

**Evidence**  
**Submitted to the Ontario Energy Board**  
**on behalf of Market Hub Partners Canada, L.P.**

**File No. EB-2005-0551**



**May 1, 2006**

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## EXECUTIVE SUMMARY

These comments, prepared by Concentric Energy Advisors ("CEA") on behalf of MHP Canada, L.P. ("MHP Canada"), focus primarily on the second of two important policy questions posed by the Ontario Energy Board ("OEB" or "Board") in commencing this proceeding, namely whether the Board should forbear from regulating the rates for natural gas storage if it finds that Ontario is subject to competition sufficient to protect the public interest.<sup>1</sup> Short of forbearance, MHP Canada requests that the OEB determine whether market-based rates are appropriate for smaller storage providers, particularly new storage entrants, including those that are affiliated with distributors and transmitters in the market. The following analysis addresses market power issues that are relevant to both the forbearance issue and the request for market-based rate authority.

This is a critically important public policy decision as there is a clear and significant need for incremental market-area storage to accommodate increasing demand for natural gas, particularly electric generation demands, as well as to moderate price volatility. MHP Canada and other potential storage developers are poised to meet this need if they receive approval to charge market-based rates. Market-based rate authority is essential to attract the capital necessary to develop new storage capacity in the absence of a captive customer base.

The OEB has already taken important strides in this direction, as storage services provided to a large portion of the market are currently subject to market-based rates<sup>2</sup>: (i) storage sales by Ontario providers to ex-Ontario customers; (ii) sales to Ontario customers (including LDCs and gas marketers as well as end use consumers for demand exceeding their allocated capacity); (iii) transactional services such as park and loans, which act as substitutes for storage services; (iv) storage services requiring daily deliverability greater than 1.2% of the storage capacity; and (v) storage services provided by independent storage developers (i.e., storage generators that are not affiliated with distributors and transmitters). The extent of the existing market-based rate storage

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<sup>1</sup> Section 29 of the *Ontario Energy Board Act, 1998* states that: "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."

<sup>2</sup> It is CEA's understanding that the rates for these services are provided subject to relatively wide ranges, albeit subject to a cap, which are referred to sometimes as range rates. In CEA's experience, market-based rates have no cap. However, for purposes of this Evidence, CEA has followed the Ontario practice of referring to such wide range rates as "market-based rates" when referencing these types of rates in Ontario.

pricing policies in Ontario is an important recognition of the competitiveness of the market for storage services and substitute products.

The United States is also taking action to address this same need for incremental market-area storage. The United States Congress included a provision in the Energy Policy Act of 2005 ("EPACT 2005") that provided the Federal Energy Regulatory Commission ("FERC") authority to allow storage providers that are adding new storage facilities to charge market-based rates even if the storage provider is unable to demonstrate that a lack of market power exists. Congress was acting upon a concern that the amount of storage being developed under existing FERC policies was insufficient to serve the public interest.<sup>3</sup> The FERC is currently reviewing these policies in a rulemaking proceeding with a view toward implementation.

The projected increase in natural gas demand throughout Ontario, the Midwestern and Northeastern United States and, in particular, the changing nature of those demands with the development of natural gas-fired electric generation, will challenge the capabilities of existing storage capacity in the region and place greater importance on utilizing this storage capacity as efficiently as possible. A primary objective of regulation (and competition) is to promote efficient price signals that will provide incentives to develop new pipeline and storage infrastructure when and where it provides the greatest value to customers. As such, it is important that the Board implement market-based pricing for storage services in Ontario.

Based on the analysis and the facts presented herein, CEA asks that the OEB confirm the following findings:

1. The Ontario market and its supporting infrastructure is closely integrated with, and part of, a much broader regional natural gas market encompassing much of the upper midwestern and northeastern United States.
2. Market-area storage capacity serves a critical role in efficiently meeting the evolving requirements of this integrated market and in moderating price volatility.

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<sup>3</sup> There has been a particular need for market-area storage in the United States since the majority of new storage development in recent years has occurred in the Gulf Coast production area as a result of the ease of demonstrating lack of market power in this region.

3. The market for underground storage in Ontario is workably competitive, and relatively small market participants such as MHP Canada lack the ability to exercise market power and influence storage pricing by withholding capacity. This finding is based on:
  - a. A relevant geographic market that includes, at a minimum, an integrated regional storage market consisting of Ontario, Michigan, New York, and Pennsylvania.
  - b. A relevant product market that includes, at a minimum, firm and interruptible storage services, financial products, local natural gas production, interstate pipeline capacity contracted by marketers, and peakshaving facilities.
  - c. Other mitigating factors, including application of affiliate rules and codes, will satisfactorily address any affiliate concerns.
4. Market-based rates are appropriate for all small storage providers, particularly new storage entrants, including affiliates of existing transmission and storage providers when there are sufficient affiliate protections in place.
5. The efficient development and utilization of natural gas infrastructure will be enhanced by replacing the current bifurcated storage pricing regime with a market-based pricing approach.

On the basis of the foregoing, it would appear that the Ontario storage market is competitive sufficient to protect the public interest. Thus, in accordance with Section 29 of the *OEB Act, 1998*, the Board should refrain from regulating the storage market, in particular the rates and services of smaller storage providers that are affiliated with existing distributors and transmitters in the market when sufficient affiliate protections exist to prevent abuse. With the existence of sufficient affiliate protections, small storage providers are unable to exercise market power, and should be treated no differently than independent storage providers that currently are afforded market-based rates. At a minimum, CEA recommends that the Board grant all small storage providers market-based rate authority, including small storage providers that are affiliated with other market participants when sufficient affiliate protections exist. In addition, CEA recommends that the Board grant storage providers the flexibility to enter into contracts without the need for pre-approval.

Short of forbearance, there are several recommended policy actions that will ensure a more efficient natural gas market in Ontario:

1. Establish clear standards for approval of market-based rates.
2. Facilitate new storage entry by approving market-based rates where these standards are met.

3. Establish open-access tariffs for LDC storage and transportation services, and ensure standards of conduct that preclude discrimination or any preference given to affiliate customers.
4. Eliminate the current bifurcated market pricing structure by establishing market-based pricing for all storage services.
5. Allow the market to determine the storage-related service offerings that are required and/or appropriate for the market.
6. Eliminate the current term and size constraints on the pre-approval of contracts for storage services.
7. Implement other policies deemed necessary to ensure a level playing field among all storage market participants.

## I. INTRODUCTION

The OEB has been conducting the Natural Gas Forum (“NGF”) since the fall of 2003, a stakeholder process to examine the effectiveness and efficiency of natural gas regulation. Regulation of Ontario’s storage fields has been at the forefront of these discussions. Most recently, the OEB examined the evolving demands placed on the natural gas infrastructure from increases in the amount of natural gas-fired electric generation.<sup>4</sup>

The current inquiry is an outgrowth of these prior efforts and will examine two issues: (i) whether the OEB should order new rates for the provision of natural gas, transmission, distribution and storage services to gas-fired generators (and other qualified customers); and (ii) whether the OEB should refrain, in whole or 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.

These comments focus primarily on the second of two primary questions posed by the OEB in commencing this proceeding, namely whether the Board should forbear from regulating the rates for storage of gas if it finds that Ontario is subject to competition sufficient to protect the public interest.<sup>5</sup> A related issue, short of forbearance, is whether all new storage entrants and existing smaller storage providers should be permitted to charge market-based rates.

In its January 24, 2006 Procedural Order, the Board identified four “considerations” that would help in making this determination:

1. Do gas utilities (and/or their affiliates) either collectively or individually have market power in the provision of storage services for all or some categories of customers in Ontario?
2. If gas utilities (and/or their affiliates) do have market power in storage, is it appropriate for them to charge “market rates” for transactional and long-term storage services?
3. If gas utilities (and/or their affiliates) do not have market power, is it in the public interest that all or some customers continue to pay storage rates at cost as opposed to market rates? How should the extra revenue from storage services at market rates be allocated?

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<sup>4</sup> This resulted in the Natural Gas Electricity Interface Review (“NGEIR”) report issued by the Board Staff on November 21, 2005.

<sup>5</sup> Forbearance of rate regulation is contemplated by statute at section 29 of the Ontario Energy Board Act



4. If the Board determines, based on considerations of market power and the public interest more generally, that some customers should pay for storage services at cost and others should pay for storage services at market prices, how should the line be drawn between the two types of customers and, specifically, should there be a constraining allocation of physical storage facilities to some types of customers based on measures such as aggregate excess or whether customers are considered “in- franchise” or “ex-franchise”? How should the extra revenue from storage services at market rates be allocated? <sup>6</sup>

As noted in the Executive Summary, the comments herein have been prepared by CEA<sup>7</sup> and are being submitted on behalf of MHP Canada, the developer of two relatively small storage projects in Ontario.<sup>8</sup> MHP Canada is a partnership formed by Duke Energy Corporation (“Duke Energy”) for the purpose of holding and developing assets related to the storage of natural gas in Canada. MHP Canada is a subsidiary of Duke Energy, the ultimate parent of Union. MHP Canada therefore brings the perspective of a potential new storage entrant, competing for customers against storage services provided by Ontario’s incumbent utilities, by other regional storage providers, and by other providers of substitute services and products. MHP Canada also offers the perspective of a small affiliated storage provider due to its corporate relationship with Union.

These comments will address each of the considerations cited above in examining the degree to which storage services should continue to be regulated by the Board. They will address the three basic storage pricing alternatives: cost-based pricing, market-based pricing, and continuation of the bifurcated pricing approach for in-franchise and ex-franchise customers. MHP Canada’s primary interest is in the regulatory environment created by the Board to develop new storage projects and the ability of these projects to compete on a level playing field. As such, it has considerable interest in the pricing of existing and new storage services.

Following this Introduction, Section II addresses the role of regulation in increasingly competitive markets including the reliance on market forces where conditions merit. Section III provides an

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<sup>6</sup> Procedural Order No. 1, EB-2005-0551, pages 2-3.

<sup>7</sup> CEA is a management consulting firm specializing in financial and economic services to the energy industry.

<sup>8</sup> The St. Clair Storage Pool (“St. Clair”) is located in the Geographic Township of St. Clair (former Township of Sombra), County of Lambton. Upon commencement of operation, St. Clair will provide approximately 32,200 10<sup>3</sup>m<sup>3</sup> (1.1 Bcf) of natural gas storage space. The Sarnia Airport Storage Pool project is a depleted reservoir facility located in the City of Sarnia, Ontario. When fully operational, the Sarnia Airport project will provide approximately 149,000 10<sup>3</sup>m<sup>3</sup> (5.26 Bcf) of natural gas storage space.

overview of the Ontario natural gas market. Section IV reviews regulatory precedents that have been applied in both Ontario and the United States to permit market-based pricing and encourage the construction of new storage capacity. Section V presents evidence of the competitiveness of the Ontario storage market based on application of market power tests and the review of circumstances that further mitigate the effects of potential market power. Section VI provides an assessment of the existing bifurcated approach to pricing of storage services in Ontario. This evidence concludes in Section VII with a set of policy recommendations for the Board to consider, based on the evidence that is presented herein.

## **II. GENERAL ISSUES REGARDING PRICING IN INCREASINGLY COMPETITIVE MARKETS**

The OEB is confronting a set of issues regarding the regulation of storage services in Ontario that are very similar to issues that have confronted regulators across North America and elsewhere as previously highly-regulated markets have been opened up to competition. This section of the evidence reviews the foundations of rate regulation, in terms of economic and public policy objectives, and the special issues associated with rate regulation in “mixed systems,” i.e. industries that are partially rate regulated and partially unregulated.

### **A. The Economic and Public Policy Foundations of Rate Regulation**

Numerous explanations have been offered by legislatures, courts and administrative agencies over the past 150 years as to why some industries, or some segments of industries, require the state to intervene and regulate the product offerings, terms of sale, and prices for the goods and services these industries offer. In general, the imposition of regulation has been viewed as serving the public interest when:

1. The goods or services provided by the firm are considered “essential” to the public, such that the provision of these goods or services are “affected” or “clothed” with the public interest; under these circumstances, the denial or unavailability of service would be deemed contrary to the public interest.
2. The production of the goods or services significantly benefit from large economies of scale or the duplication of facilities is otherwise judged to be publicly unacceptable, which leads to certain “natural monopolies” for the goods or services.
3. Other circumstances where competition is judged to be ineffective, inefficient or unable to protect the public from exploitative pricing or a refusal to sell, such as where there are significant barriers to entry, where little or no product substitutability exists, or where public powers (e.g. eminent domain) or privileges (e.g. broadcast rights over public airwaves) are essential.

Where these circumstances are present, utilities are granted franchise rights that provide them with the exclusive right to provide essential services. For services that lack any effective substitute, the franchise rights often will include an "obligation to serve". This obligation will not extend to certain other services provided by the utility that do have effective substitutes.

It must also be pointed out that these circumstances only address the imposition of rate regulation, not regulation over public health and safety, the environment, or licensing and permitting. No party

has, to date, in the NGF proposed that the forbearance of regulation for natural gas storage should extend to these other issues. However, for public utility rate regulation to be imposed, traditional and more modern writers agree that “[n]ecessity and monopoly are almost prerequisites of public utility status.”<sup>9</sup>

## **B. Objectives of Price Regulation**

Alfred Kahn has stated that “...the single most widely accepted rule for governance of the regulated industries is regulate them in a way as to produce the same results as would be produced by effective competition...”.<sup>10</sup> This statement recognizes that rate regulation is clearly intended to be a second-best alternative to effective competition, and should attempt to mimic the results that effective competition would produce, not to try to improve upon what would have been a market-based result. In other words, it is not necessary to use regulation to approximate competition where competition already exists.

Therefore, when considering the appropriate boundaries for the use of regulation and competition, it is helpful to keep in mind the competitive effects that regulation is intended to produce. First among these is a price that reflects the marginal or incremental costs of production and which provides an accurate price signal for market entry (and exit) decisions. While rate-regulated utility markets often achieve a balance between supply and demand through the imposition of an obligation to serve and the use of resource planning processes, these features are in essence administrative substitutes for an effective price signal.

Another market-oriented objective that is often cited for rate regulation is to ensure that production and consumption decisions are economically efficient. This objective has been described as maximizing the level of consumer welfare derived from the consumption of society’s scarce resources. There are two types of economic efficiency that enter into the welfare maximization process: productive efficiency and allocative efficiency.

Productive efficiency (also sometimes referred to as technical efficiency) represents the use of the combination of inputs that produces the desired output level at the lowest opportunity cost for the

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<sup>9</sup> Principles of Public Utilities Rates, James C. Bonbright, Columbia University Press (1961), p. 8.

inputs consumed. Essentially, this is the market-based equivalent of least-cost planning and lowest reasonable cost production, both of which are regulatory objectives. Allocative efficiency focuses on consumption decisions for the product being produced, and refers to the principle that those who value a scarce good or service most highly should be the ones to whom the product or service is provided, and the ones which consume it.

In both rate-regulated markets and competitive markets, prices are used to attempt to achieve economic efficiency. The key difference is that in rate-regulated markets, the rate or price reflects embedded costs, and the focus is on achieving non-discriminatory rates for different customers, i.e. prices that reflect the underlying cost of service. In efficient markets, economic efficiency is achieved through what is referred to as “the law of one price.” This principle states that in efficient markets, all homogenous goods will have a single price. Under this principle, regardless of the mix of inputs used to produce a good or service, or regardless of the currency in which it is priced, only one price will prevail in the market. The corollary of this principle is that if temporary market inefficiencies develop, arbitrage will drive price convergence for homogenous goods.

The objectives for price regulation, which in effect amount to a list of attributes drawn from competitive markets that regulation attempts to emulate, are the standards that CEA suggests the OEB should have in mind as it considers whether market-based pricing or rate regulation is most appropriate for Ontario’s storage market:

- Which system is most likely to maximize consumer welfare while achieving adequate product availability?
- Which system is most likely to lead to productive efficiency, i.e. to place competitive pressure on the cost of serving the public?
- Which system is most likely to lead to allocative efficiency, i.e. to ensure that the consumers which most highly value the service get it, and that rations all consumers’ use of the services through adherence to the “law of one price”?

### **C. The Special Issues Associated With Mixed Markets**

The natural gas market in Ontario contains highly regulated elements (gas distribution), unregulated elements (gas commodity pricing), and partially regulated elements (natural gas storage). This type

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<sup>10</sup> The Economics of Regulation, Principles and Institutions, Alfred E. Kahn, The MIT Press (1988), Volume I, p. 17.

of market is often referred to as a “mixed” or “bifurcated” market, and they present special challenges in terms of promoting economic efficiency and maximizing consumer welfare. The storage market within Ontario is itself a mixed market, with cost-based pricing for most historical in-franchise demand and market-based pricing for ex-franchise customers and the so-called "incremental" demands of in-franchise customers beyond allocated storage volumes. Moreover, storage providers that are independent of distributors and transmitters have been granted market-based rate authority in recognition of the competitiveness of storage markets.

One of the key issues that has confronted regulators in these types of markets is where to draw the boundaries between the regulated and unregulated portions of the market. Regulators have used a mix of ongoing structural and behavioral analyses to attempt to identify when a market segment is ready to be opened up to competition, and when rate regulation can safely be lifted. Many of these analyses are discussed later in this evidence as they apply to the Ontario storage market.

In his writing, Kahn expressed serious reservations with a mixed market system:

Recent experience clearly suggests, instead, that the mixed system may be the worst of both possible worlds.

The problem is that continued regulation of the incumbent companies in the presence of freedom of entry of essentially unregulated competitors introduces a host of distortions. The most troublesome of the restraints on the former are the requirements that they

- set prices on the basis of average system-wide costs – which means in some markets above cost, and therefore subject to competitive invasion, and in others below, in a continuing effort to practice internal subsidization;
- sell both old and new services only under pre-approved, posted tariffs, from which they are forbidden to depart except with permission of the regulatory agency, while their competitors are subject to no such constraints;
- price on the basis of original or book costs...
- price their competitive services on the basis of full cost distributions or allocations that have nothing to do with their marginal costs; and, finally
- are obliged to incur the sunk costs of installing capacity necessary to fulfill their continuing obligation to serve ...

In these circumstances, we cannot know to what extent the competition that has sprung up is competition on the basis of efficiency, to what extent instead it has been made possible only by the continued artificial restrictions on the prices and activities

of the regulated companies. (footnote omitted) (The Economics of Regulation, Principles and Institutions, Alfred E. Kahn, The MIT Press (1988), Introduction, p. xxxv).

One important consequence of these market distortions that Kahn notes in his writing is a break in the necessary link between enabling new entry into a market and the use of market-wide competitive pricing. As a result, mixed markets fail to meet market efficiency objectives, including the efficient development of new capacity.

Regulators have, for example, addressed this issue in wholesale electricity markets in the United States by clearly separating the objective of efficient pricing from other regulatory objectives including equity and other transition issues. Thus, as electric generation assets are transitioned from regulated to competitive markets, regulators have addressed the recovery of potential stranded costs or benefits through a charge that is completely separate from market-based prices that apply to the sale of electric energy and capacity. The wholesale electric market also relies on a regime which relies heavily on the “one price law” to level the competitive playing field.

### **III. OVERVIEW OF THE ONTARIO NATURAL GAS MARKET**

The Ontario natural gas market has experienced dramatic changes over the past two decades. Most importantly, as a result of numerous pipeline developments on both sides of the border, Ontario is now able to access supplies from multiple supply areas using several delivery routes. The Ontario market and its supporting infrastructure is now very closely integrated with, and part of, a much broader regional natural gas market encompassing much of the upper Great Lakes, Midwestern and Northeastern portions of the United States.

Second, and more recently, Ontario and neighboring regions are relying increasingly on natural gas as a fuel for electric generation. As recognized by the Board, this latter trend has placed increased demands on Ontario's infrastructure and on the types of services needed to serve electric markets efficiently.

Finally, as regulation continues to evolve in Canada and the United States to rely more extensively on market forces rather than "regulatory control", natural gas markets have become significantly more efficient. As discussed in Section IV, these regulatory changes began in 1985 with the unbundling of pipeline sales, transportation and storage services and the creation of a secondary market for released capacity. Efficient price signals provide incentives to develop new pipeline and storage infrastructure when and where it provides the greatest value to customers.

Ontario's storage capacity serves a critical role in efficiently meeting the evolving requirements of this dynamic market and in moderating price volatility. As the market continues to evolve, it is clear that storage is the key element in providing consumers with the benefits of a competitive market.

#### **A. Demand Fundamentals**

Ontario has historically had a winter-peaking natural gas demand profile, i.e., highest demand experienced during the winter season. However, the Ontario demand profile is changing fairly dramatically due to the accelerated development of natural gas-fired electric generating facilities. As presented in its March 30, 2005 Report on the NGF ("NGF Report"), the Board cited a projected reliance on natural gas as a fuel for electric generation that is expected to result in an increase in total Ontario demand for natural gas of approximately 200 Bcf annually. Moreover, the electric



generation load profile has a dual winter/summer peak that tracks demands in the wholesale electricity market. The load profile impact is being felt not only on a seasonal, monthly and daily basis, but also on an intra-day basis as both traditional and new electric generation demands can swing significantly within a day. As discussed below, these changes dramatically highlight the need for new natural gas infrastructure, and particularly storage development.

The NGF Report estimated that growth in natural gas demand for electric generation in Ontario could lead to very significant increases in maximum demands in both the summer and winter periods, including incremental gas demand of 1 Bcf/day on peak days, or a 33% increase in the existing peak day demand in Ontario.<sup>11</sup> The subsequent report issued by the Board Staff in the NGEIR proceeding (“NGEIR Report”) estimated the incremental natural gas-fired electric generation capacity to range between 4,305 MW and 6,775 MW (5,265 MW in the “base case”) by 2010.<sup>12</sup> The Board Staff found that this translates into a potential need for working gas capacity of between 7.1 PJ and 17.5 PJ (or 6.7 Bcf and 16.6 Bcf).<sup>13</sup>

The projected increase in Ontario’s demand for natural gas was also detailed by the National Energy Board (“NEB”) in its comprehensive projection of energy use demand titled “Canada’s Energy Future – Scenarios for Supply and Demand to 2025”. This forecast projects substantial further increases in the Ontario demand for natural gas in both of the primary scenarios that were developed.<sup>14</sup> The NEB’s specific projections for Ontario are illustrated below in Table 1 below.

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<sup>11</sup> Ontario Energy Board, “Natural Gas Regulation in Ontario: A Renewed Policy Framework – Report on the Ontario Energy Board Natural Gas Forum”, March 30, 2005, p. 39.

<sup>12</sup> Ontario Energy Board, “Natural Gas Electricity Interface Review – A Report by Ontario Energy Board Staff” (“NGEIR Report”), p. 10.

<sup>13</sup> Id., p. 22 (citing an Elenchus Research Associates study).

<sup>14</sup> National Energy Board, “Canada’s Energy Future – Scenarios for Supply and Demand to 2025”, 2003, Tables A3.4 and A3.14.

**Table 1**  
**NEB's Projected End-Use Demand for Natural Gas in Ontario<sup>15</sup>**

Scenario	2005 (in PJ)	2025 (in PJ)	Increase (in PJ)	2005 (in Bcf)	2025 (in Bcf)	Increase (in Bcf)	% CAGR
Techno-Vert	882	1,094	211	927	1,148	222	1.08%
Supply Push	878	963	84	922	1,011	89	0.46%

As shown above, depending on the scenario, the projected end-use demand for natural gas in Ontario is projected to increase by between 89 Bcf and 222 Bcf over the next twenty years.

As discussed below, the increasingly integrated nature of the North American pipeline and storage markets means that growth in United States markets will also influence the demand for and value of Ontario's storage assets. Projections of U.S. regional demands exhibit a similar growth outlook, a factor that serves to reinforce the anticipated increase in demand for Ontario storage. In fact, a 2003 study of North America natural gas demand by the National Petroleum Council ("NPC") projected an incremental need for 54 Bcf of storage capacity in Eastern Canada by 2025, with 700 Bcf of incremental storage capacity needed for North America as a whole over this same period.<sup>16</sup> Anticipated increases in imported LNG supplies are also likely to contribute to this need for storage to meet seasonal requirements.

## **B. Ontario's Natural Gas Infrastructure**

### **1. Regional Transmission Delivery System**

Ontario has limited indigenous sources of natural gas and thus relies on natural gas pipelines to deliver approximately 95% of its supplies from Western Canada and United States producing areas.<sup>17</sup> However, the flows of gas into, through, and out of Ontario have changed dramatically as a result of pipeline developments over the past two decades. As indicated in the evidence submitted by Union in this proceeding, Union provides transportation services to both in-franchise distribution customers (510 Bcf in 2004) and ex-franchise customers (776 Bcf in 2004).<sup>18</sup>

<sup>15</sup> End use demand excludes gas consumed for electric generation.

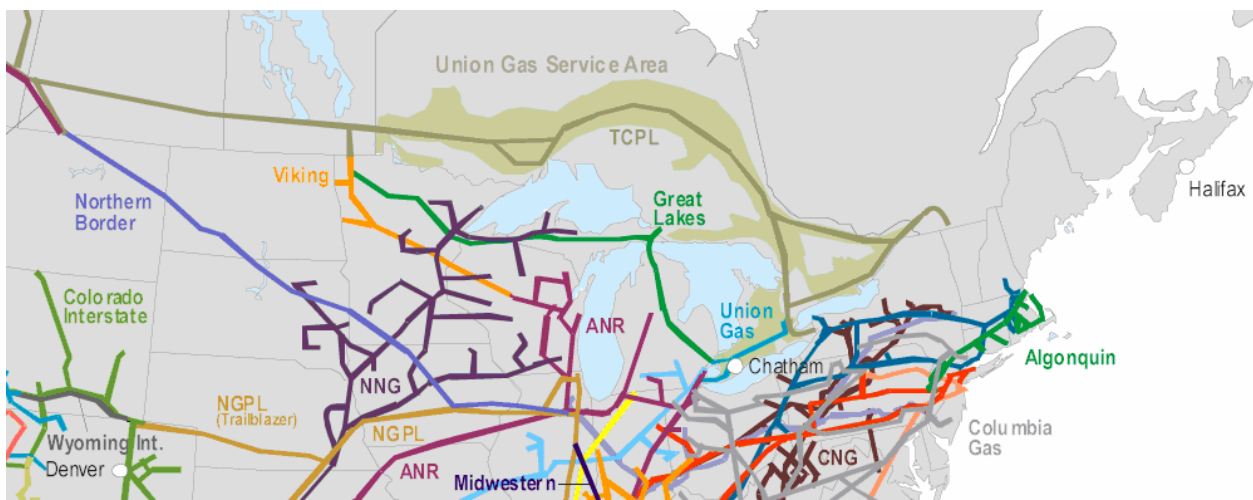
<sup>16</sup> National Petroleum Council, "Balancing Natural Gas Policy – Fueling The Demands of a Growing Economy", Volume II – Integrated Report, September 2003, pp. 261-263.

<sup>17</sup> NGEIR Report, p. 7.

<sup>18</sup> Prefiled Evidence of Union Gas Limited, Natural Gas Electricity Interface Review – Power Services Evidence, Tab 2, p. 9.

Figure 1 presents the regional natural gas delivery system as it existed in 1990. At that time, Ontario relied almost exclusively on supplies from Western Canada delivered through the TransCanada PipeLines (“TCPL”) mainline system and the Great Lakes Gas Transmission (“GLGT”) system. There were limited connections to the Midwestern (through PanEnergy) and Northeastern (through Tennessee Gas Pipeline (“Tennessee”)) regions of the United States.

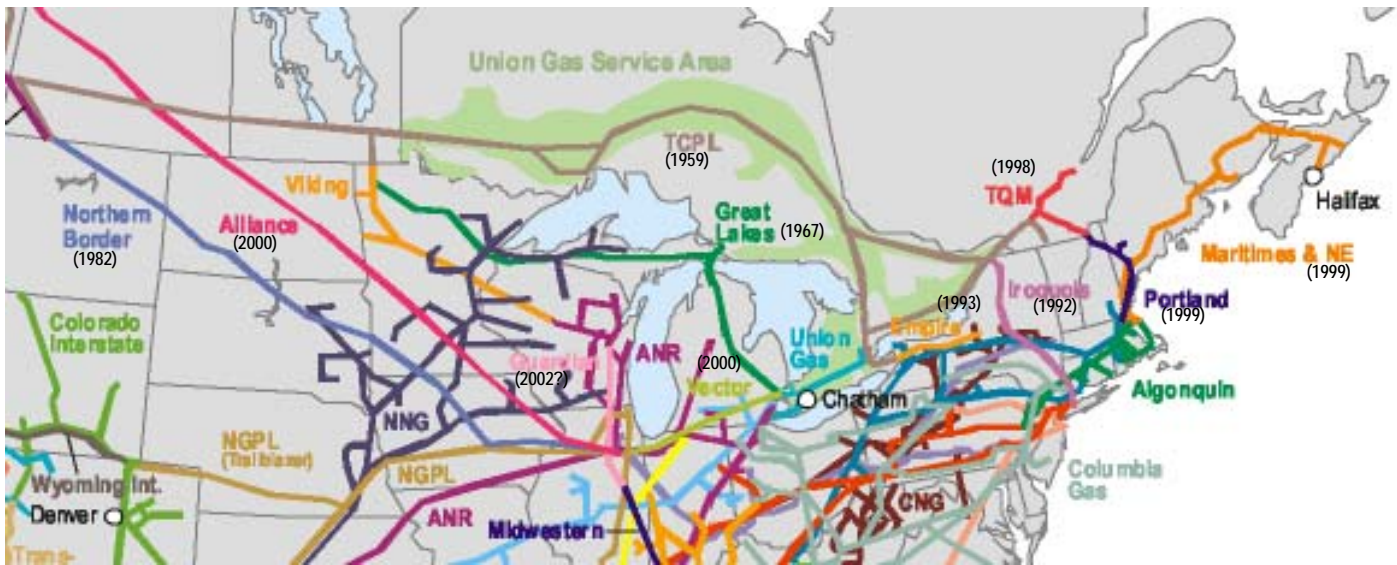
**Figure 1**  
**1990 Regional Natural Gas Infrastructure**



However, in the 1990s, the infrastructure began to change dramatically as a result of Canadian and U.S. policies designed to facilitate development of incremental pipeline capacity where supported by market demands. The Alliance Pipeline (completed in 2000) provided a new delivery route from Western Canadian supply basins. The Vector Pipeline (“Vector”) (2000) dramatically increased the ability of supplies from the western United States, western Canada and the US Gulf Coast to reach Ontario. The developments on the downstream side of Ontario were equally dramatic. Iroquois Gas Transmission (1992), Empire State Pipeline (“Empire”) (1993), and the Trans Quebec & Maritimes extension (1998) to the Portland Natural Gas Transmission System (“PNGTS”) (1999) expanded access from Canada to the U.S. Northeast. In addition, the development of the Maritimes & Northeast Pipeline (1999) and PNGTS provided access to Sable Island gas supplies and altered natural gas flows across the U. S. Northeast.

The current natural gas infrastructure supporting Ontario’s requirements, and the requirements of a broader integrated region, are presented in Figure 2. As can be seen in Figure 2, the Ontario/Great Lakes region has many transportation routes that enable natural gas flows into, through, and out of Ontario.

*Figure 2  
2006 Regional Natural Gas Infrastructure*



Ontario currently has direct interconnections with six pipelines and upstream access to numerous other additional pipelines that enable transportation of natural gas to Ontario from every major natural gas producing area in Canada and the United States. Specifically, Dawn has direct access to the following upstream pipelines: ANR Pipeline Co., Vector, GLGT/TCPL, Panhandle Eastern Pipeline Company, Michigan Consolidated Gas Company, and the Bluewater Pipeline. While a large portion of these supplies serve markets within Ontario, a significant level of supplies also flow through Ontario to eastern markets.

Dawn also has multiple pipeline takeaway routes. The Parkway interconnect, which connects the Enbridge and TCPL systems, has an easterly takeaway capacity of over 5 Bcf/day.<sup>19</sup> The Kirkwall interconnect, which connects the Dawn Hub to the Tennessee, Empire, and National Fuel Gas pipeline systems, has a takeaway capacity of approximately 1.6 Bcf/day.<sup>20</sup> In addition, there is approximately 600 MMcf/day of takeaway capacity from Dawn into Michigan via the interconnects

<sup>19</sup> ICF Consulting, PEG and Exel Consulting, “Discussion Paper on Gas Storage in Ontario”, September 2004, p. 7.

noted above.<sup>21</sup> Clearly, there is significant physical capacity into and out of the region around Dawn.

These pipeline expansions, along with the development of vibrant market hubs at Dawn and Chicago, have created a Dawn-Chicago storage and transportation corridor that enhances competition among Gulf Coast, Western United States and Canadian supplies. The anticipated expansion of LNG capacity in eastern Canada and the U.S. Northeast will result in even greater competition among supplies across the entire region, including Ontario, the upper Great Lakes and the northeastern United States.

In addition, Union has received approval to expand its Dawn-Trafalgar capacity as of November 1, 2006 (400,000 GJ/day) and has completed an open season to similarly expand service on November 1, 2007 as well (500,000 GJ/day with OEB approval). These expansions along with TCPL's expansion in Ontario and the proposed development of the Empire/Empire Connector/Millennium project in New York would increase capability to transport gas from Ontario to New York City and New England. These infrastructure developments in Ontario and neighboring regions have resulted in a relatively large and integrated market area that includes Michigan, New York, Pennsylvania, Ohio, Indiana and northern Illinois.

## **2. Ontario and Regional Storage Capacity**

The Ontario underground storage market is currently dominated by the two largest natural gas distribution companies: Union and Enbridge. Union has 149.6 Bcf of working gas storage capacity and 2,400 MMcf/d of design day deliverability. Enbridge has 92.4 Bcf of working gas storage capacity and 1,800 MMcf/day of deliverability.

Union's storage capacity serves both in-franchise customers and ex-franchise customers. Approximately 79.5 Bcf of capacity is provided to in-franchise customers at cost-based rates. However, Union's in-franchise customers pay market-based rates for quantities in excess of an established in-franchise allocation. In addition, approximately 70.1 Bcf of capacity is provided to ex-

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<sup>20</sup> Id.

<sup>21</sup> Id.

franchise customers, including some Ontario customers, at market-based rates subject to a maximum rate as approved by the OEB in 1989.

The integrated nature of the market has contributed to the regional role served by the Dawn Hub, which is now recognized as a large, active and liquid market center. Dawn is one the busiest market centers in North America with over 6.8 Bcf/day of title transfers in 2004, with sellers and buyers benefiting from traditional storage services, balancing services (including park and loan services), and from the price transparency and liquidity that enable financial transactions.<sup>22</sup> As a result, customers have the ability to manage the increasing risk associated with volatile prices. The underground storage capacity accessible at the Dawn Hub makes it possible for customers to use both physical and financial hedging. The financial hedging opportunities serve a critical role as a substitute for physical storage for certain purposes.

With the development of these new transportation routes and the growth of the Dawn Hub, Ontario's storage capacity is clearly part of a much broader regional storage market. Table 2 presents a summary of the regional storage capacity and delivery. Ontario comprises approximately 13% of the region's working gas capacity and 11% of the maximum deliverability.

**Table 2**  
**Regional Storage Capacity and Deliverability**

Province/State	Working Gas Capacity (MMcf)	Maximum Deliverability (MMcf/d)
Ontario	242,000	4,200
Michigan	634,140	13,908
New York	95,715	1,679
Pennsylvania	406,309	7,836
Ohio	200,451	1,877
Indiana	31,689	723
Illinois	274,823	6,331
<b>Total</b>	<b>1,885,127</b>	<b>36,554</b>

It is evident that Ontario natural gas markets are closely integrated with markets in Michigan, New York and Pennsylvania, and with markets in other Great Lakes states, a fact that has been

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<sup>22</sup> Union Gas, March 22, 2005 press release.

acknowledged by the Board.<sup>23</sup> Thus, pipeline and natural gas storage infrastructure is developed and utilized to efficiently meet the needs of Ontario and neighboring regions on an integrated basis.

The NEB has acknowledged the integrated nature of the Canada-U.S. natural gas market many times. In its report on the Canadian natural gas market ten years after deregulation, the NEB noted:

A number of developments have combined to form a more integrated Canada/U.S. natural gas market. Regulatory approaches to rate structures on pipelines were harmonized when the U.S. Federal Energy Regulatory Commission ordered U.S. pipelines to adopt a straight-fixed variable toll methodology, which was already the norm in Canada. Simplification of export and import approval procedures on both sides of the border have worked to lessen the distinction between domestic and export markets. The unbundling of sales and merchant functions on both sides of the border, the increase in the number of buyers and sellers, the rise of an open spot market and the increasing use of futures markets all have contributed to an increasing harmonization of gas sales practices. These developments have also contributed to the creation of a highly-competitive continental gas market. (National Energy Board, “Natural Gas Market Assessment – 10 Years After Deregulation”, September 1996, p. viii.)

The NEB has noted more recently that:

Since 1985, the Canadian and U.S. markets have increasingly evolved into an integrated North American market. Natural gas can be bought from many supply sources and delivered to any market centre through an extensive North American pipeline grid. With the increased integration of markets, regional supply and demand forces are felt throughout the marketplace. ...The expansion of the pipeline systems into the southwest region of Ontario has greatly improved the access by customers in this region to alternative gas supplies. The increase in pipeline capacity has led to an increase in the liquidity of the Dawn hub and it can be expected that, over time, market participants will become increasingly willing to complete more of their trading transactions at Dawn. (National Energy Board, “Canadian Natural Gas Market – Dynamics and Pricing: An Update”, October 2002, pp. 5 and 9.)

In summary, the Ontario natural gas market has evolved to its current status as an integral part of a much broader regional market.

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<sup>23</sup> Ontario Energy Board, “Natural Gas Regulation in Ontario: A Renewed Policy Framework Report on the Ontario Energy Board Natural Gas Forum”, p.84 (“Ontario is now highly integrated into the North American natural gas market. Gas prices in Ontario reflect not only local conditions, but also broad North American natural gas market developments.”).

### **C. The Impact of Increased Demand and Market Integration on the Demand for Incremental Storage**

The projected increase in demand for natural gas and, in particular, the changing nature of those demands with the development of natural gas-fired electric generation, will challenge the capabilities of existing storage capacity and place greater importance on utilizing this storage capacity as efficiently as possible. In fact, the increased influence of competitive market forces and increases in demand by natural gas-fired electric generation has already had a dramatic impact on storage markets.

Storage continues to serve a traditional role to help manage seasonal and intra-seasonal load variations for residential, commercial and industrial customers and to ensure supply reliability at the lowest cost for LDC customers. Storage also enables the efficient development and utilization of pipeline capacity serving Ontario and neighboring markets, as it is a direct substitute for relatively expensive incremental pipeline capacity. However, there are now many new demands being placed on storage to facilitate efficiency in an increasingly unbundled and competitive energy market. These include:

- 1. Providing load balancing and operational support to pipelines and distribution companies:** Pipelines and distribution companies rely on withdrawals from Ontario's underground storage fields to meet operational needs, including transportation service related balancing, system balancing and pressure maintenance, in a cost-effective manner.
- 2. Providing daily and hourly management services to electric generators, helping to manage pipeline and distribution imbalance penalties:** In addition to creating a need for incremental storage capacity, electric generators require more flexible operating parameters to support plants that must respond to fluctuating electric wholesale market conditions. Electric generators also use storage to inject contracted gas supplies when units are not running or running at reduced levels. The nature of these demands is described in detail in the Board's NGEIR Report.
- 3. Dampening price volatility:** Increasing natural gas price volatility has been a particular concern of LDCs, regulators and customers over the past five years. Increasing demand for



natural gas, declines in traditional supply basins, and limited additional infrastructure development have been contributing factors in the increased price volatility. Underground storage capacity in Ontario and in the broader regional market provides a physical hedge for dampening price volatility.

- 4. Enabling financial price hedging on hourly, daily, monthly and seasonal bases:** In addition to providing a physical hedge against price volatility, storage also enables the development of substitute financial hedging products that can efficiently manage price volatility.
  
- 5. Enhancing market liquidity at the Dawn Hub:** The storage capacity located proximate to Dawn provides the basis for physical and financial transactions. Liquidity at Dawn and other market points is essential to enable LDCs, transportation customers, and electric generators to manage price risk. Additional capacity would enhance this liquidity, particularly as the demand for storage grows. The Dawn Hub also serves to integrate Ontario markets with neighboring market areas, providing opportunities for increased efficiency.

Demand for pipeline and storage capacity in Ontario and in neighboring regions is also expected to increase with the development of additional import LNG terminals currently proposed in eastern Canada and the eastern United States. The prospect for development of new LNG terminal facilities in Quebec (i.e., Rabaska LNG and Cacouna LNG) and numerous proposed projects in Atlantic Canada and the northeastern United States will provide new sources of supplies to Ontario and the eastern United States. It will also result in an increase in demand for underground storage, as customers of those LNG facilities seek to store supplies delivered in off-peak periods until it is needed.

In many respects, this proceeding will determine whether Ontario will realize the full extent of the value that storage provides. OEB regulation of licensing, pricing and access - along with market supply and demand forces - will determine the ability of Ontario to develop needed storage capacity and to utilize this valuable resource efficiently.

The need for additional market area storage in the U.S. is also acute. As will be discussed in Section IV, U.S. policies are being driven by a finding that new underground storage development over the next decade (including expansion of existing facilities) is essential for several reasons, including the role that storage serves in moderating price volatility. Market-based rate policies have been very effective in promoting the development of production area storage in the United States. In fact, at the behest of Congress, the FERC is now focusing its attention on policies that will encourage market-area storage by resolving the apparent conflict between a need for storage with the difficulty of passing market power screens in capacity-short markets. Ontario will also be well served to develop as much economic underground storage as supported by geological potential.

In summary, the need for storage in Ontario, and throughout North America, is increasing as a consequence of continued growth in core demands and the burgeoning demand for supply and storage-related services by electric generators. The expanding pipeline grid has led to an integrated market encompassing Ontario, the upper Great Lakes and the northeastern United States. This increased demand will require further investments in pipeline infrastructure, new storage fields, and expansions of existing fields in both Ontario and in neighboring regions. The United States' longstanding energy regulatory policies, including market-based rates for many new storage projects, rely on market signals to encourage an efficient expansion of storage capacity and deliverability. As discussed in detail in Section IV below, while the U.S. policy has been relatively effective in the production regions, Congress' provision in EPACT 2005 suggesting changes in the way in which market-based rates for storage are considered has highlighted the shortcomings in facilitating the development of storage, particularly critically needed market-area storage. The FERC is now acting to address these concerns through a rulemaking process. Similarly, the Ontario public interest can only benefit by the OEB taking actions in this proceeding to encourage the expansion of market-area storage capacity in Ontario and access to storage located in neighboring regions.

#### **D. Cost Allocation and Further Unbundling of Services**

The manner in which storage and transportation services are unbundled also determines whether Ontario's infrastructure will be developed and used efficiently. As discussed in the NGF Report, the Board received comments on the two primary issues related to unbundling: (1) the allocation of costs between the utility's distribution and supply functions, and (2) the further unbundling of services that remain bundled with distribution service, including load balancing services.

Cost allocation methodologies have a direct impact on the level playing field between utility and competitive service providers. These allocations impede competition to the extent that costs associated with an unbundled service (e.g., supply or storage) are recovered through monopoly transportation rates. As indicated in the NGF Report, the Board intends to review this potential cross-subsidization issue in a generic proceeding on cost allocation. From the perspective of potential new storage entrants competing against incumbent LDC providers, it is critical that the Board include all storage-related costs in the unbundled storage rates of these providers. Failure to be diligent in this regard will impede the efficient development of new storage capacity.

The Board has also indicated its intention to consider further unbundling of services to facilitate competition and increase efficiency. These issues are particularly relevant to the discussion of storage regulation because of the potential for competitive storage providers to provide balancing services related to both supply and transportation services. Union and Enbridge currently offer unbundled transportation and storage services to in-franchise and ex-franchise customers. MHP Canada and other new storage providers will be able to offer unbundled storage services including balancing, park and loan services and other unbundled storage services that have a proven market demand. Competition for these services will benefit electric generation and other customers. In order for this demand to be met, however, incumbent storage providers must be required to unbundle these services.

Moreover, the Board has expressed its intention to order Union and Enbridge to offer specific balancing services. After consulting with electric generators, Union and Enbridge are proposing modifications to their unbundled transportation and storage tariffs to provide additional flexibility to electric generators located within Ontario and across a much broader region (up to two pipelines away according to Union's evidence.) While it is possible that the Board will be able to determine precisely what services are of most value to market participants, these needs will change over time. A better approach may be to let the market determine the services desired. Certainly, new entrants will be seeking to provide these services, with relatively little regulatory oversight for the new service offerings. The incumbent LDC providers will also be responding to market needs, as will providers of substitute products and services. The Board may want to consider adopting an expedited review

process for new service offerings. This approach has been used in regulation of the telephone industry for new non-essential products and services.

### **E. Affiliate Relationships**

The final essential element in creating a level playing field for the provision of storage and other potentially competitive services is affiliate rules that provide assurance to all market participants that competition will be fair. Effective affiliate rules will encourage new entry by both affiliated and non-affiliated providers.

In general, unfair competition can result from preferential treatment by a regulated utility to a competitive affiliate or its customers. Preferential treatment may take several forms, with regulatory responses designed to address each of them. They include:

- Allocation of common costs between a utility and competitive affiliates;
- Affiliate transactions that are not available on similar terms and conditions to non-affiliates (e.g., through discounts, tariff discretion, restrictions on market entry, processing of requests for service);
- Ability of the regulated entity to “tie” access to regulated services to the purchase of services from an unregulated affiliate, i.e., to require a customer to acquire a service from an unregulated affiliate before agreeing to supply that same customer with a discretionary regulated service;
- Assignment of customers from the utility to the affiliate;
- Sharing of customer information;
- Sharing of other, non-public information; and
- Failure to separate regulated and unregulated activities (e.g., through distinct corporate entities, separate books and records, joint purchases, separate management and employees).

The OEB has an “Affiliate Relationships Code for Gas Utilities” (“ARC”) that was initially adopted in 1999 and revised on December 9, 2004. As noted in the ARC, the standards are intended to:

1. Minimize the potential for a utility to cross-subsidize competitive or non-competitive monopoly activities;
2. Protect the confidentiality of consumer information collected by a transmitter, distributor or storage company in the course of provision of utility services; and
3. Ensure there is no preferential access to regulated utility services.

The ARC provides the basic protections required to ensure a level playing field.<sup>24</sup> Implicit in the existence of the ARC is the potential to file a complaint with the OEB. One addition that the Board might consider is to institute a more clearly defined complaint process for investigations of claims of affiliate standard violations.

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<sup>24</sup> More specifically, the methodology employed by Union to allocate costs associated with both inbound and outbound affiliate services is detailed in the evidence submitted by Dave Hockin, Union's Manager, Affiliate Relations in Docket EB-2005-0520. As described in that evidence, Union's cost allocation methodologies satisfy a "three-prong test" established by the Board to govern recovery of costs from ratepayers that are associated with affiliate transactions. In addition, Union provided a report to the Board focusing on exchanges of information between Union and Duke Energy Transmission Corporation ("DEGT") and between Union and MHP Canada. The report describes steps taken by Union to ensure compliance with the ARC, and particularly with Section 2.6 that deals with the confidentiality of information. Union provides certain non-marketing related services for MHP Canada including certain accounts payable, engineering, finance, legal, taxation and project development services. DEGT provides certain marketing related services as an agent of Union, but follows the FERC Standards of Conduct guidelines and therefore does not share customer information with any other energy affiliate, including MHP Canada. In fact, customer information is only shared to the extent required to meet market operation purposes, as provided for in Section 2.6.2 of the ARC.

#### **IV. REGULATORY PRECEDENTS FOR DETERMINATION OF THE APPROPRIATENESS OF MARKET-BASED STORAGE RATES**

This section describes the standards that have been applied in Ontario and in the United States to determine whether market-based storage rates are appropriate.

##### **A. Ontario Policies**

As noted in the Introduction, the second question posed by the OEB in opening this proceeding is whether the Board should refrain from regulating the rates for gas storage services if it finds that the market is subject to competition sufficient to protect the public interest. Short of forbearance, MHP Canada requires a finding that market-based rates are appropriate for smaller storage providers, particularly new storage entrants, including those that are affiliated with distributors and transmitters in the market such as itself. It is instructive that a significant portion of the storage market is already subject to market-based rates. As such, this strongly suggests recognition by the OEB of the competitiveness of the storage market.

The economic literature defines workably competitive markets as being characterized by many buyers and sellers, with products offered by sellers that are good substitutes for one another, and where there is ease of entry and exit. Firms are considered to have market power if they can withhold or restrict services to increase price a significant amount for a significant period of time, or discriminate unduly in terms of price or conditions.

In order to qualify to charge market-based rates, regulators have required applicants to demonstrate that they are not able to exercise market power, which is due in part to the fact that the market is workably competitive. The Board is guided in this determination by the Merger Enforcement Guidelines issued by Competition Bureau Canada (“Bureau”). The Commissioner on Competition, in her submission to the NGF, defined an “effectively competitive” market in the following terms:

A market may be considered to be effectively competitive where no firm unilaterally or in coordination with others has sufficient market power to materially influence price and other terms and conditions of sale in a relevant market, or a substantial part thereof. The determination of whether a competitor or competitors may materially influence price and other terms should take into account both the extent to which price and terms may be influenced and the length of the period for which higher prices may be sustained without being negated by entry or expansion by

competitors. (Final Submission of the Commissioner of Competition, RP2004-0213, November 12, 2004, p. 5)

In looking for the potential to exercise market power, the Bureau in most cases considers the ability of a market participant to maintain a 5% price increase above competitive levels for a period of a year or longer to indicate the potential presence of market power.

As in the United States, the appropriate market analysis used by Canadian regulators involves examination of both an applicant's market share in the relevant market, the overall concentration of the market, as well as other relevant factors to determine whether market-based rate authority is appropriate. The Merger Enforcement Guidelines that form the basis of market power reviews by the Commissioner of Competition set forth three steps that must be evaluated in order to determine whether a seller has the ability to exert market power, and by implication, be eligible to charge market-based rates: (1) defining the relevant geographic and product markets; (2) measuring a firm's market share and the level of market concentration in the relevant market; and (3) evaluating other relevant factors, including ease of entry, that determine the applicant's ability to exercise market power.<sup>25</sup> Each of these steps are described briefly below.

It is important to note that that the market power analysis described above should be considered and utilized as a market power "screen", i.e., an initial test to see whether there exists the potential for market power abuse. If the initial screen is passed, then there is no need for further evaluation. If the initial screen is not passed, then this should provide an indication that further consideration of additional factors is necessary before a decision on whether market power can be exerted. Specifically, in circumstances where market share or concentration exceeds established guidelines, regulators will turn to a consideration of potential mitigating factors before reaching a conclusion with respect to an applicant's ability to exercise market power. There are numerous mitigating factors that are usually considered, including relative size of the applicant, ease of market entry, existence of affiliate standards of conduct, dominance by regulated entities, economic access to substitute products, and evidence of excess capacity or price discounting.

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<sup>25</sup> Competition Bureau Canada, Merger Enforcement Guidelines, September 2004.

### Step 1: Establishing the Relevant Product and Geographic Markets

The first step in evaluating potential market power is to define the relevant product market. The definition of the relevant product market is intended to include services that are similar enough to the product or service being offered by the applicant that they are considered ready substitutes. Substitutability is the key element because the applicant would not be able to sustain a price increase if other firms offer services that can be substituted for those offered by the applicant.

The same basic approach applies to the determination of the relevant geographic market. The relevant geographic market is generally defined as an area in which storage will be consumed and includes areas in which all providers of same/similar products are economically competitive. It is important to evaluate whether distant suppliers can compete to serve the same market as the applicant.

### Step 2: Calculation of Market Share and Market Concentration

The next step in evaluating an applicant's potential market power is to calculate the market share of the proposed project in the relevant market, as well as the concentration of the relevant market. Market share provides an indication of an applicant's ability to individually exercise market power, while market concentration provides an indication of the ability of an applicant to work in conjunction with other sellers in the market to exercise market power. As noted above, the Bureau has reviewed both market share and market concentration as a means of assessing an applicant's ability to exercise market power. Specifically, the Merger Enforcement Guidelines suggest a single-firm market share threshold of 35%.<sup>26</sup> In addition, for measuring and evaluating market concentration, the Bureau relies on the market share of the largest four suppliers as an indicator of market concentration, with a threshold of 65% as an indication of concentration.<sup>27</sup>

In circumstances where market share or market concentration exceeds established guidelines, regulators will turn to a consideration of potential mitigating factors before reaching a conclusion with respect to an applicant's ability to exercise market power. Mitigating factors include relative size of the applicant, ease of entry, existence of affiliate standards of conduct, dominance by

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<sup>26</sup> Id., Section 4.12.

<sup>27</sup> Id.



regulated entities, economic access to substitute products, and evidence of excess capacity or price discounting.

Thus, it is important to note that even if a market is considered concentrated based on the threshold calculations, it is not a definitive indication that market power can be exercised. Regulators have recognized that market dominance by regulated rate providers is not indicative of market concentration concerns. As noted by the Merger Enforcement Guidelines, a market concentration that exceeds the threshold is not necessarily indicative of the potential for anti-competitive behavior.

### Step 3: Consideration of Other Mitigating Factors

As noted earlier in this report, regulators in both Canada and the United States have recognized that a review of market shares and market concentrations do not provide a “comprehensive view of all important factors” for determining whether market power may be exercised and that other factors are relevant for making such a determination.<sup>28</sup>

The Board has also recognized, as most regulators do, that effective and fair competition requires that no undue preference be given to a competitive entity as a result of its relationship with an affiliate that provides regulated services. These issues have received a lot of attention over the past decade as regulators began to unbundle services and rely on competition (and market-based pricing) for certain non-monopoly functions. Storage services are a recent example of such a potentially competitive service. Mitigating factors, including the existence of affiliate standards, can address these concerns.

As discussed in the following subsection, FERC precedent has evolved to consider an extended list of other mitigating factors. Moreover, the ongoing FERC rulemaking on storage is expected to further encourage market-area storage in areas where applicants have difficulty passing an initial market power screen due to the underdeveloped nature of the regional storage market.

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<sup>28</sup> *Alternatives to Traditional Cost of Service Ratemaking for Natural Gas Pipelines and Regulation of Negotiated Transportation Services of Natural Gas Pipelines*, Docket Nos. RM95-6 and RM96-7, 74 FERC ¶ 61,076 (1996) (hereinafter, “Policy Statement”), at 61,235.

## **B. United States Federal Energy Regulatory Commission**

The United States experience in regulating storage is very relevant to the issues being considered by the OEB in this proceeding because the regulatory objectives and general approach of the OEB and FERC are similar. Both the OEB and FERC have a strategic vision that emphasizes the role of an efficient energy infrastructure in providing customers with low cost, reliable supplies and supporting economic growth. Both agencies support the notion of relying on competition if conditions warrant, but also maintaining regulatory oversight of price, access and other terms and conditions in circumstances where a service provider exhibits the characteristics of a natural monopoly. Finally, the OEB is considering issues that have also been addressed in the United States with considerable input from a range of stakeholders that mirrors those in Ontario. The OEB, when considering Ontario's specific circumstances in relation to the same issues, may wish to take into account the experience in the United States regarding storage regulation.

Before turning specifically to the policies applied by the FERC to determine if market-based storage rates are appropriate, it is important to place these policies in a historical context as part of a broader strategy to improve overall market efficiency.

### *1. Historical Context*

The FERC, through a sequence of actions, has implemented an approach to regulation of storage that relies on market forces to the extent possible to promote efficiency in the development and utilization of underground storage resources. This policy has evolved through a series of decisions that established the following policy building blocks:

1. Unbundled storage and transmission services;
2. Open-access to regulated facilities, with rules to prevent any preference to affiliates;
3. Flexibility to propose cost-based, negotiated and market-based rates;
4. Market-based pricing if conditions merit based on an examination of the following issues:
  - Is the relevant market workably competitive?
  - If the market is not clearly competitive, are there steps that can be implemented (i.e., mitigation techniques) that would allow market-based rates and help facilitate the development of incremental storage capacity?
  - Forbearance of rate regulation, with continued regulatory oversight of market conditions and review of changed circumstances, for markets that are determined to be workably competitive.

Attachment A presents a brief summary of major FERC policy initiatives over the past two decades beginning with the landmark unbundling orders, Order No. 436 and Order No. 636.

Market-based pricing of underground storage services began with FERC's 1996 Policy Statement. This policy required prospective storage providers to demonstrate that they lack significant market power, or have otherwise adopted conditions that sufficiently mitigate their market power.

The market power analysis set forth in the Policy Statement, and based on Federal Trade Commission's Horizontal Merger Guidelines, consists of the following key elements:

1. Definition of the relevant product and geographic markets;
2. Identification of suppliers of products and services that provide "good alternatives", i.e., one that is available soon enough, with a price low enough, and a quality high enough to permit customers to substitute the alternative; and
3. Calculation of the Herfindahl-Hirschmann Index of Concentration (commonly referred to as the "HHI") as the initial screening tool; an HHI greater than 1,800 indicates that further scrutiny is necessary.<sup>29</sup>

The Commission has stated in the Policy Statement that "market shares and HHIs alone do not give a comprehensive view of all important factors" and that other factors are relevant in determining whether a party can exercise market power.<sup>30</sup> These other factors include market share, ease of entry, rate regulation of dominant providers, relative size of the applicant's capacity, and/or the sustainability of a potential attempt to exercise market power. As with individual market share, the FERC has stated that it would not adopt a specific "threshold level for the HHI, below which an applicant would automatically qualify for market-based rates, or above which an applicant would be excluded from market-based rates."<sup>31</sup> Rather, the FERC has established that a market with an HHI above 1800 will require additional scrutiny since the market would be considered concentrated and there exists the potential for market power.

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<sup>29</sup> The HHI is used as one possible indicator of market power or competition among firms. It measures market concentration in the market for storage by adding the squares of the working capacity and deliverability market shares of all storage providers in the relevant geographic market.

<sup>30</sup> Policy Statement, at 61,235.

<sup>31</sup> Id.

Over 40 storage providers have applied for market-based rates since 1996. FERC policies have evolved over time from a primary reliance on the HHI test to consideration of several other mitigating factors including:

- Location in production versus market areas (production area storage passes the HHI test in nearly every case);
- Relatively small market share of the applicant (even in cases where the market would otherwise be considered concentrated);
- Market dominance in the region by entities that are subject to rate regulation;
- A significant amount of new entry and recent new entry in the same region by storage providers that were granted market-based rate authority;
- Evidence of proposed new entry by other storage providers;
- Evidence of numerous alternatives to storage available to customers, including pipeline balancing/no-notice services, seasonal/swing services provided by pipelines and marketers, and on-system (i.e., local, non-import) LNG facilities;
- Evidence of an active capacity release market on interstate pipelines and a significant amount of storage in the market area that is provided at regulated cost-based rates;
- Number of interconnecting pipelines providing access to substitute products;
- Evidence of excess capacity by regional storage and transmission providers (and evidence of discounting); and
- Absence of affiliation with an interconnecting interstate pipeline (or explicit tariff language stating compliance with code of conduct where affiliations exist).

FERC has consistently demonstrated a willingness to consider these additional factors, and an explicit affirmation of the willingness to abide by affiliate rules, in order to approve market-based rates under a wide range of circumstances.

Notably, there are many instances in which the FERC has approved market-based rates for storage where applicants have significant contractual relationships with affiliates, for example:

**Avoca:** In one of the earliest market-based rate proceedings, the Commission approved Avoca's request for market-based rates, despite the fact that Avoca was owned in part by an interstate pipeline, after concluding that Avoca would not be able to exercise market power because of its relatively small size relative to the alternatives available, even though the market was found to be concentrated. The Commission also took note of the fact that existing storage providers were FERC-regulated. [*68 FERC ¶ 61,045 (1994)*].

**New York State Electric & Gas ("NYSEG"):** By adding new compression facilities, NYSEG proposed to offer storage services in the interstate market from an existing storage

field (i.e., Seneca Lake) previously used to provide intrastate services. FERC concluded, despite concentration in the working gas capacity and deliverability markets (HHIs of 4,692 for working gas capacity and 4,196 for deliverability), that the applicant was a small, new market entrant that was unable to exercise market power over its interstate storage service because of unused storage capacity and 3.3 Bcf of anticipated turn-back capacity. The Commission took note of the fact that the market was dominated by two providers subject to rate regulation: CNG and National Fuel Gas Supply. [81 FERC ¶ 61,020 (1997)]

**Seneca Lake Storage:** Citing Seneca Lake Storage's relatively small market share, the FERC approved market-based rates under circumstances in which the proponent interconnected with and was operated by an affiliated LDC (NYSEG), even though the HHI exceeded the 1,800 threshold. The certificate was conditioned upon Seneca's compliance with affiliate standards established in Order No. 497. [98 FERC ¶ 61,163 (2002)]

**Liberty Gas Storage:** The FERC approved of market-based rates subject to an agreement to abide by Order 2004 standards of conduct since Liberty Gas Storage (a subsidiary of Sempra) is affiliated with two interconnecting pipelines. Liberty proposed tariff language committing to abide by the standards of conduct adopted in Order 2004. [113 FERC ¶ 61,247 (2005)]

**WPS-ESI Gas Storage:** The FERC approved of market-based rates to serve new customers (sole existing customer is also a subsidiary of WPS Energy), citing degree of competition and ease of entry in the Midwest region. The blanket certificate issued by the Commission was conditioned on compliance with all Commission regulations including those covering affiliate transactions. [108 FERC ¶ 61,061 (2004)].

**Copiah County Storage Company:** The Commission approved of market-based rates for Copiah County Storage, which is owned by a Duke Energy affiliate, even though it is interconnected with Texas Eastern Transmission Co. ("Texas Eastern"), another Duke affiliate. [99 FERC ¶ 61,316 (2002)]

This basic strategy of relying on market forces where there is sufficient competition and adequate affiliate protections in place has had dramatic results:

- A significant expansion of US underground storage capacity and deliverability, both from existing storage providers, as well as numerous independent new entrants;
- Investment in existing fields to expand working gas capacity and increase maximum injection and withdrawal rates in response to market demands for cycling capability; and
- An expansion of services in response to growth in natural gas-fired electric generation including a focus on "hub" services such as parking, loan, and balance management services.

In quantitative terms, the evolution of the storage policies in the United States has resulted in:<sup>32</sup>

- 10 new storage fields being certificated between 1996 and 2004;
- 11 new storage projects being approved between 2002 and 2004, representing 74.7 Bcf of new interstate working gas capacity;
- 39.1 Bcf of storage capacity being added in the Midwest (including 27.0 Bcf from the Bluewater Gas Storage project), and 50.4 Bcf of capacity in the Gulf Coast/Southeast; and
- At least two projects currently pending before FERC in the geographic region interconnected with Ontario, i.e., Dominion (9.4 Bcf in PA) and Stagecoach Phase II expansion (13 Bcf in NY), and at least one other project on the horizon, i.e., Tennessee (5.0 Bcf in PA).

Notably, while there has been significant expansion of storage in the Gulf Coast production area where it is easy to pass market power screens, there remains a need to develop more market area storage, which is the current focus of FERC efforts. In addition, the FERC has also generally relied on the market to determine the specific services that are needed.

The FERC remains focused on the objective of encouraging more storage capacity development:

- Investment in new capacity remains a primary FERC objective as the role of storage in moderating price volatility receives increasing attention;
- An analysis sponsored by the Interstate Natural Gas Association of America and performed by Energy and Environmental Analysis, Inc. ("EEA") supports the need for continued investment in underground storage facilities: 651 Bcf of storage have been identified as being required by 2020: 110 Bcf in Eastern Canada/MI, 60 Bcf in the Midwest, 66 Bcf in NY, 123 Bcf in PA/WV; and
- Market-based rates are viewed as a key driver of investment by developers and the FERC.

## 2. EPACT 2005 and Incremental Storage Development

Through a provision in the EPACT 2005 regarding market-based rates for new storage facilities, the United States Congress weighed into the discussion of the need for incremental storage. That provision in EPACT 2005 enabled, if not encouraged the FERC to examine its policies regarding the approval of market-based rates that facilitate this needed development. FERC's notice of proposed rulemaking summarized the relevant portions of the EPACT 2005 as follows:

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<sup>32</sup> "Current State of and Issues Concerning Underground Natural Gas Storage", Federal Energy Regulatory Commission Staff Report, September 30, 2004.

Section 312 of EPLA 2005 adds new NGA section 4(f), which permits the Commission to authorize new natural gas storage projects (i.e., projects placed in service after the passage of the Act) to provide service at market-based rates notwithstanding the fact that the applicant is unable to demonstrate that it lacks market power. New NGA section 4(f) requires that, to authorize market-based rates, the Commission must find that "market-based rates are in the public interest and necessary to encourage the construction of storage capacity in the area needing storage services" and "customers are adequately protected."<sup>33</sup>

This is the latest action in a strategy in the United States to focus on an acceleration of the development of underground storage, particularly high deliverability and market-area storage. This evolution of policy in the United States has been a response to increasing concerns that higher and more volatile natural gas and electricity prices experienced over the past two years are likely to continue. These price trends result from fundamental supply and demand changes, including declining North American supplies, growth in gas-fired electric generation, integration of natural gas and electricity wholesale markets, and short-term events (e.g., the impact of hurricanes on energy supplies). The expectation that these trends will continue has led directly to the view that the FERC should affirmatively pursue policies designed to promote the development of incremental storage capacity. The renewed emphasis on the expansion and development of imported LNG terminal capacity has only served to reinforce the need for incremental storage capacity, as efficient utilization of capital-intensive LNG terminal and transportation infrastructure will increase the demand for storage that can be accessed on reasonable terms. Notably, these same trends are present in Ontario.

The FERC's most recent proposed rulemaking in Docket Nos. RM05-23, et. al., would make it easier for projects to obtain approval of market-based rates by modifying market power analyses to incorporate a broader definition of viable alternatives to storage, including non-storage products and services.<sup>34</sup> One key aspect of this proposed policy change is to expand the definition of the relevant product market used in market power analyses. The FERC has provided guidance on the types of products that it might find to be competitive substitutes to underground storage, citing local production, LNG, available pipeline capacity, and firm capacity release. In addition, the proposed rulemaking contemplates that underground storage providers that are unable to show that they lack

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<sup>33</sup> Federal Energy Regulatory Commission, Rate Regulation of Certain Underground Natural Gas Storage Facilities, 113 FERC ¶ 61,306, Docket No. RM05-23, et. al., December 22, 2005, mimeo at p. 22.

<sup>34</sup> Initial and reply comments have been filed by interested parties in this proceeding.

market power may still be permitted to charge market-based rates in circumstances where the FERC determines that market-based rates are in the public interest and necessary to encourage the construction of storage capacity in the area needing storage services. Therefore, the proposed rulemaking would facilitate new entry into markets that are currently underserved by underground storage (and thus have difficulty passing the market power test) by permitting market-based rates. Furthermore, an enhanced ability to negotiate prices with electric generators that reflect higher value of storage during peak periods is expected by the Commission to help finance new construction and offset the impact of generator reluctance to enter into long-term capacity commitments. In sum, these revisions confirm the FERC's desire to facilitate the development of needed market-area storage capacity while protecting customers.



## V. COMPETITIVENESS OF THE ONTARIO STORAGE MARKET AND REGULATORY IMPLICATIONS

This section addresses each step in the process utilized by CEA to determine whether market-based rates are appropriate as they relate to the Ontario storage market.

### Step 1: Establishing the Relevant Product Market

The first step in the market power “screen” is to define the relevant product market. As noted earlier, the definition of the relevant product market is intended to include services that are similar enough to the product or service being offered by the applicant that they are considered ready substitutes. Substitutability is the key element because the applicant would not be able to sustain a price increase if other firms in the market offer services that can be substituted for those offered by the applicant. As the Board is aware, natural gas storage serves numerous different functions for both the natural gas and electric power industries. As such, there are numerous alternatives to storage that could be considered in an analysis of potential market power for storage services, including:

- Physical storage
- Financial products that replicate the price hedging features of storage services
- Unsubscribed pipeline capacity
- Pipeline “no-notice” services
- Local gas production
- Imported LNG
- On-system peakshaving facilities, i.e., LNG and propane-air facilities, and
- Pipeline capacity associated with elastic demand, such that it can be released during peak periods to the highest value market.

With the development of natural gas market centers or “hubs”, financial markets have also developed whereby various financial products are traded. Specifically, the emergence of financial risk management products offered at these hubs provide LDCs, large end-users, and electric generators with the ability to manage price risk without relying exclusively on physical hedges that have traditionally been provided through access to storage. For example, as discussed earlier in this evidence, Ontario’s Dawn Hub is among the most active hubs in North America, and as such, this liquidity provides the ability for parties to actively trade and hedge their natural gas portfolios on a financial basis without the need for physical storage.

Since the natural gas financial markets, including the financial products that are offered as alternatives to storage at Dawn and other hubs, are generally recognized as being workably competitive, it can thus be presumed that the product market defined as price hedging is also workably competitive. In other words, for customers utilizing storage solely or primarily for purposes of price hedging, the provision of storage at market-based rates should not be a concern due to the significant level of financial products available in the market that compete with storage as a price hedging mechanism. As such, an analysis of potential storage market power can reasonably exclude price hedging as a separate product market, and rather focus on an applicant's ability to exercise market power for physical firm and interruptible storage services.

Therefore, the product market for purposes of this evidence has been defined as firm and interruptible storage services.<sup>35</sup> All storage facilities currently in operation in the relevant geographic market were considered in the market power analysis.<sup>36</sup> In addition, as noted above, there are numerous substitutes to physical firm and interruptible storage services utilized to meet peak period natural gas requirements. For purposes of this evidence, three additional categories of substitutes have been considered in conjunction with physical storage services:

- First, local production from the regions in the relevant geographic market (discussed below) have been included in the market power analysis. Specifically, as an estimate for local production's substitutability for storage, it was assumed that the total annual local production divided by 365 days would represent the deliverability equivalent to storage. In addition, the local production in each province and state in the relevant market had to be considered as a single storage facility for purposes of calculating market share and market concentration since the data available was already aggregated and not separated by individual owner. However, it is important to note that these local production supplies are owned by numerous unaffiliated parties, and thus the inclusion of local production on an aggregated basis (i.e., by province or by state) overstates the market share and market concentration in the analyses.
- Second, pipeline capacity in the relevant geographic market contracted by marketers, either directly or as agent for industrial customers, has been included in the market power analysis. Specifically, it was assumed that capacity held by marketers was a proxy for pipeline capacity associated with elastic demand, i.e., it may be released during peak periods to the highest value market, and thus a substitute for storage. While the details

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<sup>35</sup> Since services such as balancing, parking and loaning services provide an opportunity for customers to manage their portfolio in a manner similar to the role served by underground storage, these storage services would not be considered separate products for purposes of market power determinations.

<sup>36</sup> With the exception of Tribute Resources' recently approved facility in Ontario, all of the facilities considered in the market power "screen" are currently in operation.

of pipeline contracting practices are generally not publicly available, CEA included an estimate of pipeline capacity owned by marketers in the relevant geographic market based on figures reported by numerous pipelines in their respective index of customers.<sup>37</sup> It should be noted that CEA estimated the capacity held by marketers on a subset of the pipelines supplying capacity in the relevant market, and specifically excluded capacity from MHP Canada's affiliates Union Gas and Texas Eastern, even though the capacity of these affiliates is not owned nor controlled by these affiliates, but rather by their respective customers. In addition, the market power analysis reflects only the ten largest marketers in terms of capacity held in the relevant market as opposed to capacity held by all marketers in the relevant geographic market.<sup>38</sup> As a result, slightly less than half of the total capacity held by marketers in the relevant market has been included in the market power analysis. For these reasons, this market power analysis is highly conservative and would overstate the market share and market concentration.

- Lastly, on-system LDC peakshaving facilities, i.e., LNG and propane-air facilities, were also considered as alternatives to storage for meeting peak period requirements. These facilities can typically provide between 10 and 15 days of service during peak periods to satisfy demand requirements. Again, although these facilities are owned by various entities, these peakshaving facilities have been aggregated for purposes of this analysis, and thus the market share and market concentration are overstated as a result.

For purposes of this evidence, it should also be noted that market power was evaluated using two different measures of physical storage, i.e., working gas capacity and deliverability capability of the storage.

### Step 2: Defining the Relevant Geographic Market

The same basic approach applies to the determination of the relevant geographic market. As noted earlier, the relevant geographic market is generally defined as the area in which storage will be consumed and includes areas in which all providers of same/similar products are economically competitive. In this case, it is important to evaluate whether distant suppliers can compete to serve the same market as the applicant. Certainly, Ontario storage will have a natural locational advantage for customers in Ontario due to a transportation cost advantage. However, recent evidence from both storage suppliers and customers clearly indicate that the relevant geographic storage market for Ontario includes the broader storage market encompassing the northeastern and upper Great Lakes regions of the United States. For example:

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<sup>37</sup> Data is not available to determine whether the pipeline capacity held by marketers is available or has been sold in whole or in part to a third-party.

<sup>38</sup> Based on CEA's analysis of seven pipelines serving the relevant geographic market (i.e., ANR Pipeline, Great Lakes Gas Transmission, Panhandle Eastern Pipe Line, National Fuel Supply, Tennessee Gas Pipeline, Dominion Transmission and Trunkline Gas), there were over 100 different marketers that held capacity totaling over 7.5 Bcf/day.

- In its open season for storage service that closed on October 14, 2005, Tribute Resources (“Tribute”) indicated that numerous requests for storage service for its Tipperary Gas Storage project were received from participants across North America.<sup>39</sup> In addition, in its marketing materials, Tribute highlights that its storage offers excellent balancing capabilities for central Canadian markets and for the U.S. Midwest and Northeast markets.<sup>40</sup> (emphasis added)
- ANR Storage Company states that it “provides firm and interruptible natural gas storage services to customers on both Great Lakes Gas Transmission and ANR Pipeline Company. The storage fields are located in northern Michigan and provide up to 56 Bcf of storage capacity to support markets throughout the Midwest and eastern Canada.”<sup>41</sup> (emphasis added)
- New Jersey Natural Gas (NJ), Rochester Gas & Electric (NY), and UGI Utilities (PA), all of which are LDCs located in the northeastern United States, contract for Rate Schedule FSS (firm storage service) on ANR Pipeline;
- DTE Energy (“DTE”) recently indicated that its historical storage markets include the upper Midwestern United States (Michigan, Indiana, Ohio, Wisconsin, Illinois, Iowa, Missouri), the Northeastern United States (Massachusetts, New York, Connecticut and Maine), and eastern/central Canada (Ontario, Quebec, Manitoba), as well as the Mid-Atlantic United States and as far south as Atlanta.<sup>42</sup>
- DTE, which is part owner of Millennium, has stated that a primary goal of Millennium is to transport gas from storage in Michigan to serve markets in the northeastern United States (and thus transporting the gas through Ontario), and that DTE has significant expansion capability for its storage to meet this demand.<sup>43</sup>

Moreover, as noted earlier, the OEB, NEB and FERC have all recognized the integrated nature of the natural gas storage and transportation market of the upper Great Lakes, Ontario and northeastern United States. This includes the recent FERC decision granting market-based rates for a storage project developed by an affiliate of WPS Energy in which FERC accepted a definition of the relevant geographic market for a storage project in Michigan as including western Ontario, Michigan, northern Indiana, northern Illinois and eastern Iowa.

The actual market evidence noted above overwhelmingly supports a geographic market definition for storage services in Ontario that, at a minimum, includes storage facilities located in Ontario,

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<sup>39</sup> Tribute Resources website; [www.tribute-resources.com](http://www.tribute-resources.com).

<sup>40</sup> Avenue Energy Dawn Storage Open Season Package, October 3, 2005.

<sup>41</sup> ANR Storage Company Informational Postings; see <http://www.latec.com/ANR/>.

<sup>42</sup> DTE, “Storage Systems in Close Proximity to Demand Centers – Economic and Developmental Hurdles (Michigan Perspective)”, Third Annual Gas Storage Outlook, March 21, 2005.

<sup>43</sup> DTE Energy, Business Update Meeting, July 29, 2005.

Michigan, New York and Pennsylvania.<sup>44</sup> However, based on the evidence provided above of storage contracting practices, this definition of the relevant market would be overly restrictive, as the relevant geographic market can appropriately be defined more broadly to include storage located in the upper Midwestern United States, such as Ohio, Indiana and Illinois that also compete with Ontario storage and could also be reasonably considered substitutes for storage in Ontario in terms of meeting peak demands.

In fact, in its submission to the NGF on behalf of Union Gas, EEA and Professor Richard Schwindt (“EEA/Swindt”) defined the core competitive region for storage to include Ontario, Michigan, northern Illinois, northern Indiana, and western New York.<sup>45</sup> In addition, the EEA/Swindt study also defined a non-core competitive region where Ontario storage could compete for some storage business as including storage facilities in Iowa, Pennsylvania, Ohio and West Virginia. The EEA/Swindt study also indicated that there is adequate pipeline capacity upstream of Dawn on all but a few days each year, and as such, pipeline constraints do not act as a barrier to competition among storage providers across this region. Furthermore, the EEA/Swindt study examined price data across the region as an indicator that markets are closely integrated and that storage fields are competitive substitutes. The EEA/Swindt study found that historical prices from Chicago and Michigan through Dawn are highly correlated, supporting the conclusion that storage fields across this region comprise a single integrated and competitive market.

Since actual market marketing and contracting patterns, pricing data, and information regarding the lack of pipeline constraints in the region indicate the presence of a larger geographic market, for purposes of these comments, the market share and market concentration statistics have been presented in two different manners: (i) a relevant geographic market narrowly defined as Ontario, Michigan, New York and Pennsylvania; and (ii) a relevant geographic market more broadly defined to include Ontario, Michigan, New York, Pennsylvania, Ohio, Indiana and Illinois.

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<sup>44</sup> It should be noted that it is long-standing precedent that the FERC has considered the New York-Pennsylvania markets as an integrated storage market.

<sup>45</sup> Energy and Environmental Analysis, Inc. and Richard Schwindt, “Analysis of Competition in Natural Gas Storage Markets for Union Gas Limited”, October 28, 2004.

### Step 3: Calculation of Market Share and Market Concentration

The last step in the market power “screen” is to calculate the market share of the proposed project in the relevant market, as well as the concentration of the relevant market. As noted above, regulators have reviewed both market share and market concentration as a means of conducting an initial screen for an applicant’s ability to exercise market power and determining whether additional, more detailed evaluation of the market and/or applicant is necessary.

Attachments B through E to these comments present the market share and market concentration calculations for working gas capacity and deliverability under both relevant market definitions. Specifically, Attachment B (the narrower market definition of Ontario, Michigan, New York and Pennsylvania) and Attachment C (the broader market definition of Ontario, Michigan, New York, Pennsylvania, Ohio, Indiana and Illinois) present the market shares for working gas capacity. Attachment D (same market definition as Attachment B) and Attachment E (same market definition as Attachment C) present the market shares for deliverability. For illustrative purposes, the market share information focuses on MHP Canada as the potential applicant.<sup>46</sup> The information used to conduct the market power analyses on Attachments B through E are based on a number of sources, including data presented in Intelligence Press’ “Natural Gas Storage and LNG Facilities in the United States and Canada” published in 2004, information submitted in the NGF, and CEA’s research and project experience.

The convention applied by the FERC in the United States in calculating market share is to combine all affiliated storage into a combined company-wide number, regardless of whether that capacity is controlled by the affiliate or its customers. Since the majority of the storage of Union Gas and Texas Eastern is controlled by its customers, this capacity would truly represent storage that competes with MHP Canada. However, in order to be conservative, for purposes of Attachments B through E, MHP Canada's working gas capacity and maximum deliverability have been combined with that of its affiliates, i.e., Union Gas and Texas Eastern.

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<sup>46</sup> For purposes the analyses presented in Attachments B through E, it has been assumed that MHP Canada has 10 Bcf of working gas capacity and 120 MMcf/day of deliverability, which represent MHP Canada’s estimated storage by 2010.

The market power analyses in Attachments B through E have been presented in two different ways. First, market share and market concentration have been calculated on the basis of the total working gas and deliverability currently operational in the market regardless of whether the working gas and deliverability is provided to in-franchise or ex-franchise customers. Second, market share and market concentration have been calculated based only on the working gas and deliverability that is utilized to serve ex-franchise customers.

As shown on Attachments B through E, MHP Canada on a standalone basis would be considered a very small participant in the relevant market. On a standalone basis, MHP Canada would not represent a market share of greater than seven-tenths of one per cent, regardless of the market definition and regardless of whether all storage or only ex-franchise storage in the market is considered. Even when the storage of MHP Canada's affiliates, i.e., Union Gas and Texas Eastern, are combined with the storage proposed by MHP Canada for purposes of calculating market share, the combined Duke Energy market share in the relevant market (including MHP Canada's market share) would be 11.0% or less, depending on the analysis. Thus, regardless of how the analysis is conducted, i.e., on a stand-alone basis or with MHP Canada's affiliated storage, or inclusive of all storage in the relevant market or just that storage available for ex-franchise customers, a storage provider such as MHP Canada would be considered a small entrant with a market share that is well below the Merger Enforcement Guidelines' suggested 35% market share threshold. Based on the existing storage market, small storage providers such as MHP Canada would have market shares that are insignificant relative to the broader market and would be unable to exercise market power.

In addition, as noted earlier, the Bureau has examined market concentration based on the market share of the largest four suppliers as an indicator of market concentration, with the Merger Enforcement Guidelines noting a threshold of 65% as an indication of concentration. Based on this definition of market concentration, as shown on Attachments B through E, the relevant market for physical storage services would not be considered concentrated for working gas or deliverability regardless of the market or product definition.

Furthermore, as noted earlier, it is important to note that even if a market is concentrated, it does not directly indicate that market power can be exercised, particularly by small storage providers. Regulators have recognized that markets with high market concentrations solely as a result of

regulated rate providers is not indicative of market concentration concerns. As noted by the Merger Enforcement Guidelines, a market concentration that exceeds the threshold is not necessarily indicative of the potential for anti-competitive behavior. In fact, the circumstances reflected on Attachments B through E are good examples of why, even if a market is considered concentrated, that a new entrant is unlikely to be able to exercise market power, particularly a relatively small entrant. As can be seen on Attachments B through E, the participants with the largest market shares are regulated-rate storage providers, i.e., El Paso and Dominion Transmission. As such, these storage providers do not have the ability to utilize their size in the market to raise rates beyond competitive levels. Moreover, the addition of the capacity and deliverability of MHP Canada's storage project to the existing affiliated capacity of Union Gas and/or Texas Eastern has virtually no impact on the market concentration results. Therefore, due to these factors, small storage providers such as MHP Canada are not able to exercise market power.

As discussed earlier, another means of calculating market concentration is the HHI methodology utilized by the U.S. Department of Justice's/Federal Trade Commission's Horizontal Merger Guidelines and applied by the FERC. The HHI for a particular market is calculated by simply squaring each market participant's market share, and then summing the results to produce the overall HHI market concentration level. While not establishing a specific threshold level above which an applicant would be excluded from market-based rates or a threshold below which an applicant would automatically be granted market-based rates, the FERC has established that a market with an HHI above 1800 will require additional scrutiny since the market would be considered concentrated and there exists the potential for market power. As shown in the analyses presented in Attachments B through E, the market as measured by the HHI for the relevant geographic market would not be considered concentrated, and would not require further review by the FERC.

#### Step 4: Consideration of Other Mitigating Factors

As noted earlier in this evidence, regulators in both Canada and the United States have recognized that a review of market shares and market concentrations do not provide a "comprehensive view of



all important factors” for determining whether market power may be exercised and that other factors are relevant for making such a determination.<sup>47</sup> These factors include:

- Relatively small market share (even in cases where market is concentrated);
- Market dominance by participants subject to cost-based regulation;
- Reliance on independent third-party pipelines for ultimate delivery of product to market;
- Recent new entry in the same region that has been granted market-based rate authority;
- Proposed new entry;
- Number of pipelines providing access to alternatives;
- Evidence of excess capacity by regional storage and transmission providers (and evidence of discounting); and
- Evidence of numerous alternatives to storage available to customers, including pipeline balancing/no-notice services, seasonal/swing services provided by pipelines and marketers, and on-system (i.e., local, non-import) LNG facilities.

Most importantly, ease of entry into a market inhibits the potential for parties to exercise market power. There are numerous examples of the ease of entry into the storage market in and around Ontario. Specifically, numerous entities have either recently announced or received approval for incremental storage projects in the relevant market for storage providers in Ontario, including:

- The Board has recently approved the application of Tribute Resources (“Tribute”), and its affiliate Tipperary Gas Corp., to develop and operate a 1.8 Bcf natural gas storage facility in the Township of Central Huron, Ontario. In addition, Tribute has indicated that it has an additional 1.4 Bcf of working gas capacity in its South Tipperary pool, and the rights to an additional 8.0 Bcf of storage capacity in Huron County, all scheduled for development in 2007;<sup>48</sup>
- Union Gas recently held open seasons to assess demand for gas transportation and storage infrastructure expansions in the northeast United States and Canada, and obtained interest for more than 50 Bcf of storage at Union’s Dawn facility and 3 Bcf/d of deliverability on related pipelines.<sup>49</sup>
- WPS-ESI GAS Storage, a new storage facility with approximately 3 Bcf of working gas and 100 MMcf/day of deliverability in St. Clair County, Michigan, recently received FERC approval to charge market-based rates;<sup>50</sup>

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<sup>47</sup> Policy Statement, at 61,235.

<sup>48</sup> See Ontario Energy Board, RP-2003-0253, et. al., June 17, 2005; and Avenue Energy Dawn Storage Open Season Package, October 3, 2005.

<sup>49</sup> See Duke Energy press releases “Duke Energy Gas Transmission: Company Receives Significant Market Interest in Eastern North America Open Season”, October 5, 2004, and “Union Gas Signs Customer Contracts to Support Natural Gas Infrastructure Expansion in Ontario,” March 22, 2005.

<sup>50</sup> WPS-ESI GAS Storage, LLC, 108 FERC ¶ 61,061 (2004).

- Wyckoff Gas Storage, a new storage facility with 6 Bcf of working gas and 400 MMcf/day of deliverability located in upstate New York, received FERC approval to charge market-based rates in October 2003;<sup>51</sup>
- In upstate New York, Steuben Gas Storage Company recently noted that it is planning to convert the Thomas Corners gas field to an underground storage facility with 5.7 Bcf of working gas capacity and up to 100,000 Dth/day of deliverability. The developer has indicated that the facility could be operational as early as 2006.<sup>52</sup>
- Also in upstate New York, Central New York Oil and Gas filed for approval to expand its working gas capacity by approximately 13 Bcf.
- Cayuta Properties announced an open season for a new high-deliverability facility in Schuyler County, New York with 5 to 10 Bcf of natural gas storage capacity available in late 2006.<sup>53</sup>
- Nisource, the parent of Columbia Transmission, indicated that it had expansion opportunities in a number of its storage facilities, including those in New York, Pennsylvania, and West Virginia;<sup>54</sup>
- DTE has indicated that it has completed the first of two phases to expand storage capacity at its Washington 10 facility in Michigan. In addition, DTE also has stated that it also anticipates opportunities to expand its storage by over 200 Bcf to serve growing Ontario and northeast markets;<sup>55</sup> and
- Bluewater Gas Storage, an independent storage facility in southeastern Michigan, recently commenced operations, providing 24.5 Bcf of additional working gas and approximately 700 MMcf/day of incremental deliverability to the market.

The fact that many different storage and transportation providers have entered or are planning to enter and/or expand in the Ontario, Michigan, and upstate New York storage market is indicative of relatively low barriers to entry and supports a finding that market-based rate authority is appropriate.

Second, in addition to all of the other storage facilities in the relevant market, the potential for smaller storage providers such as MHP Canada to exercise market power is further reduced by the fact that there is a vibrant pipeline capacity release market. Specifically, the FERC has found that the ability for parties to utilize released capacity is another factor that limits the ability of storage

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<sup>51</sup> Wyckoff Gas Storage Company, LLC, 105 FERC ¶ 61,027 (2003).

<sup>52</sup> Steuben Gas Storage Company, “Thomas Corners Field Development – Offer of Multi-Cycle Storage Service at Market Rates”, November 2004.

<sup>53</sup> Inside F.E.R.C.’s Gas Market Report., July 18, 2003.

<sup>54</sup> Nisource, Midwest Seminar presentation, April 2005.

<sup>55</sup> See, e.g., DTE presentation March 21, 2005; DTE Energy website; <http://www.dteenergy.com/businesses/fuelTransportation.html>.

providers to exercise market power.<sup>56</sup> The increased availability of imported LNG, and the potential for it to affect the way in which gas has traditionally flowed from the production areas to the market areas, may also result in additional opportunities for parties to obtain released capacity from traditional supply areas that would compete in the future with natural gas storage such as that proposed to be developed by MHP Canada.

Third, there are numerous competitive alternatives to the storage services proposed to be provided that were not included for purposes of calculating market share and market concentration in Attachments B through E. For example, many pipelines offer balancing and no-notice services that are effective substitutes to underground storage services. Balancing and no-notice services provided by the pipelines provide customers with the daily and hourly flexibility to manage the inevitable variations between projected demand, actual demand and supply and act as a substitute for storage in this regard. In addition, many natural gas marketers also offer seasonal and swing contracts that provide additional flexibility that competes with storage. Specifically, instead of purchasing 365-day service from pipelines, customers can purchase seasonal contracts that provide service for a more defined period of the year, similar to storage services. Swing contracts also provide a customer with the ability to call upon a certain amount of natural gas during a specified period of time for a specified number of days during that period. Again, these types of contracts represent alternatives to storage services. Moreover, as mentioned earlier, the availability of spot gas at liquid trading points such as Dawn, and the financial products that can be purchased at such locations also represent substitutes for certain functions of storage that have not been accounted for in Attachments B through E. Thus, since these services offered by pipelines and marketers compete directly with the storage services identified in Attachments B through E, yet have not been included in the analyses reflected in Attachments B through E, this provides further evidence and reduces the potential for small storage providers in the Ontario storage market to exercise market power.

Fourth, as noted earlier, many of the storage providers identified on Attachments B through E provide service at cost-based rates regulated by the FERC or state regulatory agencies. Therefore, with an active capacity release market on all of the interstate pipelines in the region and the small

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<sup>56</sup> WPS-ESI GAS Storage, LLC, 108 FERC ¶ 61,061 (2004).

market share of new and smaller storage providers such as MHP Canada, the ability of these providers to exercise market power for storage would be extremely difficult.

Finally, and as noted above, the Board has already determined that in Ontario a competitive environment exists sufficient to protect the public interest with respect to approval of market-based rates for ex-franchise storage services, new independent storage services, certain aspects of the in-franchise storage service, and all transactional services such as park and loan services. Therefore, there would seem to be no reasonable policy objection to extending the market-based rate authority already available to these existing providers, and to smaller storage providers affiliated with distributors and/or transmitters such as MHP Canada, which has protections against affiliate abuse in place.

## **VI. EXISTING STORAGE PRICING IN ONTARIO**

OEB policies also determine the efficiency of natural gas markets by influencing market entry and creating an efficient market in which price signals are accurately represented in both consuming and producing markets. This is particularly true for a competitive underground storage market as new entry is driven by the value of storage in the marketplace. As discussed above, unbundling policies contribute significantly to economic efficiency by enabling large customers and market aggregators (including LDCs) to construct a portfolio that is tailored to their unique load profile. Market-based prices for markets that are sufficiently competitive serve to allocate storage and other related products and services most efficiently. In contrast, the current bifurcated pricing of underground storage services within Ontario is perhaps an example of the adverse consequences of distorted price signals on the efficient use of natural gas and on the development of natural gas infrastructure. Regulatory attempts to “protect” customers from market conditions or otherwise manage the competitive landscape frequently lead to counterproductive results.

More specifically, continuing cost-of-service (“COS”) based pricing for a grandfathered segment of an unbundled competitive storage market will have predictable results. The grandfathered in-franchise customers will base their consumption decisions on inappropriate price signals, and in this case, continue to use or hold storage capacity that has greater value to other customers. Perhaps more importantly, infrastructure development will be hindered to the extent that COS pricing is below market-based pricing (under the opposite scenario, development will be in excess of efficient levels). Indeed, if market signals are permitted to operate, current users of storage capacity may choose substitute products and services instead.

Efforts to bifurcate the market from a pricing perspective will likely prove fruitless, as customers (including potentially electric generators and large industrials) that are able to remarket their COS storage at market-based rates will capture the economic rent that is inherent in the COS-based storage, thus tilting the playing field and further discouraging efficient new entry. The notion that some electric generators would be able to secure COS-based storage and bid into the competitive Ontario wholesale electricity market is particularly perverse. The end result is equivalent to writing a cheque to electric generators. In the end, markets will prevail as they usually do, but not without

serious distortions of the price signals and misallocations of scarce resources occurring along the way.

In contrast, market-based pricing for the entire storage market will send proper price signals to drive storage infrastructure development, efficient utilization of storage, development of substitute products and services, and the development of other natural gas infrastructure. It will also create a level playing field for new storage projects, providing an efficiently priced incentive to add storage capacity. Market-based pricing for all storage services will also facilitate development of a vibrant secondary market, further enhancing market efficiency. With market-based pricing for all storage as the clearly preferred option from an economic efficiency standpoint, extension of the current bifurcated approach is clearly a “second-best” alternative.

## VII. PROPOSED OEB FINDINGS AND POLICY RECOMMENDATIONS

### A. Proposed Findings

Based on the analysis and the facts presented herein, it is recommended that the OEB confirm the following findings:

1. The Ontario market and its supporting infrastructure is closely integrated with, and part of, a much broader regional natural gas market encompassing much of the upper midwestern and northeastern United States.
2. Ontario's storage capacity serves a critical role in efficiently meeting the evolving requirements of this integrated market and in moderating price volatility.
3. The market for underground storage in Ontario is workably competitive, and relatively small market participants such as MHP Canada lack the ability to exercise market power and influence storage pricing by withholding capacity. This finding is based on:
  - a. A relevant geographic market that includes, at a minimum, an integrated regional storage market consisting of Ontario, Michigan, New York, and Pennsylvania.
  - b. A relevant product market that includes, at a minimum, firm and interruptible storage services, local natural gas production, interstate pipeline capacity contracted by marketers, and peakshaving facilities, with recognition of the role served by financial products.
  - c. Other mitigating factors, including application of affiliate rules and codes, will satisfactorily address any affiliate concerns.
4. Market-based rates are appropriate for all small storage providers, particularly new storage entrants, including affiliates of distributors and transmitters when there are sufficient affiliate protections in place.
5. The efficient development and utilization of natural gas infrastructure will be enhanced by implementing a market-based pricing approach that relies on competitively-based substitute products and services.

### B. Recommended Policy Actions

On the basis of the foregoing, it would appear that the Ontario storage market is competitive sufficient to protect the public interest. Thus, in accordance with Section 29 of the *OEB Act, 1998*, the Board should refrain from regulating the storage market, in particular the rates and services of smaller storage providers that are affiliated with existing distributors and transmitters in the market when sufficient affiliate protections exist to prevent abuse. With the existence of sufficient affiliate protections, small storage providers are unable to exercise market power, and should be treated no differently than independent storage providers that currently are afforded market-based rates. At a

minimum, CEA recommends that the Board grant all small storage providers market-based rate authority, including small storage providers that are affiliated with other market participants when sufficient affiliate protections exist. In addition, CEA recommends that the Board grant storage providers the flexibility to enter into contracts without the need for pre-approval.

Short of forbearance, there are several recommended policy actions that will ensure a more efficient natural gas market in Ontario:

**1. *Establish clear standards for approval of market-based rates:***

- Specify the parameters of the market power test (relevant product and geographic market; appropriate market share and market concentration thresholds)
- Specify a comprehensive list of other mitigating factors to be considered

**2. *Facilitate new storage entry by approving market-based rates where these standards are met:***

- Facilitate entry by approving market-based rates for all storage providers unaffiliated with transmission providers in the market
- Facilitate entry by approving market-based rates for storage providers that are affiliated with transmission providers, subject to abiding by existing Board approved standards of conduct that:
  - i. Establish adequate organizational separation from the affiliated transmission provider;
  - ii. Ensure that the affiliated transmission provider will treat all transmission customers, affiliated and non-affiliated, on a non-discriminatory basis and may not operate its transmission system to preferentially benefit its storage affiliate;
  - iii. Ensure that the storage provider only have any access to information that is available to all transmission customers; and
  - iv. Provide for a formal complaint process.

**3. *Establish open-access tariffs for LDC storage and transportation services, along with standards of conduct that preclude discrimination or any preference given to affiliate customers***

**4. *Establish market-based pricing for all storage services:***

- Eliminate the current bifurcated storage pricing methodology
- All non-LDC customers should be subject to market-based pricing
- Cost-of-service based pricing for LDC sales customers and pre-existing transportation customers is clearly a “second-best” solution



5. *Allow market to determine the storage-related service offerings that are appropriate:*
  - Approval of new market driven storage related services should be streamlined
6. *Permit long-term (greater than one year) contracts for storage services without requiring pre-approval:*
  - Implement blanket approval guidelines
7. *Implement other policies deemed necessary to create a level playing field among all storage market participants:*
  - Facilitate development of secondary markets

### C. Impact of Proposed Recommendations

The impact of these proposed recommendations, relative to maintaining the status quo, is summarized in the following table.

	<b>Criterion</b>	<b>Proposed Recommendations</b>	<b>Status Quo</b>
1	<b>Storage Infrastructure Development</b>	Facilitated by market-based pricing for all participants and by a streamlined certificate process	Hindered as participants restrain development programs because of inefficient pricing and entry barriers
2	<b>Storage Infrastructure Utilization</b>	Market-based prices send efficient pricing signals to all storage customers	Distorted in-franchise price signals create inefficiencies
3	<b>Price Volatility</b>	Moderated by emphasis on developing new storage capacity and increasing liquidity at Dawn	Exacerbated by restraints on new storage development
4	<b>In-Franchise Consumer Interests</b>	Potential short-term storage price increases offset by longer term efficiency gains and potential flow-back of economic rents	“Protection” from market prices in a competitive storage market results in market inefficiencies and shifting of market rents to unregulated parties
5	<b>Competitive Landscape</b>	Improved cost allocations, further service unbundling, open-access to monopoly facilities, and effective affiliate rules create a level playing field and encourages new entry	Limited supply of available storage and lack of flexibility in need for more regulatory approvals.

Taken together, these recommendations will lead to a very substantial improvement in the efficiency of the natural gas industry in Ontario.

# ATTACHMENT A

## FERC REGULATION OF NATURAL GAS STORAGE

FERC regulation of natural gas storage has evolved over the past two decades as part of the restructuring of the industry. The landmark orders over this period are summarized in a table at the end of this attachment. The restructuring process began with the FERC's Order No. 436 (1985)<sup>1</sup> that permitted pipelines to offer unbundled transportation service on a voluntary basis. Prior to 1985, pipelines provided a bundled service that included transportation, storage and the natural gas commodity. Pipelines secured long-term gas supply contracts to provide this service and made no profit on the commodity itself. Order No. 636 (1992)<sup>2</sup> mandated unbundling of both storage and transportation services for interstate pipelines and required pipelines to exit the merchant sales service. Order No. 636 and subsequent pipeline compliance filings addressed many details required to create an opportunity for LDCs and other customers to develop efficient portfolios that met their particular load profiles and cost/risk profile. These details included the establishment of "no-notice" transportation service, access to storage facilities, increased flexibility in receipt and delivery points, and capacity release programs.

FERC jurisdiction is, however, limited to interstate transportation and sales for resale, i.e., the wholesale market. State regulatory commissions have jurisdiction over the unbundling of LDC services. Many states require the provision of unbundled LDC transportation services to large commercial and industrial customers, enabling these customers to take advantage of the FERC unbundling initiatives. Overall, the unbundling process has resulted in significant efficiency gains as customers have been able to contract separately for services that they need while paying only the cost of providing these services (or market-based rates where a regulatory agency has determined that the market is sufficiently competitive).

Storage facilities owned and operated by interstate pipelines support both unbundled transportation and storage services. Part of the rate-setting process has involved allocating

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<sup>1</sup> 33 FERC ¶ 61,007 (1985).

<sup>2</sup> 59 FERC ¶ 61,030 (1992).

storage costs among these services according to a precedent referred to as the "Equitable methodology".<sup>3</sup> In general, the Equitable methodology requires 50% of storage fixed costs to be classified to the storage capacity function and the other 50% to the storage deliverability function and also that it requires that storage costs be apportioned between system storage and contract storage on the basis of capacity quantities, deliverability quantities, and injection and withdrawal quantities. Thus, storage costs are allocated based on the manner in which the storage facilities are used to support system storage and contract storage. Modifications to the Equitable methodology may be proposed based on specific facts regarding specific pipeline operating circumstances.

In 1996, the FERC issued a major policy statement approving alternative forms of regulation, including market-based rates, for transportation and storage services that adequately met market power concerns.<sup>4</sup> This policy established the initial framework for analyzing market-based rate proposals based on standards used by the United States Federal Trade Commission ("FTC") in reviewing merger approval requests. The evolution of this policy will be described in more detail in the following subsection.

The trend toward more market-responsive pricing continued with Order No. 637 (1996-2000) as pipelines were allowed to vary cost-of-service rates depending on the period of demand, e.g., peak versus off-peak rates, and rates that varied by season.<sup>5</sup> These rates reflected the differing scarcity value of fixed-cost pipeline capacity throughout the year and improved the efficiency of the interstate pipeline and storage system.

FERC took further action to reflect the increasingly competitive nature of storage and transportation markets in 1999 with the issuance of its Certificate Policy Order.<sup>6</sup> This order clearly assigns the economic risk associated with unsubscribed and underutilized capacity to the project owner.

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<sup>3</sup> *Equitable Gas Co.*, 36 FERC ¶ 61,147 (1986)

<sup>4</sup> *Alternatives to Traditional Cost of Service Ratemaking for Natural Gas Pipelines and Regulation of Negotiated Transportation Services of Natural Gas Pipelines*, Docket Nos. RM95-6 and RM96-7, 74 FERC ¶ 61,076 (1996).

<sup>5</sup> 90 FERC ¶ 61,109 (2000)

<sup>6</sup> *Certification of New Interstate Natural Gas Pipeline Facilities*, 88 FERC ¶ 61,227 (1999), *order clarifying statement of policy* 90 FERC ¶ 61,128, *order further clarifying statement of policy* 92 FERC ¶ 61,094 (2000)

From the very beginning of this policy evolution, FERC has remained focused on creating a level-playing field for all participants, including affiliates of pipeline and storage providers. Policies that protect against any affiliate preference are very thorough and require, among other aspects, independent operation, non-discriminatory services, and equal access to information. The Commission first introduced Standards of Conduct in 1988 (Order 497) in order to ensure that interstate pipelines would not discriminate in favor of their marketing affiliates.<sup>7</sup> The most recent policy action in this regard is Order 2004 (2004).<sup>8</sup>

In general, the FERC standards of conduct (“Standards of Conduct”) are designed to prevent transmission providers from giving undue discrimination or granting undue preferences to marketing and/or energy affiliates. They include the following basic requirements:

1. Independent functioning of the transmission provider from marketing and energy affiliates;
2. Transmission providers must treat all affiliated and non-affiliated customers on a non-discriminatory basis and may not treat marketing and energy affiliates preferentially;
3. Marketing and energy affiliates can only have access to information that is available to all transmission customers; and
4. Standards of Conduct require posting of certain information on the gas pipeline Internet website.

The term "transmission providers" in the standards is defined to exclude natural gas storage providers "authorized to charge market-based rates that is not interconnected with the

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<sup>7</sup> 53 FR 22139 (1988)

<sup>8</sup> Order 2000, 105 FERC ¶ 61,248 (2003); Order 2000-A 107 FERC ¶ 61,032 (2004); Order 2000-B, 108 FERC ¶ 61,118 (2004); Order 2000-C 109 FERC ¶ 61,325 (2004)

jurisdictional facilities of any affiliated interstate natural gas pipeline, no exclusive franchise area, no captive ratepayers and no market power."<sup>9</sup>

## Timeline of Major US Policy Initiatives

YEAR	INITIATIVE	EXPLANATION
1985	Order 436 - "Open Access Order"	<ul style="list-style-type: none"> <li>➤ Pipelines permitted on a voluntary basis to offer an unbundled transportation service on a nondiscriminatory first come, first served basis</li> <li>➤ Pipeline take-or-pay contracts became problematic</li> </ul>
1987	Order 500	<ul style="list-style-type: none"> <li>➤ Encouraged pipelines to buy out of take-or-pay contracts and pass a portion of these costs along to sales customers</li> </ul>
1988	Order 497 - Standards of Conduct	<ul style="list-style-type: none"> <li>➤ Initial standards of conduct designed to restrict the ability of interstate natural gas pipelines and public utilities to give their marketing affiliates or wholesale merchant functions undue preference over non-affiliate customers</li> </ul>
1989	Natural Gas Wellhead Decontrol Act of 1989	<ul style="list-style-type: none"> <li>➤ Completed the deregulation of natural gas at the wellhead</li> </ul>
1992	Order 636	<ul style="list-style-type: none"> <li>➤ Mandated unbundling of pipeline sales, storage and transportation services</li> <li>➤ Pipelines could no longer engage in merchant gas sales or sell any product as a bundled service</li> <li>➤ Pipeline production and marketing functions were separated as arms-length affiliates</li> <li>➤ These services include the institution of 'no-notice' transportation service, access to storage facilities, increased flexibility in receipt and delivery points, and 'capacity release' programs.</li> </ul>
1996	Policy Statement: Alternatives to Traditional Cost-of-Service Ratemaking for Natural Gas Pipelines and Regulation of Negotiated Transportation Services of Natural Gas Pipelines	<ul style="list-style-type: none"> <li>➤ Established framework for analyzing market-based rate proposals</li> <li>➤ Market power found where the applicant can (1) withhold or restrict services to increase price a significant amount (10% i.e., or more) for a significant period of time, or (2) discriminate unduly in terms of price or conditions</li> <li>➤ Commission must (1) find that there is a lack of market power because customers have sufficient "good alternatives", or (2) mitigate the market power through specific conditions</li> <li>➤ Negotiated rates permitted in cases where there is a cost-based "recourse" rate</li> </ul> <p>74 FERC ¶ 61,076 (1996) and 75 FERC ¶ 61,024 (1996)</p>

<sup>9</sup> 18 CFR Part 358.3

YEAR	INITIATIVE	EXPLANATION
1996-2000	Order 637	<ul style="list-style-type: none"> <li>➤ Approved flexible peak/off-peak and seasonal pricing to reflect varying value of service for cost-based rates</li> <li>➤ Negotiated rates differentiated by term of contract permitted</li> <li>➤ Auctions recognized as market power mitigating forces for both cost-based and market-based rates</li> </ul>
1999	Certificate Policy Order	<ul style="list-style-type: none"> <li>➤ Policy guidance on certification of new facilities including establishing need for the project and avoiding any adverse impact on existing customers</li> <li>➤ Owner assumes economic risks to the extent that the project is undersubscribed</li> </ul>
2004	Order 2004-B	<ul style="list-style-type: none"> <li>➤ Designed to ensure that natural gas and electric transmission providers do not provide affiliated market participants with preferential access to service or information</li> <li>➤ Definition of “transmission provider” includes natural gas storage providers except those that (1) have authority to charge market-based rates, (2) are not interconnected with the jurisdictional facilities of any affiliated interstate natural pipeline, and (3) have no exclusive franchise area, captive ratepayers, or market power</li> <li>➤ The basic requirements are: (1) A Transmission Provider must function independently from its Marketing and Energy Affiliates; (2) A Transmission Provider must treat all transmission customers, affiliated and non-affiliated, on a non-discriminatory basis and may not operate its transmission system to preferentially benefit its Marketing or Energy Affiliates. The Standards of Conduct also require that a Transmission Provider ensure that employees of its Marketing and Energy Affiliates only have access to that information available to the Transmission Provider’s transmission customers</li> </ul>
2005 (Aug)	Energy Policy Act of 2005	<ul style="list-style-type: none"> <li>➤ Authorized approval of market-based storage rates if the applicant is unable to demonstrate a lack of market power if the FERC determines it is in the public interest and necessary to encourage construction</li> </ul>
2005 (Dec)	RM05-23	<ul style="list-style-type: none"> <li>➤ Implements EPACT 2005 provision</li> <li>➤ Seeks comments on proposed expansion of the definition of relevant competitive products for market power studies</li> </ul>

# Attachment B

## Working Gas Market Share and Market Concentration Analysis

### Market Definition: Ontario, Michigan, New York and Pennsylvania

Line No.	Company	Notes	Total Working Gas Available for All Customers			Working Gas for Ex-Franchise		
			Working Gas (MMcf)	Market Share	HHI	Working Gas (MMcf)	Market Share	HHI
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
<b>Physical Storage:</b>								
<i>Duke Energy:</i>								
1	MHP Canada		10,000	0.5%		10,000	0.7%	
2	Union Gas	(1)	149,600	7.8%		70,100	4.9%	
3	Texas Eastern		51,001	2.7%		49,921	3.5%	
4	Total - Duke Energy		210,601	11.0%	121	130,021	9.0%	82
5	Aquila		5,100	0.3%	0	0	0.0%	0
6	Central New York Oil & Gas		13,000	0.7%	0	13,000	0.9%	1
7	CMS Energy	(2)	136,550	7.1%	51	0	0.0%	0
8	Dominion Resources		216,166	11.3%	128	187,543	13.0%	170
9	DTE Energy	(3)	210,941	11.0%	121	86,497	6.0%	36
10	El Paso Corp.		274,270	14.3%	205	273,958	19.1%	363
11	Enbridge Inc.	(4)	92,400	4.8%	23	0	0.0%	0
12	Equitable Resources		9,210	0.5%	0	8,843	0.6%	0
13	KeySpan		6,573	0.3%	0	6,573	0.5%	0
14	National Fuel Gas Co.		78,639	4.1%	17	78,639	5.5%	30
15	Nisource, Inc.		18,000	0.9%	1	16,342	1.1%	1
16	PAA/Vulcan Gas Storage		24,500	1.3%	2	24,500	1.7%	3
17	SEMCO Energy		11,782	0.6%	0	6,767	0.5%	0
18	Southern Union		18,164	0.9%	1	18,164	1.3%	2
19	Steuben Gas Storage Co.		6,200	0.3%	0	6,200	0.4%	0
20	T.W. Phillips Gas & Oil		1,459	0.1%	0	0	0.0%	0
21	Tribute Resources		1,800	0.1%	0	1,800	0.1%	0
22	Williams Companies		51,560	2.7%	7	51,560	3.6%	13
23	WPS Resources		3,049	0.2%	0	3,049	0.2%	0
24	Subtotal - Physical Storage		1,179,363			783,434		
<b>Substitutes for Physical Storage:</b>								
<i>Local Production</i>								
25	Ontario	(5)	13,000	0.7%	0	13,000	0.9%	1
26	Michigan		255,482	13.3%	178	255,482	17.8%	316
27	New York		46,050	2.4%	6	46,050	3.2%	10
28	Pennsylvania		196,583	10.3%	105	196,583	13.7%	187
<i>Capacity Release - Marketer Capacity</i>								
29	Proliance Energy	(6)	752	0.0%	0	752	0.1%	0
30	PSEG Energy Resources & Trade		563	0.0%	0	563	0.0%	0
31	Inergy Gas Marketing		490	0.0%	0	490	0.0%	0
32	Amerada Hess		467	0.0%	0	467	0.0%	0
33	Coral Energy Resources		324	0.0%	0	324	0.0%	0
34	Nexen		295	0.0%	0	295	0.0%	0
35	Virginia Power Energy Mktg		272	0.0%	0	272	0.0%	0
36	Tenaska		258	0.0%	0	258	0.0%	0
37	Constellation Energy		204	0.0%	0	204	0.0%	0
38	BP Energy		177	0.0%	0	177	0.0%	0
39	On-System Peakshaving	(7)	9,429	0.5%	0	9,429	0.7%	0
40	Subtotal - Substitutes		524,346			524,346		
41	<b>Total Relevant Market</b>		<b>1,914,310</b>	<b>100.0%</b>	<b>968</b>	<b>1,437,801</b>	<b>100.0%</b>	<b>1216</b>
42	<b>Market Share of Top 4 Suppliers</b>			<b>50.0%</b>			<b>63.5%</b>	

(1) Approximately 53% of Union Gas' storage is reserved for its franchise customers at cost-based rates.

(2) CEA has conservatively assumed that all of CMS Energy's storage is reserved for its LDC customers.

(3) Ex-franchise amounts for DTE Energy represent storage owned by DTE Gas Storage Company.

(4) It is CEA's understanding that most, if not all, of Enbridge's storage is reserved for its franchise customers and has conservatively reflected this assumption in the analysis presented above.

(5) US data based on dry natural gas production data from EIA, Natural Gas Annual 2004 (Released December 2005); Ontario data based on Ontario Oil, Gas and Salt Resources Library, "Industry Fast Facts: Ontario", data presented represents 2003 data.

(6) Estimated firm pipeline capacity held by marketers in the relevant geographic market on ANR Pipeline, Great Lakes Gas Transmission, Tennessee Gas Pipeline, Dominion Transmission, National Fuel Supply Corp., Panhandle Eastern and Trunkline Gas.

(7) Represents peakshaving capacity owned by LDCs in New York and Pennsylvania.

Sources: Intelligence Press, "Natural Gas Storage and LNG Facilities in the United States and Canada", 2004; FERC Filings; CEA research; Energy and Environmental Analysis, "Analysis of Competition in Natural Gas Markets for Union Gas Limited", October 28, 2004.



## Attachment C

### Working Gas Market Share and Market Concentration Analysis

**Market Definition: Ontario, Michigan, New York, Pennsylvania, Ohio, Indiana and Illinois**

Line No.	Company	Notes	Total Working Gas Available for All Customers			Working Gas for Ex-Franchise		
			Working Gas (MMcf)	Market Share	HHI	Working Gas (MMcf)	Market Share	HHI
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
<b>Physical Storage:</b>								
<i>Duke Energy:</i>								
1	MHP Canada		10,000	0.4%	0	10,000	0.6%	
2	Union Gas	(1)	149,600	5.9%		70,100	4.0%	
3	Texas Eastern		51,001	2.0%		49,921	2.8%	
4	Total - Duke Energy		210,601	8.3%	70	130,021	7.4%	55
5	Ameren Corp.		10,650	0.4%	0	0	0.0%	0
6	Aquila		5,100	0.2%	0	0	0.0%	0
7	Centerpoint Energy		2,200	0.1%	0	2,200	0.1%	0
8	Central New York Oil & Gas		13,000	0.5%	0	13,000	0.7%	1
9	Citizens Gas & Coke Utility		7,100	0.3%	0	0	0.0%	0
10	CMS Energy	(2)	136,550	5.4%	29	0	0.0%	0
11	Dominion Resources		275,032	10.9%	119	187,543	10.7%	114
12	DTE Energy	(3)	210,941	8.4%	70	86,497	4.9%	24
13	Dynegy		15,214	0.6%	0	0	0.0%	0
14	El Paso Corp.		274,270	10.9%	118	273,958	15.6%	243
15	Enbridge Inc.	(4)	92,400	3.7%	13	0	0.0%	0
16	Equitable Resources		9,210	0.4%	0	8,843	0.5%	0
17	KeySpan		6,573	0.3%	0	6,573	0.4%	0
18	Kinder Morgan Inc.		69,600	2.8%	8	69,600	4.0%	16
19	Loews Corp.		5,452	0.2%	0	0	0.0%	0
20	Midwest Gas Storage		2,000	0.1%	0	2,000	0.1%	0
21	National Fuel Gas Co.		78,639	3.1%	10	78,639	4.5%	20
22	Nicor Inc.		144,300	5.7%	33	0	0.0%	0
23	Nisource, Inc.		163,978	6.5%	42	152,871	8.7%	76
24	PAA/Vulcan Gas Storage		24,500	1.0%	1	24,500	1.4%	2
25	Peoples Energy		28,000	1.1%	1	0	0.0%	0
26	Robinson Engineering		750	0.0%	0	750	0.0%	0
27	SEMCO Energy		11,782	0.5%	0	6,767	0.4%	0
28	Southern Union		22,303	0.9%	1	22,303	1.3%	2
29	Steuben Gas Storage Co.		6,200	0.2%	0	6,200	0.4%	0
30	T.W. Phillips Gas & Oil		1,459	0.1%	0	0	0.0%	0
31	The Energy Cooperative		2,270	0.1%	0	0	0.0%	0
32	Tribute Resources		1,800	0.1%	0	1,800	0.1%	0
33	Vectren Corp.		10,474	0.4%	0	0	0.0%	0
34	Williams Companies		51,560	2.0%	4	51,560	2.9%	9
35	WPS Resources		3,049	0.1%	0	3,049	0.2%	0
36	Subtotal - Physical Storage		1,686,356			998,653		
<b>Substitutes for Physical Storage:</b>								
37	Local Production	(5)						
38	Ontario		13,000	0.5%	0	13,000	0.7%	1
39	Michigan		255,482	10.1%	102	255,482	14.5%	212
40	New York		46,050	1.8%	3	46,050	2.6%	7
41	Pennsylvania		196,583	7.8%	61	196,583	11.2%	125
42	Ohio		90,418	3.6%	13	90,418	5.1%	27
43	Indiana		3,401	0.1%	0	3,401	0.2%	0
44	Illinois		121	0.0%	0	121	0.0%	0
<b>Capacity Release - Marketer Capacity</b>								
45	Proliance Energy	(6)	752	0.0%	0	752	0.0%	0
46	PSEG Energy Resources & Trade		563	0.0%	0	563	0.0%	0
47	Energy Gas Marketing		490	0.0%	0	490	0.0%	0
48	Amerada Hess		467	0.0%	0	467	0.0%	0
49	Coral Energy Resources		324	0.0%	0	324	0.0%	0
50	Nexen		295	0.0%	0	295	0.0%	0
51	Virginia Power Energy Mktg		272	0.0%	0	272	0.0%	0
52	Tenaska		258	0.0%	0	258	0.0%	0
53	Constellation Energy		204	0.0%	0	204	0.0%	0
54	BP Energy		177	0.0%	0	177	0.0%	0
55	On-System Peakshaving	(7)	18,571	0.7%	1	18,571	1.1%	1
56	Subtotal - Substitutes		627,428			627,428		
57	<b>Total Relevant Market</b>		<b>2,524,385</b>	<b>100.0%</b>	<b>700</b>	<b>1,756,102</b>	<b>100.0%</b>	<b>934</b>
58	<b>Market Share of Top 4 Suppliers</b>			<b>40.2%</b>			<b>52.0%</b>	

(1) Approximately 53% of Union Gas' storage is reserved for its franchise customers at cost-based rates.

(2) CEA has conservatively assumed that all of CMS Energy's storage is reserved for its LDC customers.

(3) Ex-franchise amounts for DTE Energy represent storage owned by DTE Gas Storage Company.

(4) It is CEA's understanding that most, if not all, of Enbridge's storage is reserved for its franchise customers and has conservatively reflected this assumption in the analysis presented above.

(5) US data based on dry natural gas production data from EIA, Natural Gas Annual 2004 (Released December 2005); Ontario data based on Ontario Oil, Gas and Salt Resources Library, "Industry Fast Facts: Ontario", data presented represents 2003 data

(6) Estimated firm pipeline capacity held by marketers in the relevant geographic market on ANR Pipeline, Great Lakes Gas Transmission.

(7) Tennessee Gas Pipeline, Dominion Transmission, National Fuel Supply Corp., Panhandle Eastern and Trunkline Gas.

(7) Represents peakshaving capacity owned by LDCs in New York, Pennsylvania, Indiana and Illinois.

Sources: Intelligence Press, "Natural Gas Storage and LNG Facilities in the United States and Canada", 2004; FERC Filings; CEA research; Energy and Environmental Analysis, "Analysis of Competition in Natural Gas Markets for Union Gas Limited", October 28, 2004.

# Attachment D

## Deliverability Market Share and Market Concentration Analysis

### Market Definition: Ontario, Michigan, New York and Pennsylvania

Line No.	Company	Notes	Total Working Gas Available for All Customers			Working Gas for Ex-Franchise		
			Working Gas (MMcf)	Market Share	HHI	Working Gas (MMcf)	Market Share	HHI
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
<b>Physical Storage:</b>								
<i>Duke Energy:</i>								
1	MHP Canada		120	0.4%		120	0.5%	
2	Union Gas	(1)	2,400	7.1%		1,125	4.7%	
3	Texas Eastern		694	2.0%		694	2.9%	
4	Total - Duke Energy		3,214	9.5%	90	1,938	8.1%	65
5	Aquila		85	0.3%	0	0	0.0%	0
6	Central New York Oil & Gas		500	1.5%	2	500	2.1%	4
7	CMS Energy	(2)	3,069	9.0%	82	0	0.0%	0
8	Dominion Resources		4,196	12.4%	153	4,014	16.7%	280
9	DTE Energy	(3)	4,189	12.3%	152	889	3.7%	14
10	El Paso Corp.		6,053	17.8%	318	6,053	25.2%	637
11	Enbridge Inc.	(4)	1,800	5.3%	28	0	0.0%	0
12	Equitable Resources		404	1.2%	1	404	1.7%	3
13	KeySpan		70	0.2%	0	70	0.3%	0
14	National Fuel Gas Co.		1,195	3.5%	12	1,195	5.0%	25
15	Nisource, Inc.		547	1.6%	3	547	2.3%	5
16	PAA/Vulcan Gas Storage		700	2.1%	4	700	2.9%	9
17	SEMCO Energy		244	0.7%	1	60	0.3%	0
18	Southern Union		398	1.2%	1	398	1.7%	3
19	Steuben Gas Storage Co.		60	0.2%	0	60	0.3%	0
20	T.W. Phillips Gas & Oil		62	0.2%	0	0	0.0%	0
21	Tribute Resources		11	0.0%	0	11	0.0%	0
22	Williams Companies		858	2.5%	6	858	3.6%	13
23	WPS Resources		100	0.3%	0	100	0.4%	0
24	Subtotal - Physical Storage		24,540			15,858		
<b>Substitutes for Physical Storage:</b>								
<i>Local Production</i>								
25	Ontario	(5)	36	0.1%	0	36	0.1%	0
26	Michigan		700	2.1%	4	700	2.9%	9
27	New York		126	0.4%	0	126	0.5%	0
28	Pennsylvania		539	1.6%	3	539	2.2%	5
<i>Capacity Release - Marketer Capacity</i>								
29	Proliance Energy	(6)	752	2.2%	5	752	3.1%	10
30	PSEG Energy Resources & Trade		563	1.7%	3	563	2.3%	6
31	Inergy Gas Marketing		490	1.4%	2	490	2.0%	4
32	Amerada Hess		467	1.4%	2	467	1.9%	4
33	Coral Energy Resources		324	1.0%	1	324	1.4%	2
34	Nexen		295	0.9%	1	295	1.2%	2
35	Virginia Power Energy Mktg		272	0.8%	1	272	1.1%	1
36	Tenaska		258	0.8%	1	258	1.1%	1
37	Constellation Energy		204	0.6%	0	204	0.9%	1
38	BP Energy		177	0.5%	0	177	0.7%	1
39	On-System Peakshaving	(7)	983	2.9%	8	983	4.1%	17
40	Subtotal - Substitutes		6,185			6,185		
41	<b>Total Relevant Market</b>		<b>33,939</b>	<b>100.0%</b>	<b>885</b>	<b>23,981</b>	<b>100.0%</b>	<b>1119</b>
42	<b>Market Share of Top 4 Suppliers</b>			<b>52.0%</b>			<b>53.0%</b>	

(1) Approximately 53% of Union Gas' storage is reserved for its franchise customers at cost-based rates.

(2) CEA has conservatively assumed that all of CMS Energy's storage is reserved for its LDC customers.

(3) Ex-franchise amounts for DTE Energy represent storage owned by DTE Gas Storage Company.

(4) It is CEA's understanding that most, if not all, of Enbridge's storage is reserved for its franchise customers and has conservatively reflected this assumption in the analysis presented above.

(5) US data based on dry natural gas production data from EIA, Natural Gas Annual 2004 (Released December 2005); Ontario data based on Ontario Oil, Gas and Salt Resources Library, "Industry Fast Facts: Ontario", data presented represents 2003 data.

(6) Estimated firm pipeline capacity held by marketers in the relevant geographic market on ANR Pipeline, Great Lakes Gas Transmission, Tennessee Gas Pipeline, Dominion Transmission, National Fuel Supply Corp., Panhandle Eastern and Trunkline Gas.

(7) Represents peakshaving capacity owned by LDCs in New York and Pennsylvania.

Sources: Intelligence Press, "Natural Gas Storage and LNG Facilities in the United States and Canada", 2004; FERC Filings; CEA research; Energy and Environmental Analysis, "Analysis of Competition in Natural Gas Markets for Union Gas Limited", October 28, 2004.

## Attachment E

### Deliverability Market Share and Market Concentration Analysis

**Market Definition: Ontario, Michigan, New York, Pennsylvania, Ohio, Indiana and Illinois**

Line No.	Company	Notes	Total Working Gas Available for All Customers			Working Gas for Ex-Franchise		
			Working Gas (MMcf)	Market Share	HHI	Working Gas (MMcf)	Market Share	HHI
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
<b>Physical Storage:</b>								
<i>Duke Energy:</i>								
1	MHP Canada		120	0.3%		120	0.4%	
2	Union Gas	(1)	2,400	5.3%		1,125	3.9%	
3	Texas Eastern		694	1.5%		694	2.4%	
4	Total - Duke Energy		3,214	7.1%	50	1,938	6.7%	45
5	Ameren Corp.		233	0.5%	0	0	0.0%	0
6	Aquila		85	0.2%	0	0	0.0%	0
7	Centerpoint Energy		30	0.1%	0	30	0.1%	0
8	Central New York Oil & Gas		500	1.1%	1	500	1.7%	3
9	Citizens Gas & Coke Utility		120	0.3%	0	0	0.0%	0
10	CMS Energy	(2)	3,069	6.8%	46	0	0.0%	0
11	Dominion Resources		5,779	12.7%	162	4,014	13.8%	191
12	DTE Energy	(3)	4,189	9.2%	85	889	3.1%	9
13	Dynegy		338	0.7%	1	0	0.0%	0
14	El Paso Corp.		6,053	13.3%	177	6,053	20.8%	435
15	Enbridge Inc.	(4)	1,800	4.0%	16	0	0.0%	0
16	Equitable Resources		404	0.9%	1	404	1.4%	2
17	KeySpan		70	0.2%	0	70	0.2%	0
18	Kinder Morgan Inc.		1,930	4.2%	18	1,930	6.6%	44
19	Loews Corp.		133	0.3%	0	0	0.0%	0
20	Midwest Gas Storage		50	0.1%	0	50	0.2%	0
21	National Fuel Gas Co.		1,195	2.6%	7	1,195	4.1%	17
22	Nicor Inc.		2,800	6.2%	38	0	0.0%	0
23	Nisource, Inc.		2,726	6.0%	36	2,644	9.1%	83
24	PAA/Vulcan Gas Storage		700	1.5%	2	700	2.4%	6
25	Peoples Energy		920	2.0%	4	0	0.0%	0
26	Robinson Engineering		10	0.0%	0	10	0.0%	0
27	SEMCO Energy		244	0.5%	0	60	0.2%	0
28	Southern Union		468	1.0%	1	468	1.6%	3
29	Steuben Gas Storage Co.		60	0.1%	0	60	0.2%	0
30	T.W. Phillips Gas & Oil		62	0.1%	0	0	0.0%	0
31	The Energy Cooperative		40	0.1%	0	0	0.0%	0
32	Tribute Resources		11	0.0%	0	11	0.0%	0
33	Vectren Corp.		200	0.4%	0	0	0.0%	0
34	Williams Companies		858	1.9%	4	858	3.0%	9
35	WPS Resources		100	0.2%	0	100	0.3%	0
36	Subtotal - Physical Storage		35,176			20,045		
<b>Substitutes for Physical Storage:</b>								
<b>Local Production</b>								
37	Ontario	(5)	36	0.1%	0	36	0.1%	0
38	Michigan		700	1.5%	2	700	2.4%	6
39	New York		126	0.3%	0	126	0.4%	0
40	Pennsylvania		539	1.2%	1	539	1.9%	3
41	Ohio		248	0.5%	0	248	0.9%	1
42	Indiana		9	0.0%	0	9	0.0%	0
43	Illinois		0	0.0%	0	0	0.0%	0
<b>Capacity Release - Marketer Capacity</b>								
44	Proliance Energy	(6)	752	1.7%	3	752	2.6%	7
45	PSEG Energy Resources & Trade		563	1.2%	2	563	1.9%	4
46	Energy Gas Marketing		490	1.1%	1	490	1.7%	3
47	Amerada Hess		467	1.0%	1	467	1.6%	3
48	Coral Energy Resources		324	0.7%	1	324	1.1%	1
49	Nexen		295	0.6%	0	295	1.0%	1
50	Virginia Power Energy Mktg		272	0.6%	0	272	0.9%	1
51	Tenaska		258	0.6%	0	258	0.9%	1
52	Constellation Energy		204	0.4%	0	204	0.7%	0
53	BP Energy		177	0.4%	0	177	0.6%	0
54	On-System Peakshaving	(7)	1,593	3.5%	12	1,593	5.5%	30
55	Subtotal - Substitutes		7,052			7,052		
56	<b>Total Relevant Market</b>		<b>45,441</b>	<b>100.0%</b>	<b>674</b>	<b>29,035</b>	<b>100.0%</b>	<b>907</b>
57	<b>Market Share of Top 4 Suppliers</b>			<b>42.3%</b>			<b>50.5%</b>	

(1) Approximately 53% of Union Gas' storage is reserved for its franchise customers at cost-based rates.

(2) CEA has conservatively assumed that all of CMS Energy's storage is reserved for its LDC customers.

(3) Ex-franchise amounts for DTE Energy represent storage owned by DTE Gas Storage Company.

(4) It is CEA's understanding that most, if not all, of Enbridge's storage is reserved for its franchise customers and has conservatively reflected this assumption in the analysis presented above.

(5) US data based on dry natural gas production data from EIA, Natural Gas Annual 2004 (Released December 2005); Ontario data based on Ontario Oil, Gas and Salt Resources Library, "Industry Fast Facts: Ontario", data presented represents 2003 data

(6) Estimated firm pipeline capacity held by marketers in the relevant geographic market on ANR Pipeline, Great Lakes Gas Transmission, Tennessee Gas Pipeline, Dominion Transmission, National Fuel Supply Corp., Panhandle Eastern and Trunkline Gas.

(7) Represents peakshaving capacity owned by LDCs in New York, Pennsylvania, Indiana and Illinois.

Sources: Intelligence Press, "Natural Gas Storage and LNG Facilities in the United States and Canada", 2004; FERC Filings; CEA research; Energy and Environmental Analysis, "Analysis of Competition in Natural Gas Markets for Union Gas Limited", October 28, 2004.