined as the ability of a gas provider of services to profitably maintain prices above competitive levels. FERC's framework for evaluating whether the applicant can exercise market power addressed two principal purposes: 1) whether the applicant can withhold or restrict services and, as a result, increase price by a significant amount for a significant period of time; and 2) whether the applicant can discriminate unduly in price or terms and conditions of service (in favor of its affiliate). In order to grant approval for market-based rates, FERC must conclude that there is a lack of market power or, if there is potential market power, the applicant has to propose sufficient mitigation of the potential market power.

Like its Canadian counterpart, to assess the potential exercise of market power the Policy Statement requires that the analysis must properly identify the relevant product and geographic market for the proposed service. The applicant must provide evidence concerning the number and type of alternatives available to potential customers of the proposed service. The size of the market must be measured and market shares of participants in the market must be calculated to assess the likely presence of market power. In addition, FERC requires that the applicant consider and evaluate other factors, such as whether there is excess capacity in the storage market.

The Relevant Market

The applicant must define the relevant product by identifying the specific products or services that provide good alternatives to the applicant's products or services. A good alternative must be available soon enough, must have a price that is low enough and must have a quality high enough to permit the customer to substitute the alternative for the applicant's service. A good alternative

[15] Statement of Policy, 74 FERC ¶ 61, 076 (1996).

would be one that offers the comparable service options as the service options offered by the applicant. In terms of timeliness, FERC noted that one year may not be appropriate for long-term firm transportation because capacity on a competitor's pipeline would typically need to be available at the same time to offer a viable alternative to storage customers. The Policy Statement declined to define a specific time period within which a product must become available in order to be a substitute. FERC considered the price threshold to be no more than a 10 percent price differential.

Applicants for market-based storage rates must define the relevant geographic area. The relevant geographic area consists of the area encompassing all sellers of the relevant product between the same origin (applicant's market area) and destination markets (areas that can be reached by potential customers of the applicant that offer alternative relevant products). The relevant geographic market encompasses all actual and potential customers of the applicant. The method used to define the relevant geographic market begins by looking at the pipelines directly and indirectly interconnected to the applicant and determining what additional storage facilities can be reached by those pipelines in the market area.

Market Shares and Concentration

Market shares of all suppliers of the relevant product are then used as screens to determine the level of concentration in the market by calculating the HHI.[16] As indicated in the Policy Statement, a small HHI indicates that sellers cannot exercise market power because customers have sufficiently diverse sources of supply in the relevant market and that no one firm or group of firms acting together could profitably raise market prices. The Commission has indicated that it will use HHI of 1,800 or larger as an indication that closer scrutiny is warranted because the index indicates that the market is more concentrated and the applicant may have significant market power. In addition, the analysis requires an examination of the ease of entry of potential competitors. This is especially important because a firm will not be able to sustain a price increase of 10 percent if competitors can easily enter the market in reaction to price increases above competitive market levels.

FERC has indicated that if the HHI is 1,800 or larger, or if the applicant's market share is large, the Commission will consider and evaluate other relevant factors. These factors are: ease of entry, excess capacity held by competing sellers and buyer market power.[17]

[16] The HHI statistic is calculated by summing the squares of the market shares of the individual market participants in the relevant geographic market.

[17] FERC Staff Paper, "Market-Based Rates for Natural Gas Companies, 70 FERC ¶ 61,139 (1995).

FERC' s Market-Based Rates Decisions

FERC's authority to approve market-based rates under appropriate circumstances was affirmed in Elizabethtown Gas Co. v. FERC.[18] The Commission has issued numerous decisions regarding market-based rates for storage services. These cases provide further guidance on the Commission's requirements for market-based rate authority.

Since 1988, FERC has approved many applications from electric utilities to sell electricity in wholesale transactions at negotiated market-based rates. In connection with a request for market-based rates from an electricity marketer affiliated with a traditional public utility, FERC stated that it:

> …allows market-based rates if the seller (and each of its affiliates) does not have, or has adequately mitigated, market power in generation and transmission and cannot erect barriers to entry. In addition, the Commission considers whether there is evidence of affiliate abuse or reciprocal dealing.[19]

In 1988, FERC began consideration of alternatives to cost-of-service regulation by adopting a more "light-handed" approach to the regulation of some aspects of natural gas markets. This started with the implementation of market-based gas inventory charges ("GIC") for pipeline sales service. In determining whether an applicant could implement a GIC mechanism, FERC looked at four factors: 1) market definition; 2) the availability of divertible gas supplies; 3) measures of market concentration; and 4) whether transportation of alternative supplies would be on a comparable basis to the terms and conditions of transportation service provided for gas purchased under the GIC. In July 1990, FERC was directed to consider whether the applicant had potential market power when granting permission to charge market-based rates.[20]

FERC also granted market-based rates to oil pipelines, beginning in 1990. Buckeye Pipe Line Company, L.P. received authority to charge market-based rates in 1990 and Williams Pipe Line Company received authority in 1994. In both cases, FERC determined that the pipeline lacked market power in markets for which each was allowed to charge market-based rates.[21]

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[18] 10 F.3d 866 (D.C. Cir. 1993).

[19] Heartland Energy Services, 68 FERC ¶ 61,183 (1994).

[20] Tejas Power Corp. v. FERC 908 F.2d 98 (D.C. Cir. 1990).

[21] Buckeye Pipe Line Company, L.P., 53 FERC ¶ 61,473 (1990); and Williams Pipe Line Company, 69 FERC ¶ 61,136 (1994).

Starting with FERC's order in Richfield Gas Storage System[22] in June 1992, FERC considered and approved applications for market-based rates for gas storage service. The early requests dealt with storage facilities in the production area. In 1994, Avoca Natural Gas Storage was successful in obtaining approval for market-based storage services in the market area, despite evidence of a highly concentrated market. These cases are discussed in greater detail in Appendix A.

FERC has granted market-based rates for storage providers in concentrated markets where the HHI is 1,800 or larger. The rationale for granting the applicant market-based rates in concentrated markets was that: (i) the applicant was a new entrant, (ii) its market share was low, (iii) cost-based rates of other storage providers will keep the applicant's rates low, and (iv) the advent of new storage projects indicates that market entry is relatively easy.[23] As illustrated by the discussion of market-based rates for storage services in Appendix A, FERC has not defined what it considers is a "low market share." One can only surmise that the upper ranges of the market shares in these approved applications are generally acceptable.

Approved Applications

There have been nine applications[24] for storage services in the market area that have been approved by FERC: Avoca in New York[25]; Steuben in New York[26]; New York State Electric & Gas (NYSEG) in New York[27]; NE Hub in Pennsylvania[28]; Honeoye in New York[29], Stagecoach Storage Field Project in New York[30] Seneca Lake Storage, Inc in New York[31], Louisville Gas and Electric Company in Kentucky[32] and WPS-ESI Gas Storage in Wisconsin.[33] FERC found that storage services in the New York/ Pennsylvania market and the Kentucky market to be highly concentrated

[22] 59 FERC ¶ 61,316 (1992).

[23] Ease of entry is indicated by entry of new storage facilities and indication of potential suitable storage sites in the relevant geographic market.

[24] Three applications have denied.

[25] Avoca Natural Gas Storage, 68 FERC ¶ 61,045 (1994).

[26] Steuben Gas Storage Company, 72 FERC ¶ 61,102 (1995).

[27] New York State Electric & Gas Corporation, 81 FERC ¶ 61,020 (1997).

[28] NE Hub Partners, L.P., 83 FERC ¶ 61,043 (1998).

[29] Honeoye Storage, 91 FERC ¶ 62,165 (2000).

[30] Central New York Oil and Gas Company, 94 FERC ¶ 61,194 (2001).

[31] Seneca Lake Storage, Inc., 98 FERC ¶ 61,163 (2002).

[32] Louisville gas and Electric Company, 99 FERC ¶ 62,040 (2002).

[33] WPS-ESI Gas Storage, LLC, 108 FERC ¶ 61,061 (2004).

with HHIs of well over the 1,800 threshold. However, FERC considered other factors in these cases in its authorization of market-based rates. FERC emphasized that the applicants had a relatively low market share in a market where the two dominant providers of storage service controlled 88 percent of the market at cost-of-service rates.

Also, most of the applicants seeking market-based rates, except NYSEG and WPS-ESI, were new entrants. As a result, FERC relied on the fact that the majority of storage providers were providing storage services at regulated, cost-of-service rates and this would act as a competitive ceiling to the new entrant. Furthermore, FERC considered the potential of new storage providers entering the market, indicating that entry was relatively easy because of the numerous potential storage sites in the geographic market and because of announcements of development of potential new storage facilities.

Applications Denied

There have been three market area applications for market-based storage rates which were denied by FERC: CNG Transmission[34]; Northwest Natural Gas in Oregon[35]; and Red Lake Gas Storage in Arizona[36] were denied permission to charge market-based rates. In all of these cases, FERC rejected the applicants' definition of the relevant geographic market as overly broad. In the CNG application, FERC redefined the relevant product to be storage, not a pipeline's transmission system, and as a result, the relevant geographic market was redefined to encompass the Northeast (New York and Pennsylvania). In Oregon, FERC found that the applicant's definition of the relevant geographic market included unavailable and/or uneconomic alternatives for its existing storage customers. In the Red Lake Storage application, FERC indicated that there were transmission constraints in the applicant's geographic market and redefined the relevant geographic market to include only Arizona and southern California. This redefinition of the relevant product and geographic market resulted in unacceptably high market shares in highly concentrated markets, indicating the potential for exercise of market power.

These three cases are outlined in Appendix B.

[34] CNG Transmission Corporation, 80 FERC ¶ 61,137 (1997).

[35] Northwest Natural Gas Company, 95 FERC ¶ 61,242 (2001).

[36] Red Lake Gas Storage, 103 FERC ¶ 61,277 (2003).

FERC's Recent Notice of Proposed Rulemaking Concerning Rate Regulation of Gas Storage

FERC is considering amending its regulations to establish criteria for market-based rates for natural gas storage ("Storage NOPR").[37] A Commission Staff study ("Staff Storage Report")[38] concluded that the nature of the gas storage marketplace has changed significantly over the last decade. Traditionally, local distribution companies contracted for long-term storage service to meet winter peak demand. Today, wholesale storage customers rely on a portfolio of both long-term and short-term contracts to purchase, store and transport natural gas. In addition to the traditional use of storage to meet winter LDC demand, storage is being used to supply gas to meet daily, or hourly demand for gas-fired electric generation. The Staff Storage Report concluded that gas storage may be the best way to manage gas price volatility. The Storage NOPR attempts to find solutions to encourage development of new storage facilities by expanding the definition of the relevant market.

First, FERC is proposing to modify its market power analysis by adopting a more expansive definition of the relevant substitutes or close alternatives to storage service that may be considered in determining if an applicant has market power. The Storage NOPR attempts to address criticism of its current methodology for assessing customer options for storage as limited to a product market definition consisting solely of competing storage facilities. It may be that other non-storage products and services can exert competitive pressure on an applicant's storage service and thus mitigate an applicant's potential ability to exercise market power. In addition, the Storage NOPR suggests that storage providers produce an updated market power study every five years to assure FERC that the storage provider does not have market power and that the Commission can assure that rates remain just and reasonable over time.

Second, the Storage NOPR solicits comments on measures and procedures for an applicant's request for market-based rates for storage services without a market power showing. The Storage NOPR states that before FERC authorizes market-based rates it must find that "market-based rates are in the public interest and necessary to encourage the construction of the storage capacity in the area needing storage services" and "customers are adequately protected". This provision deals with new storage capacity and what constitutes "new storage capacity."

The Storage NOPR is currently on-going and no final conclusions have been issued by FERC.

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[37] Rate Regulation of Certain Underground Storage Facilities, Docket Nos. RM05-23-000 and AD04-11-000 (2005)

[38] FERC Staff Report, "Current State of and Issues Concerning Underground Natural Gas Storage, Docket AD04-11-000, September 30, 2004. Hereinafter referred to as "Staff Storage Report".

Conclusions

It is not sufficient to determine that the relevant geographic market for natural gas storage consists of the area that potential customers can reach and store their gas. A good alternative must be available soon enough, must have a price that is low enough and must have a quality high enough to permit the customer to substitute the alternative for the applicant's service. In addition, an applicant must prove that it cannot raise prices above competitive levels[39] and maintain its customers. In connection with the CNG application, FERC concluded that the fact that CNG could raise rates by over 25 percent and not lose customers or market share was found to be evidence of market power. In the Northwest Natural application, FERC found that to reach alternative storage facilities, a potential customer would have to pay twice as much for transportation and, in addition there was no excess storage capacity in the relevant geographic market. In Red Lake's application, the relevant geographic market was limited by transmission constraints thereby the applicants had a very large share in a very concentrated market.

FERC's analysis of the issue of market power uses a framework similar to that found in the MEGs. In both instances the analysis is initiated by the definition of the relevant product and geographic markets. While the relevant product is called a 'good alternative' by FERC's Guidelines and a 'close substitute' by MEGs, the steps taken to define it are the same. Similarly, when defining the geographic market, the same factors are considered in arriving at that definition, namely, the particular characteristics of the product, transportation and switching costs, convenience, and the frequency and reliability of delivery.

There is some divergence when assessing market concentration: FERC relies chiefly upon HHI, with some reference to the 'four-firm' concentration test while MEGs focuses upon the 'four-firm' concentration test and uses the HHI occasionally, and then only for information about changes in the market structure. Also, FERC considers market power to exist when a 10 per cent price increase results in no loss of market share while MEGs sets the percentage of increase at 5 per cent, with the proviso that market characteristics may sometimes necessitate using a different price increase.

Appendix C provides a discussion of regulation of gas storage in California and Michigan, two state jurisdictions that allow market- based rates for gas storage.

[39] Raise prices 10 percent above competitive levels.

6. THE ONTARIO GAS MARKET

Currently, there are two natural gas storage providers in Ontario.[40] [41] [42] Union has 149.6 billion cubic feet ("Bcf") of working gas capacity and 2.3 Bcf/day of peak deliverability located at the Dawn Hub.[43] Over half (55.6 percent or 83 Bcf) of Union's storage capability is dedicated to meet the needs of its in-franchise customers at cost-of-service rates.[44] The remaining storage (67 Bcf) is sold to ex-franchise customers and in-franchise customers that require storage space over and above their allocation at market-based rates[45]. As outlined in Figure 1, the primary pipelines interconnected at Dawn include: Vector Pipeline (Vector), TCPL and Union's Dawn-Trafalgar pipeline. Other pipelines that indirectly interconnect with the Union Gas system at Dawn include Great Lakes Gas Transmission, CMS Panhandle Eastern (Ojibway), ANR, MichCon (St. Clair) and Consumers Energy (Bluewater).[46]

Enbridge's principal storage facilities are located in southwestern Ontario near Dawn and have a total working gas capacity of approximately 99 Bcf[47] and 1.8 Bcf/day of peak deliverability.[48] The majority of Enbridge's storage is used to serve in-franchise customers at cost-of-service rates. Enbridge also sells short-term storage services to ex-franchise customers at market-based rates[49]. In addition, Enbridge has a long-term storage contract with Union for 20 Bcf which is expected to be renewed at market-based rates. Enbridge is directly interconnected with TCPL and has firm transportation contracts with Alliance, Vector, St. Clair Pipeline and MichCon. In addition, Enbridge

[40] Tribute Resources Inc. and Tipperary Gas Corporation have completed their open season and the storage facilities are expected to be operational by April 2007.

[41] Northern Cross Energy and Tribute Resources Inc. are interested in developing reef storage in the Goderich area with an estimated capacity of about 18 Bcf. No application has been filed with the Board.

[42] Market Hub Partners (MHP) has an interest in two storage pools but neither has been developed and MHP have not filed an application (and last year MHP withdraw its application in front of the Board).

[43] Bruce Henning, Michael Sloan and Richard Schwindt," Analysis of Competition in Natural Gas Storage Markets" report prepared for Union Gas Limited, October 28, 2004, p. 48. Hereinafter referred to as the "Union Study."

[44] EB-2005-0520, Exhibit C3, Tab 4, Schedule 4.

[45] E.B.R.O. 494-03 allows Union to renew M12 storage contracts at market-based rates. At this time, not all of the storage contracts have been renewed.

[46] Union Study, p.26.

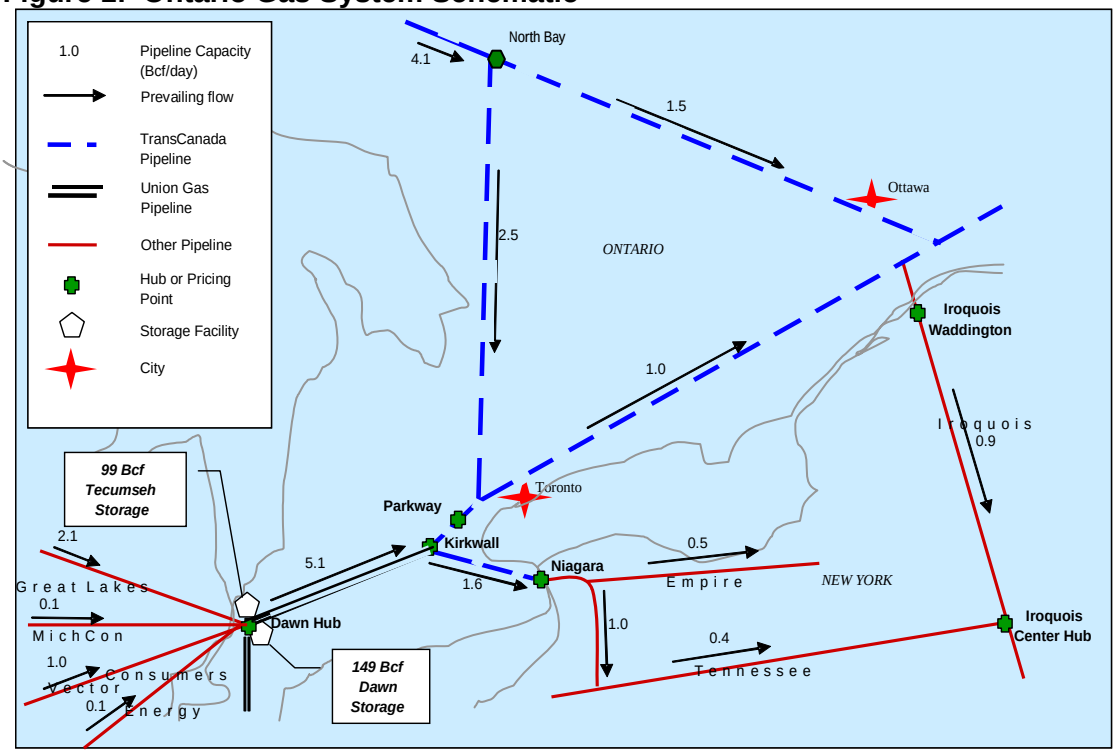
[47] Enbridge Annual Information Form, April 13, 2004, p.14.

[48] Union Study, p.48.

[49] This is only available after in-franchise requirements have been met.

has contracted with Niagara Gas for long-term transmission capacity on the Link Pipeline, which interconnects the facilities of Enbridge with ANR Pipeline and MichCon.[50]

Figure 1: Ontario Gas System Schematic



Source: Natural Gas Regulation in Ontario: A Renewed Policy Framework, March 30, 2005

[50] Enbridge, p.14.

7. RELEVANT PRODUCTS AND GEOGRAPHIC MARKETS

Product Market

The first step in analyzing whether significant market power exists involves defining the relevant market in terms of both the product market and geographic market[51]. Such markets are defined by identifying those products or services that provide good alternatives to the applicant's products and services. FERC has defined relevant products as those that are available soon enough, have a price that is low enough, and has a quality high enough to permit customers to substitute the alternate product for the applicant's product. Storage is an intermediate product and has no value in itself. It provides value to the extent it increases the value of the gas injected into storage.

There are two basic types of storage – seasonal storage[52] and short-term storage. Seasonal storage is used for daily balancing of gas supply and demand. Seasonal storage facilities usually have large working gas capacity to supplement large winter demands. Seasonal storage is also used to reduce the commodity risk of fluctuations in the price of gas between the seasons, as well as to mitigate pipeline charges in peak periods.

Short-term storage facilities offer customers flexibility for frequent switching between injection and withdrawal caused by frequent changes in gas demand. Short-term storage facilities have high deliverability rates to accommodate the frequent swings in gas demand and generally do not have sufficient working gas to serve as seasonal storage.[53] Short-term storage is primarily used by gas-fired power generators for peak-day balancing, short-term supply security and for price arbitrage or hedging opportunities.

There are a number of possible product alternatives to seasonal and short-term storage as discussed below.

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[51] This analysis will use the framework and language used by FERC in its analysis of market power in the gas storage markets. However, as stated previously, the framework and language are similar in concept and application to those of MEGs. Where the analysis departs from MEGs (which is chiefly in the calculation of market share and concentration), the differences will be discussed.

[52] Seasonal storage generally has a summer injection from April to October and a winter withdrawal from November to March.

[53] AECO at Suffield has large working gas capacity, yet it serves as both a short-term and seasonal storage facility.

Pipeline Capacity

Pipeline capacity can be used as a substitute to both seasonal and short-term storage by storing gas in the pipeline itself. Line packing is done by increasing the pressure of the pipeline to pack more gas into the pipeline. This means that during periods of high demand, greater quantities of gas can be withdrawn from the pipeline in the market area than are injected at the production area by temporarily increasing the pressure in the pipeline. Line packing is usually initiated on off-peak times (overnight) as a temporary storage medium to meet anticipated next-day peaking demands. To effectively use line packing, there must be sufficient capacity on the pipeline system to accommodate the variations in pipeline pressure. Line packing, however, is only a temporary short-term substitute for underground storage.

Furthermore, increased pipeline deliveries to manage daily balancing of demand and supply is not likely to be a cost effective substitute because of seasonal gas price differentials. FERC has calculated the seasonal gas price spread to be $1.84 for the winter October 2004 to January 2005 period.[54]

LNG

LNG peak shaving facilities offer customers of seasonal and short-term storage an alternative product. LNG facilities provide peak deliveries during periods when demand exceeds pipelines deliveries. Almost all LNG facilities are interconnected to pipelines and are generally located in the market area. In addition, LNG can be trucked to the customer, thus avoiding pipeline demand charges. The advantage of LNG over underground storage is that as a liquid, it occupies about 600 times less space than gas stored underground.[55] LNG also provides high deliverability on short notice. LNG facilities are more expensive to build and maintain than developing new underground storage facilities.[56] However, unlike underground storage, there is no requirement for cushion gas and the LNG can be located any where in the market area. Currently, there is one LNG facility in Ontario with a storage capacity of 650 MMcf and it is owned by Union. However, this facility is not available to third parties.

[54] FERC, "Current State and Issues Concerning Underground Natural Gas Storage," September 30, 2004, p.30.

[55] Demke Management Ltd., "The Role of Storage in Canada's Natural Gas Industry, August 2005, p. 2.14.

[56] Ibid.

Propane-Air Facilities

Propane-air facilities could be considered as an alternate product to seasonal and short-term gas storage. Propane-air facilities are usually located in the market area with access to pipeline, ship truck or rail facilities and are used much like LNG to serve short needle peak requirements. A typical propane-air facility contains a liquid propane receiving and storage facilities, and a vaporizer that converts liquid propane to a vapor state where it is compressed with air to produce a very high Btu gas. This high Btu gas is then mixed with natural gas as an alternate medium to natural gas. The downside of using propane-air medium is propane can fail to vaporize properly in cold climates. There are also risks associated with storage of large quantities of propane.[57] Currently there are no propane-air facilities in Ontario.

Financial Instruments

The use of forward contracts, futures contracts, options and swaps are available tools used by wholesale gas customers to hedge the volatility of gas prices. The price of a futures contract is determined by an auction on the floor of an exchange. A buyer of a futures contract at a specified delivery point can either take delivery of the gas or sell the contract if the gas is not needed, taking responsibility for any loss or profit between the time of purchase and sale. A forward contract is a private agreement to deliver gas from a seller to a buyer at a specified yet to be determined price (usually tied to a base price plus some index).

An option is a private agreement, which gives the seller or buyer the right but not the obligation to sell or buy a specific quantity of gas at a specific price during a period of time. A swap is a contractual agreement between two parties to exchange a series of cash flows on a specified quantity of gas. This is a financial arrangement and no physical gas is exchanged. All of these financial instruments are used to mitigate the risk to the gas user of price volatility. However, financial instruments are not likely to be a functional substitute for either seasonal or short-term storage because it does not provide the balancing function of underground storage.

Conclusions

In considering whether the Ontario gas storage market is competitive, other products such as LNG and propane-air facilities could be an alternative to seasonal and short-term storage needs. Currently, however, there are no such facilities available to storage customers in Ontario. Financial

[57] Avista looked at a propane-air option to natural gas and rejected it because of interchangeability concerns about the blending too great a concentration of propane with natural gas can cause service, maintenance and safety problems.

instruments can be substituted for the need for underground storage, but these products provide only an alternative medium for hedging the gas commodity risk. Financial instruments cannot be used for seasonal, daily or hourly gas system balancing. Pipeline capacity can also be substituted for the need for underground storage but this product provides only a temporary short-term substitute. Therefore, this study will limit the relevant product to underground gas storage.

Initial Geographic Market

The relevant geographic market could consist of all storage fields that could be accessed directly or indirectly through pipelines interconnected to Ontario. Thus, all storage fields that interconnect with ANR, Blue Lake, Consumers Energy, MichCon, Alliance, Great Lakes, Panhandle Eastern, National Fuel Gas, Vector, Natural Gas Pipeline, Dominion Transmission, Columbia Gas Transmission and Tennessee Gas Pipeline potentially could provide storage in competition to Ontario storage. Therefore, the initial relevant geographic market consisted of Ontario, Michigan, Illinois, Indiana, Iowa, Ohio, New York, Pennsylvania and West Virginia.

To confirm that these alternative storage fields are competitive with Ontario storage, price and availability was examined. In addition, access to these alternative storage fields was assessed to determine the relevant geographic market (i.e., there must be sufficient gas transmission available for a customer to move gas from U.S. storage facilities to Ontario during peak winter periods).

It should be noted that Alberta is not included in the geographic market because it is in the production area and cannot provide the quality of storage that is provided in the market area (i.e., due to the distance and timelines of receipt of gas, the storage in Alberta cannot be used for seasonal and/or short-term balancing requirements).

Do Canadian Storage Customers Use U.S. Storage Facilities?

One way to test the theory that pipelines interconnected to U.S. and Ontario storage facilities provide a viable choice to Ontario storage customers is to determine whether any Canadian companies use storage in Michigan, Illinois, Indiana, Ohio, Iowa, New York, Pennsylvania and West Virginia.

Most U.S. storage providers are required to provide FERC with a list of storage customers on a quarterly basis.[58] Many of these customer lists filed with FERC were reviewed. Two Canadian companies used U.S. storage facilities in the eastern portion of the U.S. Enbridge Gas Distribution Inc. and Coral Energy have contract storage at the Stagecoach facility in N.Y. Enbridge serves gas customers in New York and it is likely that Enbridge uses the New York gas storage to provide service to those customers. At Stagecoach, Enbridge has a contract for 658,760 Dth of storage from October 8, 2003 through October 1, 2006. Coral also has a contract with Stagecoach for 200,000 Dth of storage from November 1, 2005 through March 2006.

Michigan storage facilities have Canadian customers, as well. The Bluewater storage facility is directly interconnected to Union and it does have Canadian customers.[59] At Washington 10 Storage in Michigan the following customers have contracted for firm storage from April through October 2005: Nexen Marketing has 720,687 Dth, Union has 1,005,000 Dth and BP Canada has 1,191,634 Dth of storage. ANR Storage in Michigan has Nexen Marketing as a customer with 3,006,000 Dth on a contract basis from April 2005 through March 2020; Coral Energy has 1,000,000 Dth on a contract basis from April 2005 through March 2007 as well as 2,200,000 Dth from April 2006 through March 2008; and BP Canada has 2,000,000 Dth from April 2004 through March 2007. At MichCon storage, Coral Energy has 326,058 Dth of storage capacity.

It is unclear whether these Canadian storage customers in the United States use the storage to participate in the U.S. market or whether these customers have contracted for firm transmission capacity to move the U.S. stored gas to serve the Canadian market.

Are U.S. Storage Facilities Comparable in Price to Storage in Ontario

As discussed previously, FERC has determined that an applicant must prove that it cannot raise prices above competitive levels and not lose customers (i.e., 10% price threshold). One might conclude that since there are Canadian storage customers using U.S. storage, that the U.S. storage facilities offer a cost-effective alternative to Ontario storage (i.e., it will be priced within 10 percent of the price of gas at Dawn). To test this theory, a price comparison was constructed to compare the cost of placing gas in Michigan, Illinois, Indiana, Iowa, New York, Pennsylvania, Ohio, and West Virginia storage markets to the cost of gas injected and stored at Dawn. In particular, the cost of

[58] FERC Form 549B.

[59] Bluewater storage is regulated by Michigan and therefore is not required to disclose the names of its customers. As a result, the names of these customers are not known.

placing gas in the broader geographic storage markets in June 2004 and June 2005, withdrawing the gas in December 2004 and 2005, and then transporting that gas to Dawn was compared to the cost of gas injected and withdrawn at Dawn in the same time frames.

To conduct this analysis, the delivered price of gas injected into storage in the U.S. storage markets in June 2004 and 2005 was examined, as reported in the Canadian Gas Price Reporter.[60] As shown on Table 2 below, in the low gas price scenario,[61] Michigan storage and Tennessee Gas storage in New York and Pennsylvania falls within the 10 percent threshold in both years compared to gas stored directly at Union or Enbridge.[62] In the high price scenario, with the exception of Columbia Gas storage ("CGT") in Ohio, Pennsylvania and West Virginia, the analysis reveals that U.S. storage facilities within the initial relevant geographic market are competitive with gas stored in Ontario from a pricing point of view.

[60] Published monthly by Canadian Enerdata Ltd.

[61] Enerdata provides a high and low price delivered to the market area each month.

[62] Prices for gas stored in Michigan and delivered to Dawn in 2005 were higher relative to gas stored directly at Dawn storage. This could be attributable to the effects of Katrina.

Table 2
Comparison of U.S. Storage Delivered to Ontario

Differential	2004 Union	2004 Enbridge	2005 Union	2005 Enbridge
Low Gas Price				
ANR-Michigan	4.20%	6.87%	1.87%	4.68%
Washington 10-Michigan	3.38%	6.04%	0.99%	3.79%
ANR-IN	5.21%	7.91%	2.75%	5.59%
National Fuels-NY-PA	16.33%	19.32%	14.02%	17.17%
TGT North Storage-NY-PA	8.98%	11.78%	6.12%	9.06%
Dominion-NY-PA	12.83%	15.73%	10.25%	13.30%
CGT-OH, PA	29.80%	33.13%	28.48%	32.04%
CGT-WV	29.80%	33.13%	28.48%	32.04%
Dominion-WV	12.40%	15.28%	9.79%	12.82%
NGPL-IL	10.77%	13.62%	8.73%	11.73%
NGPL-IA	11.05%	13.91%	9.77%	12.81%
High Gas Price				
ANR-Michigan	-1.27%	1.03%	-3.11%	-0.62%
Washington 10-Michigan	-2.01%	0.28%	-3.92%	-1.45%
ANR-IN	2.38%	4.77%	3.54%	6.20%
National Fuels-NY-PA	8.31%	10.84%	7.55%	10.31%
TGT North Storage-NY-PA	1.64%	4.00%	0.21%	2.78%
Dominion-NY-PA	5.13%	7.58%	4.05%	6.72%
CGT-OH, PA	20.55%	23.36%	21.00%	24.11%
CGT-WV	17.95%	20.70%	19.49%	22.56%
Dominion-WV	2.14%	4.52%	2.11%	4.73%
NGPL-IL	7.44%	9.94%	9.10%	11.90%
NGPL-IA	7.53%	10.03%	9.91%	12.73%

Is there sufficient gas transmission available to move the gas from U.S. storage facilities to Ontario during peak winter periods?

FERC defines a good alternative as a product that must be available soon enough to customers. This means that: (1) storage capacity in the relevant geographic market must be available and 2) customers in Ontario must be able to access storage facilities in the relevant geographic market (i.e., there must be sufficient gas transmission available for a customer to move gas from U.S. storage facilities to Ontario during peak winter periods).

To assess gas transmission availability in the Midwest and Eastern United States, the Study contracted with Ben Schlesinger Associates ("BSA")[63] to conduct a survey of the available capacity on the relevant pipelines and the associated potential U.S. alternative storage facilities to Dawn. The results of the survey, outlined below, conclude that during the winter peak period most pipeline capacity in the Midwest and Eastern U.S. is fully subscribed.

As shown in Exhibit No. BMM-1, BSA found that TCPL has 460 GJ/d of firm transmission from Empress to Parkway. BSA determined that there is 30 MMcf/d of available capacity on the Great Lakes system during the winter but in the summer, most of Great Lakes' capacity is used for hauling storage injections for customers in the Great Lakes region of the U.S.

In connection with storage in the Midwest,[64] BSA determined that the Alliance pipeline is fully subscribed until 2015. The Vector Pipeline is also fully subscribed and its recent open season for its 200 MDth/d expansion in 2007 has been filled and there are no current plans for another open season. The BSA survey reported that firm transmission is only available during the summer months and there is minimal firm transmission available in the winter peak months on MichCon. MichCon held an open season last winter and does not have plans for a future open season

According to the BSA survey, to access storage facilities in Indiana and Illinois an Ontario storage customer would need to get firm transmission on the Vector pipeline, which, as noted above is fully subscribed. Iowa storage was also examined for availability to Ontario storage customers. Northern Gas Pipeline of America ("NGPA") does not interconnect at St. Clair and as a result, one would need to obtain transmission on ANR and MichCon to get to St. Clair. However, as noted above, there is no firm transmission available on MichCon during peak winter periods.

[63] Ben Schlesinger Associates, 7201 Wisconsin Avenue, Suite 740, Bethesda, Maryland 20814, (202) 951-7266.

[64] Michigan, Ohio Illinois, Indiana and Iowa.

In connection with storage and transmission in the eastern U.S.,[65] BSA found that storage and transmission are limited. Tennessee Gas Pipeline's North storage is fully sold out, as is firm transmission. Dominion's storage and firm transmission in Pennsylvania and New York are fully subscribed and therefore, not available to Ontario storage customers. Columbia Gas transmission is fully subscribed and, therefore, storage facilities interconnected to Columbia Gas Transmission in New York, Pennsylvania and West Virginia are not available to Ontario storage customers. Deliveries through Columbia Gas Transmission or Dominion through National Fuels to TCPL to Kirkwall (Union) are not possible because Kirkwall is not a delivery point on the TCPL system.

In conclusion, although Michigan and New York storage facilities do have Canadian customers currently, it does not appear likely that additional Ontario storage customers could access these facilities due to the limited ability to move the U.S. stored gas to the Ontario market. Other potential storage options in Illinois, Indiana, Iowa, Pennsylvania and West Virginia do not have firm transmission available to move the gas in U.S. storage to the Ontario market, as well. Therefore, it was determined that there are no alternative storage facilities that compete with Ontario storage, with the exception of U.S. storage held by existing Canadian customers. As discussed earlier, there are not any suitable product substitutes to replace the function of underground gas storage.

Relevant geographic market

It was established that there is a lack of sufficient pipeline capacity for Ontario storage customers to reach alternative storage facilities and therefore, there are no alternative storage facilities that compete with Ontario storage, with the exception of U.S. storage held by existing Canadian customers. In addition, there are no suitable product substitutes to replace the function of underground storage. As a result, the relevant geographic market is defined as Ontario natural gas storage only.

[65] New York, Pennsylvania and West Virginia.

8. MARKET SHARE AND CONCENTRATION

Having defined the relevant product market as underground storage and the relevant geographic market to be underground storage in Ontario only, it is useful to apply the FERC and MEG guidelines to determine if the market is competitive.

Market shares were calculated based upon capacity available to third parties as reported in a database complied by the NGI Intelligence Press, Inc. ("NGI"). Since the availability of storage space is essential, the market share calculations incorporated storage capacity that is available to third parties only. The NGI reports that Union has 134,324 MMcf of gas storage available to third parties in Ontario. The calculated HHI for this market is 10,000 since Union is the only firm in the relevant geographic market.[66]

As MEG requires, another indication of concentration in a market is the relative size of the market participants. The four-firm concentration ratio is the percentage share of the four largest market participants. A very low percentage of the four-firm share indicates a competitive market, while a share of 40 percent indicates monopolistic competition and a share of over 40 percent indicates more of an oligopoly market structure. As shown in Exhibit No. BMM-2, since Union is the only firm, the four-firm market share is 100 percent, indicating a pure monopoly market structure. Enbridge's market share is zero because it uses all of its storage to serve in-franchise customers (i.e., no available capacity for third parties).[67]

Appendix D contains the market share and concentration analysis for the broader definitions of the geographic market.

[66] Enbridge has no available capacity for third parties except for the occasionally short-term storage transactional service. If one includes storage contracted by Canadians in the U.S., Union's market share is 93.6 percent and the HHI is 8,771. Exhibit D1 in Appendix D contains these market concentration measures.

[67] If one includes storage contracted by Canadians in the U.S., the four-firm concentration is 99 percent and therefore the conclusions do not change. Exhibit D1 in Appendix D contains these market concentration measures.

9. BARRIERS TO ENTRY

One important aspect to determining whether a market is competitive is to assess whether there exist barriers to entry that prevent potential storage providers from entering the storage market. As noted above, currently there are only two storage providers in Ontario—Union and Enbridge. Within the last decade, a third storage provider opened an operation but it went into bankruptcy and sold its facility to Enbridge. Market Hub Partners[68] has interests in two pools—1.1 Bcf in the St. Clair Pool and 5 Bcf in the Sarnia Airport Pool. These pools are located near Dawn. Tribute has storage capacity of 3 Bcf, but its storage facilities are not currently operating. A consultant for Union estimated that there is potentially 150 Bcf of additional storage in Ontario.[69] The National Petroleum Council's 2003 estimated that there exists 50 Bcf of new storage in Eastern Canada that could be developed.

Newly developed storage facilities are authorized by the Board to charge market-based rates. Despite the availability of potential gas storage sites, Enbridge, Union or other third parties have not developed operational new storage facilities in the past five years. This suggests that there may be financial barriers to entry, in that the potential gas storage sites might not be economical to develop and regulatory barriers to entry by new storage developers. Stakeholders in the OEB's Natural Gas Forum identified a number of barriers to entry such as access to the requisite transmission at economic rates, the bundling of services by Enbridge and Union, as well as the revenue sharing between ex-franchise market-based rates to in-franchise cost-of-service rates.

10. VERTICAL MARKET POWER ISSUES

Vertical market power issues are of concern in connection with gas storage providers that also own gas transmission pipelines. Here, the vertical issue is whether such a vertical structure creates or enhances the incentive and/or ability to adversely affect prices and discourage new entry. An example of this would be a vertically integrated storage provider denying a new storage developer an interconnection and the ability to reach its customers—or pricing of the interconnection and transportation so high that it effectively makes the new storage facility uneconomic. The incentive

[68] MHP is an affiliate of Duke, as is Union. If MHP develops gas storage facilities, FERC would require that a market concentration analysis combine the MHP capacity with Union's capacity because of their affiliate relationship.

[69] Sproule Associated Limited, Letter to John Finkbiner, Manager, Storage Asset Development, Union Gas Limited from M. Wayne Sargent and Ken Crowther, January 15, 2001.

for the vertically integrated storage provider to exercise market power would be the ability by its refusal or pricing of the interconnection and transmission to raise the price of its own storage services. Another competitive concern is that the vertical storage provider has access to customer and market information that is not available to market participants and therefore, can use this information to enhance its position in the market.

Currently, there is no structural separation between Union's storage operations and its transportation operations.[70] In addition, there are no reporting requirements to provide the regulator and market participants with information on Union's activities in connection with sale of storage or transmission capacity. As a result, there is no transparency of contracts, price, customers, volumes, and available capacity in connection with either the Ontario storage market or transmission services, making it difficult to monitor or detect exercise of vertical market power.

As a result, Union by virtue of its integrated structure has market power in connection with its transportation operations around Dawn.

To minimize vertical market power issues, FERC requires market transparency for both gas transportation and gas storage.[71] Gas transmission providers and storage providers are required to maintain a web-based informational bulletin board that provides real-time information concerning their operations. Such information includes operational capacity available and unsubscribed capacity; an index of customers, contract start and termination date as well as the price of the service; posted imbalances; and the current tariff in effect. In addition, all gas transmission and gas storage providers under FERC jurisdiction must file FERC Form 549B each quarter and must post the information on its website. Information includes: shipper/storage customer; rate schedule; contract number; contract effective date and termination date; negotiated rates (Yes or No); for transportation/storage-maximum daily quantity.

In addition, all FERC regulated gas providers must have an affiliate code of conduct to prevent abusive behavior among affiliates. An example of possible affiliate abuse is the investigation into El Paso's affiliate transaction. Historically, the price of natural gas sold at the southern California border closely tracked the San Juan Basin price. In March 2000, El Paso pipeline sold 1,220 MMcf/day on its pipeline to El Paso Merchant Energy. Shortly thereafter, the price of gas at the

[70] Union's transportation operations include the Dawn-to-Trafalgar pipeline, Union's Panhandle pipeline that connects with CMS Panhandle, Union's St. Clair pipeline that connects to MichCon pipeline (and ANR pipeline), and Union's Bluewater pipeline connects to Bluewater pipeline and Consumers Energy pipeline.

[71] California reporting requirements are similar to FERC but Michigan does not require storage providers under its jurisdiction to report on customers and storage transactions.

California border began to rise, relative to the San Juan Basin price of gas. The daily spot price of gas at southern California rose to $60/Dtm compared to $8 to $11/Dtm at the San Juan Basin. The CPUC filed a complaint at FERC and an investigation concluded that El Paso violated the affiliate abuse regulations and that El Paso and El Paso Merchant had the ability to exercise market power. Shortly after the El Paso Merchant contract ended, prices at the southern California border returned to levels tracking prices of gas at San Juan Basin.

11. CONCLUSIONS

There are two dominant players in Ontario's natural gas storage market – Union and Enbridge. Currently, the gas storage market in Ontario is not competitive and Union is in a position to exercise market power. The market power analysis shows an unacceptably high market share in a highly concentrated market, combined with a lack of market transparency and barriers to entry indicate the existence of market power sufficient to prevent or substantially lessen competition. Furthermore, Union by virtue of its integrated structure has market power in connection with its transportation operations around Dawn. This results in Union having access to customer and market information that is not available to other market participants and therefore, could use this information to enhance its position in the market.[72]

The analysis supporting these conclusions is as follows:

There are no suitable product substitutes to replace the function of underground storage. Also, there are no alternative storage facilities that compete with Ontario storage due to transmission constraints.[73] As a result, the relevant geographic market is defined as Ontario storage only. This implies that there is no horizontal competition for gas storage in Ontario.

[72] Enbridge Inc. owns a 60 percent share of the Vector pipeline and a 50 percent share in the Alliance pipeline. To the extent Enbridge Inc has any operational control over these pipelines, potentially there may be vertical market power issues concerning Enbridge Inc.

[73] Transmission capacity could become available by development of a secondary market for transmission. If this market develops, it is unlikely to be of similar quality as firm transmission service. In any event, it would have to be demonstrated that transmission capacity release provides an acceptable alternative to warrant an expansion of the relevant geographic market.

The HHI of the relevant geographic market is 10,000. Even when considering a broader definition of the geographic market for gas storage, the HHI indicates that the gas storage market in Ontario is highly concentrated.[74]

The top four-firm share is 100% in the relevant geographic market. In the largest geographic market, Union is among the four top firms and has a market share of 12 percent. Enbridge's market share is zero because Enbridge uses all of its storage to serve in-franchise customers.[75] These concentration calculations are contained in Appendix D.

There is a lack of market transparency in the sale of storage and transmission capacity in Ontario. This includes information on contracts, price, customers, volumes and available capacity in connection with either the Ontario storage market or transmission services. Also, because there is little or no transparency of information to market participants concerning the price and availability of storage capacity, there is no ability by the regulator and market participants to detect or mitigate potential market power.

There exist barriers to entry. Enbridge, Union or third parties have not developed operational new storage facilities in the past five years. This could be caused by uncertainty of market demand for storage; high cost of capital requirements to develop new storage; limited economic transmission to reach potential customers or uncertainty about cost recovery in rates from storage users. It could also be caused by regulatory barriers.[76]

There are vertical market power issues in connection with storage and transmission. Union, by virtue of its integrated structure, has enhanced market information that could be used to manipulate the gas storage or transmission market. Union has both the incentive and ability to exercise vertical market power to prevent new entry by independent storage providers.

Therefore, it is concluded that the market is not competitive for gas storage in Ontario, especially in connection with ex-franchise customers who are subject to market-based rates. As a result, all storage capacity held by Union should be priced based on cost-of-service, including any expansion of current storage capacity or new storage development.

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[74] Even the broadest geographic market shows a concentrated market with HHIs of 1,788. A more realistic geographic definition (Ontario storage plus Canadian customer with U.S. storage capacity produces an HHI of 8,771.

[75] Except for what might be in excess of in-franchise customer requirements and sold as transactional services.

[76] Regulatory barriers include environmental and permitting requirements; restrictions on gas utilities to enter into long-term commitments to purchase or store gas; and uncertainty of the future regulatory regime concerning storage rates for independent storage developers.

Furthermore, it was determined that all of Enbridge's storage capacity (including any expansion of existing storage capacity or new storage development) should also be priced based on cost-of-service. Even though this study has found that Enbridge does not have market power in the Ontario gas storage market, it is essential to protect customers that are captive to Enbridge. The majority of Enbridge's customers are residential and general service users and therefore, are considered to be captive (i.e., the Board needs to protect these customers from potential market prices that are above competitive levels). As a result, Enbridge has market power in this situation and should offer storage services under cost-based rates.

It should be noted that the utility-specific rate hearings in 2006 would determine the price of storage based on cost-of-service as part of setting the 2007 base rates for the upcoming Incentive Regulation plan.

12. IMPACTS OF COMPETITIVE ANALYSIS

It was concluded that the market for gas storage in Ontario is not competitive and that all storage capacity held by Enbridge and Union should be priced based on cost-of-service[77], including any expansion of current storage capacity or new storage development. This conclusion has the following implications to the current market structure in Ontario:

The arrangement of some customers paying market-based rates, some customers paying cost-based rates, and some customers paying a combination of both would end. All customers (including out-of-province) would pay cost-based rates.

The separation between in- and ex-franchise customers would no longer be necessary. All comparable customers would be treated the same way.

The sale of transactional services involving storage assets/contracts could be priced at cost. It is recognized however that this outcome would not provide an incentive to the utilities to optimize any unused assets/contracts for the benefits of ratepayers and the shareholder. These storage services are being provided on a short-term basis, when not required to meet the needs of in-franchise customers. Therefore, consideration could be given to maintaining the existing incentive mechanism (market-based rates) to optimize the use of existing storage facilities. However, if this

[77] The utility-specific rate hearings in 2006 would establish the price of storage based on cost-of-service as part of setting the base rates for the upcoming Incentive Regulation plan

mechanism is maintained, then the gas utilities should be required to report all transactional storage sales on their website or other publicly available forum on a quarterly basis. This would include volume, price, start and end date, and service type. The transparency of market information would allow regulators to detect any market power.

The process for allocating storage space to ex-franchise customers would have to be determined (i.e., would the current in-franchise allocation methodology be appropriate for ex-franchise customers). In addition, a process for allocating storage space when demand for this service exceeds the availability of this service would need to be developed. Some examples include a right of first refusal, first-come, first-served and pro-ration of requests.

Third party storage providers (not affiliated with the gas utilities) would still be able to charge market-based rates but they would be competing against storage at cost (or a regulated rate). This would continue the dampening of the new storage development market. However, if all storage is cost-based priced, new storage will be developed when the market signals scarcity of gas storage capacity. These signals might surface as a secondary market develops.

Customers selling cost-based storage at market prices in the secondary market have been identified as a concern. In this situation, customers would be able to sell their cost-based storage in the secondary market at higher prices and the gas utilities would not profit from these transactions (i.e., the utilities only receive a regulated rate-of-return on their investment in the storage rates). However, the development of a secondary market for gas storage is an efficient way to reallocate storage capacity. If the price of storage in the secondary market is high, this might provide a good market indicator to independent gas developers as to the value of new storage capacity, especially if the secondary storage market prices were made public.

13. FUTURE CONSIDERATIONS

The market power analysis was completed at a discrete point in time and as a result, the market factors that influenced the result could change. For example, access to the U.S. storage market could become available through pipeline expansion. Consequently, the Board may reconsider in the future, whether the Ontario gas storage market is competitive to allow Enbridge and/or Union to charge market-based rates.

To encourage the development of competition in Ontario's natural gas storage, the Board should consider a number of changes to the current market structure. These could be implemented over the next few years and could include the following:

First, it is essential that there is transparency in the gas marketplace for both transmission and gas storage services. All storage and transmission providers should be required to report quantity and availability of storage/transmission capacity on their website or other publicly available forum on a quarterly basis. This will allow market participants to have better information with which to make decisions concerning how to manage their gas portfolios. These reporting requirements would set the stage for additional market transparency needed under a competitive environment. For example, FERC requires that gas transmission providers and storage providers to maintain a web-based informational bulletin board that provides real-time information concerning their operations. Such information includes operational capacity available and unsubscribed capacity; an index of customers, contract start and termination date as well as the price of the service; posted imbalances; and the current tariff in effect. In addition, all gas transmission and gas storage providers under FERC jurisdiction must file FERC Form 549B each quarter and must post the information on its website. Information includes: shipper/storage customer; rate schedule; contract number; contract effective date and termination date; negotiated rates (Yes or No); for transportation/storage-maximum daily quantity. Regulators use the information filed by the market participants to detect potential market manipulation. If such behavior is detected an investigation occurs and remedies (usually financial) are imposed. The competitiveness of the market is facilitated by transparency of market information to all market participants. Furthermore, in the U.S., there are codes of conduct that utilities have to follow.

Second, transmission facilities owned by Union should be functionally separated from storage operations. This separation would promote a level playing field as it will minimize access to privileged customer information and lessen the potential for cross-subsidization between transmission and storage services. Also, the separation will help promote the development of a competitive storage market since it is necessary to separate the regulated services from the competitive services (if and when gas storage becomes competitive). Especially essential is that transmission should be provided on an open access and non-discriminatory basis to prevent any gaming of the gas infrastructure. This will remove the ability and incentive to exercise market power.

Third, gas customers should be split into two groups: core customers and non-core customers[78]. This market structure has been adopted by the California Public Service Commission[79]. In California, core customers receive services from the utility at regulated rates, while non-core customers do not. Non-core customers have opted (i.e., elected) out of the regulated rate protection and take the total risk of their total portfolio management, including storage. This separation would ensure a consistent treatment of customers across all gas utility franchises in Ontario. As in California, sufficient storage should be set-aside for core customers based on projected load forecasts compiled by the gas utilities and approved by the Board to ensure that customers are protected. This will allow for the possibility for market-based rates on competitive services when, and if, the gas storage becomes competitive.

Fourth, the Board should adopt a system whereby customers can register a complaint, if they think they have been harmed by the exercise of potential market power. For instance, if a potential storage developer is denied access to the transmission system, the Board could review the issue and determine if the customer was unduly discriminated by the transmission provider to block his competitive entry into the market. Likewise, as demand for storage increases, there should be a procedure whereby customers could force storage providers to designate an open season. This would also apply to transmission, as well.

Fifth, the Board could encourage utility and third party storage providers to develop new storage by allowing the utility to earn a higher rate of return on the storage assets and/or an accelerated depreciation period. FERC reports that U.S. independent storage developers require at least a 20 percent return on equity before a project becomes viable. This is because storage customers will only commit to purchase capacity for a one to five-year period.

[78] This would replace the current structure regarding in and ex-franchise customers.

[79] Details of the Californian market are in Appendix C.

14. EXHIBIT NO. BMM-1

Pipeline Capacity Availability between Dawn Storage and Other Competitive Storage Options

Storage Co	Location	Connecting Pipeline	To	Connecting Pipeline	To	Connecting Pipeline	To
EnCana	**AB**	**TCPL**	**Parkway**				
TCPL has 460 GJ/d of FT available from Empress to Parkway.							
EnCana	**AB**	**TCPL**	**Emerson**	**GLGT**	**St. Clair**		
TCPL has 800 GJ/d of FT available from Empress to Emerson.	TCPL has 800 GJ/d of FT available from Empress to Emerson.	According to GLGT website, 30 MMcf/d is available on the GLGT system between Emerson and St. Clair effective 11/1/06 but during the winter only. In the summer GLGT is full hauling gas for storage injections in the Great Lakes region. The system can be expanded with expression of sufficient interest.					
EnCana	**AB**	**Alliance**	**Vector**	**Vector**	**Dawn**		
	The Alliance pipeline is fully subscribed by shippers till 2015. No FT or IT available. Capacity release is the only way to get capacity but for that we have to talk to their shippers.	FT is not currently available. IT is minimally available thru capacity release. Vector held an open season last year and has filed with the FERC a for 200 MD/d expansion which will be effective in 2007. No current plans for another open season.					

Pipeline Capacity Availability between Dawn Storage and Other Competitive Storage Options

Storage Co	Location	Connecting Pipeline	To	Connecting Pipeline	To		Connecting Pipeline	To
ANR Pipeline	**MI**	**ANR**		**MichCon**	**MichCon**	**St. Clair**		
FT available during the summer but very minimal FT available in the winter. IT availability varies on a day-to-day basis depending upon the operating conditions. Open season held last winter; no new open season planned. Sch FTS, ML-7 to 7 haul is the applicable rate which is $o.19,Dth	Firm off-system transportation is not available. Only IT rate is available under Rate Sch. TOS-I. The max rate is $0.212/Dth which is negotiable.							
ANR Storage	**MI**	**ANR**		**MichCon**	**MichCon**	**St. Clair**		
FT available during the summer but very minimal FT available in the winter. IT availability varies on a day-to-day basis depending upon the operating conditions. Open season held last winter; no new open season planned. Sch FTS, ML-7 to 7 haul is the applicable rate which is $0.19/Dth.	Firm off-system transportation is available on MichCon nine months of the year and is tight in Feb, Mar, and Apr. IT rate is available under Rate Sch. TOS-I. The max rate is $0.212/Dth which is negotiable. No Interruptions last year and only 15 days in the winter before that. The system can be expanded if significant interest is expressed.							
Consumers Energy	**MI**	**Consumers Energy**		**Bluewater**				
Consumers Energy stated that gas transportation only takes place from Bluewater into Consumers Energy system. Not the other way. Hence, transportation is not available from Michigan storage fields to Bluewater.								

Pipeline Capacity Availability between Dawn Storage and Other Competitive Storage Options

Storage Co	Location	Connecting Pipeline	To	Connecting Pipeline	To		Connecting Pipeline	To
MichCon	**MI**	**MichCon**		**St Clair**				
Firm off-system transportation is available on MichCon nine months of the year and is tight in Feb, Mar, and Apr. IT rate is available under Rate Sch. TOS-I. The max rate is $0.212/Dth which is negotiable. No Interruptions last year and only 15 days in the winter before that. The system can be expanded if significant interest is expressed.								
Michigan Gas Utilities	**MI**	**MichCon**		**St Clair**				
Firm off-system transportation is available on MichCon nine months of the year and is tight in Feb, Mar, and Apr. IT rate is available under Rate Sch. TOS-I. The max rate is $0.212/Dth which is negotiable. No Interruptions last year and only 15 days in the winter before that. The system can be expanded if significant interest is expressed.								

Pipeline Capacity Availability between Dawn Storage and Other Competitive Storage Options

Storage Co	Location	Connecting Pipeline	To	Connecting Pipeline	To		Connecting Pipeline	To
Semco	**MI**	**MichCon**		**St Clair**				
Firm off-system transportation is available on MichCon nine months of the year and is tight in Feb, Mar, and Apr. IT rate is available under Rate Sch. TOS-I. The max rate is $0.212/Dth which is negotiable. No Interruptions last year and only 15 days in the winter before that. The system can be expanded if significant interest is expressed.								
Wash. 10	**MI**	**MichCon**		**St Clair**				
Firm off-system transportation is available on MichCon nine months of the year and is tight in Feb, Mar, and Apr. IT rate is available under Rate Sch. TOS-I. The max rate is $0.212/Dth which is negotiable. No Interruptions last year and only 15 days in the winter before that. The system can be expanded if significant interest is expressed.								
SW/PEP	**MI**	**Panhandle**		**Ojibway**				
Panhandle's storage in Michigan is currently sold out. However, if demand exists Panhandle could easily contract for third party storage and provide FT to								

Pipeline Capacity Availability between Dawn Storage and Other Competitive Storage Options

Storage Co	Location	Connecting Pipeline	To	Connecting Pipeline	To		Connecting Pipeline	To
Ojibway. Transportation constraints may exist upstream of the Michigan storage to move gas to storage.								
NFG	**NY/PA**	**NFG**		**Niagara**	**TCPL**	**Kirkwall**		
NFG currently has open season for firm capacity of 375 MD/dt to haul gas from NY/PA storage to Niagara. Future capacity availability from contract expiration will be auctioned off through open season also.	Kirkwall is not a delivery point. It can only receive gas. Gas could theoretically be delivered to Parkway, if need be. But it is not currently done.							
Honoeye	**NY**	**NFG**		**Niagara**	**TCPL**	**Kirkwall**		
NFG currently has open season for firm capacity of 375 MD/d to haul gas from NY/PA storage to Niagara. Future capacity availability from contract expiration will be auctioned off through open season also.	Kirkwall is not a delivery point. It can only receive gas. Gas could theoretically be delivered to Parkway, if need be. But it is not currently done.							
TGT North Storage	**NY/PA**	**TGT**		**Niagara**	**TCPL**	**Kirkwall**		
TGT's North storage is fully sold out. FT capacity on the line to Niagara is all sold out as well. Capacity release is the only way to obtain transportation. Their website lists last 90-days of capacity release postings.	Kirkwall is not a delivery point. It can only receive gas. Gas could theoretically be delivered to Parkway, if need be. But it is not currently done.							

Pipeline Capacity Availability between Dawn Storage and Other Competitive Storage Options

Storage Co	Location	Connecting Pipeline	To	Connecting Pipeline	To		Connecting Pipeline	To
Dominion	**NY/PA**	**Dominion**		**NFG**	**NFG**	**Niagara**	**TCPL-Kirkwall**	**Kirkwall**
Dominion's storage is currently fully subscribed under long-term contracts (about 10-years), hence no FT available since it is available in concert with storage only. IT is available but it is a moot issue since no storage is available to go with it. Storage could be expanded but not easily because of high cost of development and the high cost of base gas.	Kirkwall is not a delivery point. It can only receive gas. Gas could theoretically be delivered to Parkway, if need be. But it is not currently done.							
CGT	**NY/PA/WV**	**CGT**		**NFG**	**NFG**	**Niagara**	**TCPL**	**Kirkwall**
FT capacity on CGT system at points 20, 36 and 39 that join the NFG system is fully subscribed. There is some capacity release in the summer to marketers. The Millenium project will increase transportation capacity in the New York area. Storage is available on the western end of the CGT system in Ohio.	Kirkwall is not a delivery point. It can only receive gas. Gas could theoretically be delivered to Parkway, if need be. But it is not currently done.							
NIPSCO	**IN**	**Vector**		**Dawn**				
No FT is currently available. IT is minimally available thru capacity release. Open season was held last year for 200 MD/d which will be effective in 2007. No plans for another open season.								

Pipeline Capacity Availability between Dawn Storage and Other Competitive Storage Options

Storage Co	Location	Connecting Pipeline	To	Connecting Pipeline	To		Connecting Pipeline	To
Indiana Gas	**IN**	**ANR**		**MichCon**	**MichCon**	**St. Clair**		
FT available during the summer but very minimal FT available in the winter. IT availability varies on a day-to-day basis depending upon the operating conditions. Open season held last winter; no new open season planned. Sch FTS, ML-7 to 7 haul is the applicable rate which is $0.19/Dth.	Firm off-system transportation is available on MichCon nine months of the year and is tight in Feb, Mar, and Apr. IT rate is available under Rate Sch. TOS-I. The max rate is $0.212/Dth which is negotiable. No Interruptions last year and only 15 days in the winter before that. The system can be expanded if significant interest is expressed.							
Nicor	**IL**	**Vector**		**Dawn**				
FT is not currently available. IT is minimally available thru capacity release. Vector held an open season was held last year and has filed with the FERC a for 200 MD/d expansion which will be effective in 2007. No current plans for another open season.								
Peoples	**IL**	**Vector**		**Dawn**				
FT is not currently available. IT is minimally available thru capacity release. Vector held an open season was held last year and has filed with the FERC a for 200 MD/d expansion which will be effective in 2007. No current plans for another open season.								

Pipeline Capacity Availability between Dawn Storage and Other Competitive Storage Options

Storage Co	Location	Connecting Pipeline	To	Connecting Pipeline	To		Connecting Pipeline	To
NGPL	**IL/IA**	**NGPL**		**St Clair**				
NGPL does not go to St. Clair as indicated. Need ANR/Michcon to go there. Nonetheless, FT service is not available during the winter months. FT is available during the summer months. IT service is not available due to high utilization of FT service. Sch.OSS is the applicable rate to haul gas from IL/IA to Chicago area.								

Source: BSA 2006, from industry discussions, in-house information.

15. EXHIBIT NO. BMM-2

Geographic Market Concentration:
Ontario
HHI

Company	Storage	MMcf	Market Share	HHI
Union	Ontario	134,324	100.0%	10,000

Geographic Market Concentration
Ontario
Top Four Firm Share

Union	Ontario	134,324	100.0%

Source: Natural Gas Intelligence, "Natural Gas Storage and LNG Facilities in The United States and Canada," database.

Appendix A: Applications Approved for Market-Based Rates

Avoca

Avoca was the first market area storage facility to receive permission from FERC to charge market-based rates. Avoca is located in New York and the geographic market was defined as New York and Pennsylvania for conventional storage and additionally New England to provide short-term peak day storage as an alternative to LNG storage. Avoca is a salt storage facility and FERC noted that such facilities are distinguished by a high ratio of deliverability to working gas capacity.

FERC determined that Avoca provided storage services for three types of demand for storage: 1) base load; 2) winter addition to base load; and 3) short-term peaks. During the summer, the base load is the total demand for gas. Other demands are added during the rest of the year. The winter addition to base load consists of the average increase in demand for gas that occurs throughout the winter heating season. Short-term peaks consist of further increases in gas demand that occur over a period of days or even hours (i.e., needle peaks).

In Avoca, FERC determined that there are two relevant storage products. The first is conventional storage services, which can be used to satisfy the demand for base load and high deliverability storage that can accommodate longer-lasting short-term peaks.[80] In Avoca, FERC determined that the relevant products for high deliverability storage includes salt caverns storage and liquefied natural gas ("LNG").

In Avoca, FERC determined that the storage market to be concentrated with an HHI for working gas of 4,900 and an HHI for peak day deliverability of 4,100. Avoca's market shares were 3.0 percent and 9.6 percent, respectively. In the short-term peak demand market, the market was found to be moderately concentrated with an HHI of 1,100. Avoca's market share of the short-term peak demand market was 19.1 percent.

FERC granted Avoca market-based rate authority based on three conclusions. First, Avoca's market share is small compared to the alternatives available to its customers, and therefore, Avoca can charge no more than the prevailing market price for storage. Second, entry by other small competitors will prevent Avoca from exercising market power. Furthermore, FERC

[80] Longer-lasting short-term peaks can last for several days or weeks during the winter heating season.

concluded that even if Avoca's market share was high, that if entry is easy, Avoca may lack market power, especially if there exists excess capacity. Factors concerning ease of entry include availability of potential new storage sites and if new storage facilities have been developed in the relevant geographic market. Third, the rates of existing storage providers are regulated under just and reasonable rates (cost-based rates) and therefore, even if the market concentration is high, existing storage providers cannot exercise market power.

One point of concern by FERC in consideration of the Avoca application was that it is affiliated with Equitrans, a gas pipeline providing gas transportation services. Even though Equitrans is subject to rate regulation, FERC was concerned that the affiliation may pose market power concerns because even though Equitrans is restrained by rate regulation, Avoca may be able to tie the unregulated storage service to the regulated transportation service. However, in this case, Avoca is not interconnected to Equitrans, but to Tennessee Gas Pipeline, and therefore unlikely to be able to leverage storage service and transportation services.

Steuben

Steuben was the second market area storage facility to receive permission from FERC to charge market-based rates. Like Avoca, Steuben is also located in New York and the geographic market was also defined as New York and Pennsylvania.

Steuben stated that four factors demonstrated that it lacked market power. First, the open season process ensures that it cannot withhold capacity from the market.[81] Second, if Steuben increased prices above competitive levels, holders of storage capacity would increase the amount of capacity offered in the capacity release, thereby preventing Steuben from sustaining any price increase. Third, the price of conventional storage is importantly linked to the price of swing gas, as an alternative to Steuben customers. Finally, Steuben noted that entry into the storage market is relatively easy.

Although the market is highly concentrated, FERC concluded that Steuben is too small (market shares of 1.7-3.5 percent) to exercise market power. The Commission determined that the market has more than 28 times the capacity and deliverability of the Steuben storage facility. Therefore, FERC concluded that Steuben represents a very small part of the market and would not be in a position to control the market.

[81] Interestingly, Avoca received no offers to purchase capacity in its 1993 open season.

NYSEG

In 1997, NYSEG sought to change the jurisdictional status of its New York Seneca storage facility to interstate jurisdictional and to request authority to charge market-based rates for storage services. Consistent with Avoca, NYSEG analyzed the underground storage market in New York and Pennsylvania. NYSEG concluded that the high concentration in the market is due to the high market shares of CNG and that NYSEG could not have market power with such low market shares. In addition, NYSEG presented evidence that there was excess storage capacity available to potential storage customers, in addition to the 3.3 Bcf of turn-back storage capacity anticipated to be released to the market. It also concluded that there are low barriers to entry.

FERC approved NYSEG's request for market-based rates and that NYSEG's application to place the storage facilities under interstate jurisdiction would increase competition in the interstate gas storage market and would also increase the utilization of NYSEG's intrastate facilities.

NE Hub

In 1998, NE Hub requested market-based rates for its newly constructed storage facility in Pennsylvania. Consistent with Avoca, NE Hub analyzed the underground storage market in New York and Pennsylvania. The relevant products were defined as traditional storage to meet balancing needs and high deliverability storage and LNG to meet short-term balancing requirements.

The Commission found that the market was highly concentrated. However, the Commission did not find the high level of market concentration to preclude NE Hub's being allowed to charge market-based rates for storage services. The Commission cited three reasons for this determination.

First, NE Hub's shares of the relevant markets were small. The Commission went on to point out that NE Hub was a new entrant that could survive only by offering customers prices lower than the prevailing prices for comparable service. The Commission stated that all existing capacity provides alternatives to customers considering using NE Hub.

Second, the reason for the high concentration was due to control of 80 percent of both working gas capacity and peak day deliverability by CNG Transmission ("CNG") and National Fuel Gas

("National Fuel"). Both firms were viewed as having the capability to expand their facilities such that any attempt by NE Hub to exercise market power would be thwarted. More fundamentally, in a situation where two companies had such a large joint share, the Commission concluded that NE Hub would provide desirable competition to the dominant storage operators.

Third, the rates of the incumbent interstate storage providers, with whom NE Hub would have to compete, were subject to cost-based regulation. They were, therefore, legally, just and reasonable rates. CNG, National Fuel and the other providers, the Commission pointed out, could not exercise market power to increase prices above the cost-base rate cap, because of their regulatory status. Because these suppliers with cost-based regulated rates compete with NE Hub, these regulated prices provide a constraint on prices NE Hub could charge.

Honeoye

In 2000, Honeoye petitioned FERC for authority to charge market-based rates for storage services from its New York facilities. Consistent with other approved market-based rate applications, Honeoye defined the relevant market as New York and Pennsylvania. Honeoye's market study showed that the market was concentrated. FERC agreed that the market is concentrated and noted that together, National Fuel and CNG have over 88 percent of the capacity and approximately 80 percent of the deliverability. FERC approved Honeoye's application based on the fact that it will not be able to exercise market power because its market share is small (under 1.5 percent) and that the regulated rates of other storage providers will keep Honeoye's rates at competitive levels.

Stagecoach Storage Field Project

In December 1999, Central New York Oil and Gas Company (CNYOG) filed an application with FERC for permission to charge market-based rates for storage services at its new high-performance Stagecoach storage field in Tioga County, New York and Bradford County, Pennsylvania. CNOG defined the relevant product to be natural gas storage.

CNYOG submitted three market power studies. The first study was based on overall storage capacity and peak deliverability in the market area of New York and Pennsylvania. However, CNYOG asserted that because of the numerous interconnections in the U.S. and Canada all storage facilities would be a competitive option for customers using the CNYOG storage facilities. The second CNYOG study included a broader market area consisting of storage

facilities interconnected to the six major interstate pipelines serving the Northeast area.[82] Therefore, the relevant geographic market would include storage facilities located in New York, Pennsylvania, Maryland, West Virginia and Ohio (the Northeast/Appalachian market). The third study included only high deliverability storage facilities and LNG facilities in the Northeast/Appalachian market based on peak deliverability. The Commission staff prepared its own market power study based on the fact that Stagecoach is located in the same geographic market as Avoca, Steuben, NYSEG, NE Hub and Honeoye. Based on this geographic market definition, Staff found that CNYOG would not be able to exercise market power based on capacity and peak deliverability in the New York and Pennsylvania region, a more narrowly defined definition of the geographic market. This conclusion tracked the findings in the above-cited cases: small market share, highly concentrated market dominated by several large storage providers and mitigation of any attempt to price above market levels by regulated rates of other providers.

Seneca Lake Storage

In August 2001, Seneca Lake Storage Company petitioned the Commission to approve market-based rates for storage services for its newly constructed high deliverability storage facility in New York. Seneca Lake defined the relevant products to be storage and high deliverability storage, including LNG. Seneca Lake submitted a market power study that was similar to that relied upon in the CNYOG decision. The Commission approved the Seneca application based on the same factors cited in the CNYOG decision.

Louisville Gas and Electric

In January 2002, Louisville Gas and Electric Company (LG&E) filed an application with FERC for permission to charge market-based rates for storage services at its existing facilities in Kentucky. LG&E offers bundled natural gas distribution storage and distribution services in the retail market. Occasionally, LG&E has storage capacity available and was seeking authority to charge market-based rates for storage services sold to the interstate market in excess of its LDC storage requirements. LG&E submitted a market power study indicating that Columbia Gas Transmission Corporation and Texas Gas dominated the Kentucky storage market. LG&E's market shares are 5.63 and 4.40 percent and the HHIs are 2,461 and 2,783 for peak

[82] Although CNYOGis interconnected with Tennessee Gas Pipeline ("TGP"), it included storage facilities interconnected to not only TGP, but also storage facilities interconnected to: CNG Transmission, Columbia Gas Transmission, National Fuel Gas, Transcontinental Gas Pipe Line, and Texas Eastern Transmission.

deliverability and working gas capacity, respectively. The Commission concluded that LG&E's market share was too small to attract or keep customers at prices above regulated rates. Furthermore, as a new market entrant with neither an existing rate base nor captive customers, there is no potential for subsidization by existing customers. Based on these factors, the Commission granted LG&E application.

WPS-ESI Gas Storage, LLC

In March 2004, WPS-ESI Gas Storage, LLC ("WPS-ESI") filed an application with FERC for permission to file market-based rates for its storage services. Since 2001, WPS-ESI owned and operated the Kimbal 27 Storage Field ("Kimbal 27") in Michigan. Kimbal 27 is interconnected to the ANR Pipeline, Great Lakes Gas Transmission Company and Vector Pipeline.

WPS-ESI submitted a market power analysis in accordance to FERC's requirements to obtain market-based rates. It defined the relevant geographic market as the area traversed by the northern zone pipeline operated by ANR in Michigan, northern Indiana, northern Illinois and eastern Iowa and the area adjacent to ANR's system and western Ontario. Given this geographic definition the HHIs are 1,379 for working gas and 1,393 for peak day deliverability with market shares of less than one percent for both measures. FERC was uncertain whether Ontario should be included in the relevant geographic market but noted that even when Ontario is excluded from the market WPS-ESI still passed the FERC screen. Therefore, FERC granted WPS-ESI permission to charge market-based rates at Kimbal 27.

Appendix B: Applications Denied for Market-Based Rates

CNG Transmission Corporation

In 1997, CNG Transmission Corporation (CNG) applied to FERC for approval of market-based rates for storage services, as well as for transportation services. CNG filed an application at FERC claiming that total capacity of the whole CNG transmission system is competitive for its storage services and calculated an HHI below the 1,800 threshold for market power concerns based on total transmission capacity. FERC rejected CNG's market-based rate proposal because it was inconsistent with prior FERC findings that the market (New York and Pennsylvania) is concentrated and that CNG holds a dominant share of the storage market.

FERC criticized CNG for not showing that this market power is somehow mitigated. FERC found that CNG's study contained serious fatal defects. In particular, CNG utilized the aggregate transmission capacity of all delivery and receipts points within a region to calculate concentration, rather than calculating an HHI for each receipt and delivery point on its transmission system. FERC stated that CNG failed to provide information to demonstrate that there are sufficient storage alternatives to CNG customers.

FERC indicated to CNG that it has never approved market-based rates when the HHI indicates a highly concentrated market and when the applicant has a significant market share. FERC stated that a critical element in the analysis of market-based rate proposal is a study of the market price of the proposed service and whether the applicant can raise the price of the service 10 percent or more without losing significant market share. CNG did not provide information of customer alternatives and did not show that it could not raise rates 10 percent without losing significant market share.

Apparently, CNG was proposing to raise total firm storage rates by 26 percent, yet showed no change in its billing determinants as a result of this increase. To FERC, the fact that CNG could raise rates by over 25 percent and not lose customers or market share was found to be evidence of market power.

Northwest Natural Gas Company

In March 2000, Northwest Natural Gas Company ("Northwest Natural") filed an application to charge market-based rates for storage services from its existing facilities in Mist, Oregon. Northwest Natural sells and transports natural gas in its retail market areas in Northwest

Oregon and Washington. It operates separate distribution systems in Oregon and Washington. Northwest Natural intended to expand its Mist storage facilities and asked for market-based rate authority to sell storage services to the interstate market. Currently, it provides its core retail customers with bundled firm sales, transportation and storage service at Mist at a bundled rate.

Northwest Natural submitted a market power study to FERC quantifying eleven other gas storage alternatives in a market defined as Oregon, Washington, British Columbia, the Pacific Northwest, Idaho, Nevada and Utah. FERC rejected Northwest Natural's application because its definition of the relevant geographic market was overly broad and included both unavailable and/or uneconomic alternatives for its existing storage customers.

The Northwest Natural study included six Canadian storage fields in Alberta and British Columbia. The Canadian storage fields are in the production area and the Mist facility is located in the market area. FERC concluded that storage fields located in the production area operate differently than market area storage fields and therefore, are not comparable to the Mist facility.

Second, potential customers at Mist would have to pay almost twice as much in transportation to reach the Canadian storage alternatives. In addition, both pipelines to the Canadian storage alternatives, Northwestern and PG&E Gas Transportation ("PG&E") are fully subscribed on a firm basis and there is no transportation available to shippers to use the Canadian storage. Staff presented its own market power study and excluded the Canadian storage facilities and only included conventional underground storage at Jackson Prairie, Washington and Clay Basin, Utah as well as Northwest Natural's storage at Plymouth, Oregon.

The revised study showed that Northwest Natural's market shares are 3.66 and 9.73 percent and the HHIs are 4,815 and 1,993 for working gas capacity and peak deliverability, respectively. Although these results are consistent with others in obtaining market-based rates in highly concentrated market areas, FERC rejected the application because it found that there is no excess storage capacity in the relevant market.

The Commission concluded that potential customers at the Mist facility do not have good alternatives to the Mist facility. Given that there is currently no excess storage capacity in the market area, Northwest Natural's market share is 100 percent of the available storage or a market with an HHI concentration of 10,000. Under these circumstances, cost-based rates of

nearby storage providers would be an irrelevant pricing constraint for the foreseeable future. The Commission also rejected Northwest Natural's contention that there is ease of entry in storage. The Commission rejected many of the cited projects offered as support because they were described as purely speculative.

Red Lake Gas Storage, L.P.

In August 2002, Red Lake Gas Storage, L.P. ("Red Lake") applied to FERC for permission to charge market-based rates at its proposed storage facility in Arizona. Red Lake contended the relevant geographic market included Texas, California, Arizona, New Mexico and Nevada. The Commission limited and redefined the geographic market as including only Arizona and Southern California.

The Commission review of the evidence concerning availability, price and quality of northern California storage failed to support Red Lake's claim that it is a good alternative to customers in northern California, Texas, New Mexico and Nevada. Furthermore, a key element of a good alternative storage service is the availability of transportation service to move gas from northern California storage to demand markets located elsewhere. FERC indicated that there are transmission constraints within California and therefore, transmission is not readily available as an alternative to potential Red Lake customers. As a result of the FERC redefined relevant geographic market, Red Lake failed the FERC screens on the more narrow geographic area defined as Arizona and southern California. Especially since there are no storage facilities in operation in Arizona, FERC was concerned that if built, the market Red Lake would operate in would be extremely concentrated and that Red Lake would have substantial market power. In its application, Red Lake stated that it could not go forward with development of the storage facility without market-based rates. Therefore, the Red Lake development project has been cancelled.

Appendix C: Regulation of Natural Gas in California and Michigan

Gas storage is not generally regulated by state public service commissions. For instance, Pennsylvania, West Virginia, Oklahoma, Texas and Florida do not regulate gas storage and gas storage providers can negotiate freely with their customers concerning terms, conditions and rates. However, the California Public Service Commission and the Michigan Public Service Commission do actively regulate gas storage and also allow market-based rates. The following provides a description of the regulation of gas storage in California and Michigan.

California

In California, the California Public Service Commission ("CPUC") regulates the rates and services of the California gas utilities for their in-state gas transmission, distribution, storage, and procurement services. Historically, California's natural gas utilities were vertically integrated and provided bundled service to all gas customers. In 1988, the CPUC established a new regulatory regime that allowed the largest gas users to depart from the bundled gas service provided by the gas utilities and let them make their own gas supply arrangements. As a result, gas customers were split into two groups: core customers receiving bundled gas service and non-core customers who provide their own gas supply arrangements. Non-core eligibility is based on the size of the customer and an election by the customer for non-core status. Remaining customers are core customers, residential, small commercial and larger customers not electing to become a non-core customer. Non-core customers were relieved of the obligation to pay the gas utility for interstate pipeline capacity that the utility had originally obtained for all gas customers.[83] In the 1990s, the CPUC allowed core customers to purchase their gas supply from gas marketers rather than the utility.

Core customers receive natural gas, transportation, storage and related services from a vertically integrated and regulated utility (i.e., SoCalGas, San Diego Gas & Electric (SDG&E) and PG&E). However, core customers can elect to receive their gas from a competitive marketer.

In unbundling storage for core and non-core customers, the CPUC set aside sufficient storage capacity to meet core customers' requirements (including non-utility gas providers of the gas

[83] Non-core customers had to pay a portion of the utilities' interstate pipeline stranded costs.

commodity) based upon load forecasts by the regulated utilities. In connection with non-core storage customer rates, the CPUC set rates for PG&E and SoCal Gas at embedded cost. PG&E and SoCal Gas can sell unbundled storage not reserved or sold through open season subject to ceiling and floor rates initially, with a changing ratio of shareholder risk to ratepayer responsibility. After two years of partial shareholder risk, shareholders of the storage providers would be at 100 percent risk, yet there would be no floor or ceiling on rates charged for storage.

To encourage investment in the gas infrastructure in California, the CPUC in 1990 adopted a "let the market decide" policy for new interstate capacity proposals.[84] In 1992, the California Legislature formally expressed its objective to create competition for natural gas storage services and passed an Assembly Bill to implement such objective.[85] As a result, the CPUC also adopted a "let the market decide" policy in connection with construction or expansion of storage facilities in California, as well.

California's policies and objectives contributed to the building of the Kern River pipeline from the Rocky Mountains to California. In addition, two merchant storage projects, Wild Goose Storage, Inc. ("Goose Lake") and Lodi Gas Storage, L.L.C. ("Lodi") were developed and are operating in California. Both of these storage projects are permitted to charge market-based rates. The CPUC believes that: "A market-based price for storage should spur the development of more storage capacity, or other alternatives to storage, when existing capacity becomes scarce."[86] In granting market-based rates to the proposed storage projects, the CPUC found that, as new entrants, the projects have no customers and no market share. Therefore, the CPUC concluded that these storage providers lack market power.[87]

However, in Wild Goose's application for market-based rate authority for its expansion capacity, the CPUC specifically addressed market power concerns because Wild Goose was no longer a new entrant. The CPUC discussed the problem of calculating Wild Goose's market share based on the total capacity of storage held by SoCalGas and PG&E because much of that storage is held for core customers and thus does not compete with Wild Goose. Because there is no accurate way to calculate Wild Goose's market share, the CPUC noted it could not conclude that Wild Goose lacks market power. The CPUC also could not conclude that the

[84] See Decision (D.) 90-02-016.

[85] Assembly Bill (AB) 2744.

[86] D.00-05-048, 2000 Cal. PUC LEXIS 394.

[87] Application of Wild Goose Storage, Inc. to amend its CPCN (A.01-06-029) (filed June 18, 2001).

rates SoCalGas and PG&E charge may effectively cap Wild Goose storage rates. Other factors such as the demand for storage and availability of transportation access will influence the price of storage.

Nonetheless, the CPUC conditionally granted the Wild Goose Storage expansion market-based rate authority based on broad policy objectives of encouraging development of more gas infrastructure. The CPUC stated: "We recognize, moreover, that the natural gas market is highly dynamic and that changes in storage, as well as in other parts of the market, may affect the storage market in critical ways." The CPUC conditioned the authorization of market-based rates for Wild Goose Storage on reporting any changes in status of Wild Goose Storage ownership or any affiliate ownership of other natural gas facilities, transmission facilities or substitutes for natural gas. In order to provide market information transparency, Wild Goose Storage must file service agreements for short-term transactions (one year or less) with the CPUC within 30 days of the date of commencement of the service, as well as, quarterly transaction summaries. Separate reports are required for long-term transactions (longer than one year).

Michigan

The Michigan Public Service Commission ("MPSC") regulates gas storage facilities that serve in-state customers. In-state customers include: LDCs, gas marketers and large industrial customers who procure their own gas supplies. Until 1994, in-state storage facilities rates were established by the MPSC on a cost-of-service basis. However, in 1994 Lee 8 storage Partnership ("Lee 8") requested that the MPSC approve market-based rates for storage and transmission from Panhandle's pipeline within a flexible range of $0.25 to $1.75 per Mcf based upon 100-day firm storage service (deliverability in the winter months), in addition to construction of a 12.5 mile pipeline from Panhandle to the storage facility. All parties[88] agreed to this settlement because Lee 8's market share was less than one percent of all storage within Michigan and therefore, Lee 8 could not exercise market power. The MPSC also found that if Lee 8 operated its pipeline as a common carrier for third party gas transportation, it must file a nondiscriminatory gas transportation rate and assess any related effect upon its storage rate. In the proceeding, evidence was submitted that Lee 8's comparable cost-of-service rate was $1.0133/Mcf at a 100 percent load factor. The parties to the settlement agreed that Lee 8 had no ability to set storage rates in the Michigan market because of its size and excess capacity.

[88] Interveners included the MPSC Staff, and Michigan Gas Utilities.

The MPSC reasoned that market conditions in Michigan would be instrumental in governing Lee 8's storage rates. However, the parties agreed that any flexible rates approved by the MPSC should contain both a floor and a ceiling price to mitigate any potential for exercise of market power.

Since the Lee 8 decision allows flexible rates, the MPSC has granted flexible rates containing a floor and a ceiling rate to Bluewater Storage, Washington 10 and WPS-Kimbal. Currently, Washington 28 has an application pending before the MPSC for approval of flexible rates.

APPENDIX D: Market Share and Concentration

Market shares of storage providers in the initial geographic market were calculated based upon capacity available to third parties as reported in a database compiled by the NGI Intelligence Press, Inc. ("NGI"). The most plausible definition of the geographic market is gas storage in Ontario and U.S. storage capacity held by Canadians. Since it is not know which Canadian customers have contracted capacity, all storage at Bluewater was included in the market. As shown on Exhibit D1, the market is extremely concentrated with an HHI of 8,771. There are only five market participants and the top four-firm market share is 99 percent. Union's market share under this definition of the market is 93.6 percent.

Exhibit D1

Geographic Market Concentration:
Ontario and Canadian Customers Using U.S. Storage
HHI

Company	Storage	MMcf	Market Share	HHI
Union	Washington 10	975		
	Ontario	134,324		
		135,299	93.6%	8,759.07
Coral Energy	Stagecoach	194		
	ANR	970		
	MichCon	316		
		1,480	1.0%	1.05
Nexen	Washington 10	698		
	ANR	2,916		
		3,614	2.5%	6.25
BP Canada	Washington 10	1,156		
	ANR	316		
		1,472	1.0%	1.04
Unknown	Bluewater	2,700	1.9%	3.49
Total		**144,566**	**100.0%**	**8,770.89**

Geographic Market Concentration
Ontario and Canadian Customers Using U.S. Storage
Top Four Firm Share

Company	Storage	MMcf	Market Share
Union	Washington 10	975	
	Ontario	134,324	
		135,299	93.6%
Nexen	Washington 10	698	
	ANR	2,916	
		3,614	2.5%
Unknown	Bluewater	2,700	1.9%
Coral Energy	Stagecoach	194	
	ANR	970	
	MichCon	316	
		1,480	1.0%
Top 4 Market Share			99.0%

Source: Natural Gas Intelligence, "Natural Gas Storage and LNG Facilities in The United States and Canada," database.

The broadest relevant geographic would include Michigan, Illinois, Indiana, Iowa, New York, Pennsylvania and West Virginia. Looking at gas storage available to third parties in this larger market, NGI reports that there is 1,119507 MMcf of gas storage capacity available (as shown in Exhibit D2). The calculated HHI for this market is 1,788, which suggests that the gas storage market relevant to Ontario is on the very high end of being moderately concentrated.

As MEG requires, another indication of concentration in a market is the relative size of the market participants. The four-firm concentration ratio is the percentage share of the four largest market participants. A very low percentage of the four-firm share indicates a competitive market, while a share of 40 percent indicates monopolistic competition and a share of over 40 percent indicates more of an oligopoly market structure. As shown on Exhibit D2,

the four-firm market share is over 78 percent, indicating an oligopolistic market structure. Union is among the four top firms with a market share of 12 percent.[89]

Exhibit D2

Geographic Market Concentration:
MI, IL, LN, IA, OH, NY, PA and WV
HHI

State/Prov	Ultimate Owners	Capacity Available to 3rd Parties (MMcf)	Market Share	HHI
NY, PA, WV	Dominion Resources	316,990	28.3%	801.7
NY,OH,PA,WV	NiSource, Inc.	235,371	21.0%	442.0
Michigan	El Paso Corp.	191,946	17.1%	294.0
Ontario	Union Gas Ltd.	134,324	12.0%	144.0
NY, PA	National Fuel Gas Co.	98,450	8.8%	77.3
IL/IA	Kinder Morgan Inc.	43,500	3.9%	15.1
Michigan	PAA/Vulcan Storage	32,000	2.9%	8.2
Michigan	Southern Union Co.	16,464	1.5%	2.2
PA	PPL Corp.	13,700	1.2%	1.5
New York	Central New York Oil and Gas LLC (eCorp.)	12,000	1.1%	1.1
New York	KeySpan, Long Island Lighting Co.	6,573	0.6%	0.3
New York	Arlington Storage Co.(50%), ANR Storage Co. (50%) (El Paso Corp.)	6,200	0.6%	0.3
Illinois	Southern Union Co.	4,139	0.4%	0.1
Michigan	WPS-ESI	3,000	0.3%	0.1
Illinois	Centerpoint Energy	2,200	0.2%	0.0
Indiana	Midwest Gas Storage Co./Saltgrass Energy Services)	2,000	0.2%	0.0
New York	Energy East	650	0.1%	0.0
	Total	1,119,507	100.0%	1,788

[89] Enbridge's market share is zero because it uses all of its storage to serve in-franchise customers. Occasionally, Enbridge does have some capacity that is excess to in-franchise customers needs and it will make short-term Transactional sales of storage capacity to third parties.

Geographic Market Concentration:
MI, IL, LN, IA, OH, NY, PA and WV
Top Four Firm Share

State/Prov	Ultimate Owners	Capacity Available to 3rd Parties (MMcf)	Market Share
NY, PA, WV	Dominion Resources	316,990	32.0%
NY,PA,WV	NiSource, Inc.	235,371	21.0%
Michigan	El Paso Corp.	191,946	19.4%
Ontario	Union Gas Ltd.	134,324	13.5%
Top 4 Market Share			85.9%

Source: Natural Gas Intelligence, "Natural Gas Storage and LNG Facilities in The United States and Canada," database.