

IGUA Undertaking No. 4, at Tr. 118:

To provide numbers used in calculations related to Table 1 at Tab 2 of IGUA & AMPCO Evidence.

Response

The basic assumption is that OEB forbearance from regulating storage will result in changes to the storage assets such that all storage will eventually be contracted to the highest bidders. Under these circumstances large volume industrial consumers currently using storage services provided by Union Gas (“Union”) or Enbridge Gas Distribution Inc. (“EGD”) [jointly the LDCs] would need to make alternative arrangements and three of the possible options are described in the evidence. To develop some indication of the cost increases that could result from each option across Union and EGD franchise areas it was assumed that a hypothetical customer with the following characteristics would be located in each of Union NDA, Union CDA and EGD EDA:

Annual Demand	6,000,000	GJ
FT Capacity	16,438	GJ/d
Peak Day	28,000	GJ/d
Storage Space	500,000	GJ
Max. Day In and Out	6,000	GJ/d

The analysis produced illustrative cost increases that an industrial customer might face for each option and in each area. These were summarized in Table 1 of the evidence and the assumptions and calculations used in the analysis of each option are set out below.

Option 1. Bid for Ontario storage in “open seasons”

In this option cost based storage rates are compared to the rates that may be needed to secure storage in an open season.

It was assumed that the cost of Union’s current cost based storage can be calculated using Union Gas Unbundled Storage from Rates 20 and 100. It was also assumed that one full storage cycle should be used and that fuel gas would be \$8.00/GJ.

	<u>Volume</u>	<u>Rate</u>	<u>Annual Cost</u>
Space	500,000	\$0.031	\$186,000
Injection	500,000	\$0.013	\$ 6,500
Withdrawal	500,000	\$0.013	\$ 6,500
Fuel Gas	500,000	0.631%	\$50,480
Total Annual Storage Cost			\$248,480

Unit cost of storage \$0.50/GJ

Since Dawn storage is used by all Union Gas customers, it was assumed that this unit cost would be applicable across the Union Gas system.

As no customer is using EGD unbundled storage, it was considered more appropriate to assume a cost for EGD storage. As EGD storage is understood to be higher cost than Union a cost based storage rate for EGD was assumed to be \$0.60/GJ.

Union Gas Undertaking 16 in this proceeding was filed with the Board on April 17, 2006. This included a calculation that the value of storage (without extrinsic values) was \$0.917 US/MMBtu as of March 29, 2006. It was assumed that with extrinsic value the charges for Union and EGD storage would fall within a range of \$1.00/GJ and \$1.50/GJ.

Incremental cost increase as a proportion of Cost-Based Rates

	<u>Cost Based</u>	<u>Market Based</u>	<u>Increase</u>	<u>% Increase</u>
Union North	\$0.50	\$1.00 to \$1.50	\$0.50 to \$1.00	100% to 200%
Union South & East	\$0.50	\$1.00 to \$1.50	\$0.50 to \$1.00	100% to 200%
EGD	\$0.60	\$1.00 to \$1.50	\$0.40 to \$0.90	67% to 150%

Option 2. Increase the volume of upstream transportation [likely on TCPL] to meet peak day demand, and possibly increase the volume of gas under purchase contract.

For this option it is assumed that the hypothetical customer already has control of its upstream transportation and it elects to increase its firm transportation contract to meet the peak daily demand. These customers would currently meet peak day demands with a combination of firm

transportation (16,438 GJ/d), withdrawal from storage (6,000 GJ/d) and the balance being delivered to their LDC through interruptible transportation (“IT”) or winter peaking services. While recognizing that current upstream capacity may be other than TCPL, such as Union’s vertical slice, in order to simplify the calculation it has been assumed that TCPL Rates to the Northern and Eastern Zones would be a reasonable proxy. It is not expected that using TCPL Rates would result in any material difference in the increased costs.

<u>Cost with storage</u>	Union	
	Rate	NDA
TCPL FT Demand	\$20.73377	\$4,089,949
TCPL FT Commodity	\$0.05003	\$300,180
Storage Demand	\$10.187	\$733,464
Storage Commodity	\$0.236	\$118,000
TCPL IT	\$0.81486	\$48,292
 Total		 \$5,289,885

	Union		EGD	
	Rate	CDA	Rate	EDA
TCPL FT Demand	\$26.47419	\$5,222,306	\$26.47419	\$5,222,306
TCPL FT Commodity	\$0.06464	\$387,840	\$0.06464	\$387,840
Storage	\$0.50	\$250,000	\$0.60	\$300,000
To & From Storage	\$0.035	\$17,550	\$0.0125	\$62,500
TCPL IT	\$1.0285	\$61,711	\$1.0285	\$61,711
 Total		 \$5,939,402		 \$6,034,357

In the above calculation the current bundled storage rate has been used for Union NDA but, as similar rates are either not available, or not in use, in Union CDA and EGD the base storage cost has been used with an assumed cost for transportation to and from storage.

<u>Costs – FT to meet peak</u>	Union		Union CDA	
	Rate	NDA	Rate	& EGD
TCPL FT Demand	\$20.73377	\$6,966,547	\$26.47419	\$8,895,328
TCPL FT Commodity	\$0.05003	\$300,180	\$0.06464	\$387,840
Total		\$7,266,727		\$9,283,168

Cost difference between use of storage and use of FT to meet peak day.

	Union NDA	Union CDA	EGD EDA
Cost with Storage	\$5,289,885	\$5,939,402	\$6,034,357
Cost if no storage	\$7,266,727	\$9,283,168	\$9,283,168
Cost Increase	\$1,976,842	\$3,343,766	\$3,248,811
<u>Percentage Increase</u>	<u>37.37%</u>	<u>56.30%</u>	<u>53.84%</u>

Option 3. Contract for storage outside Ontario and for appropriate transportation,

For Option 3 it was assumed that the hypothetical customers would contract for storage with Washington 10, a merchant storage facility in Michigan, and with Vector pipeline for transportation services between storage and Dawn or Tecumseh.

The following are the assumptions used to complete the analysis:

1. The Washington 10 storage rates would fall within the \$1.00/GJ and \$1.50/GJ range described under Option 1 above.
2. That separate contracts would be needed for flow in each direction on Vector (even though easterly flow would be a backhaul) the firm transportation contracts with Vector pipeline would include:

- a. Washington 10 to the International Boundary,
 - b. International Boundary to Dawn,
 - c. Dawn to the International Boundary, and
 - d. International Boundary to Washington 10.
3. That the LDCs would continue to deliver gas to end users in all locations under existing rates.
 4. That Union NDA and EGD customers would use storage with one cycle per year but two cycles per year were used for Union CDA to allow for daily load balancing.
 5. US Rates converted at an exchange rate of 1.11

Transportation Costs

	Rate	Union NDA & EGD	Union CDA
2. a. Demand	\$10.475	\$754,200	\$754,200
2. a. Commodity	\$0.001895	\$948	\$1,895
2. a. Fuel	0.44%	\$17,600	\$35,200
2. b. Demand	\$10.475	\$754,200	\$754,200
2. b. Commodity	\$0.001895	\$948	\$1,895
2. b. Fuel	0.16%	\$6,400	\$12,800
2. c. Cost	\$1.712	\$123,228	\$123,228
2. d. Cost	\$1.712	\$123,228	\$123,228
Totals		\$1,949,523	\$1,978,267
Unit Cost (\$/GJ of storage)		\$3.899	\$3.957

Increase in Storage and Transportation Costs

	Union NDA		Union CDA		EGD	
Storage Increase	\$0.50	\$1.00	\$0.50	\$1.00	\$0.40	\$0.90
Transportation	\$3.899	\$3.899	\$3.957	\$3.957	\$3.899	\$3.899

Total	\$4.399	\$4.899	\$4.457	\$4.957	\$4.299	\$4.799
% Increase	880%	980%	891%	991%	717%	800%

Please note that some minor errors were found with the calculations for Option 3 so the above percentage increases differ from those shown in Table 1. The differences are not sufficient to cause any change to the conclusions set out in the evidence.

IGUA Undertaking No. 5, at Tr. 132:

To provide explanation of how secondary market mitigates market power in primary market/
specific case of storage in Ontario.

Response

IGUA interprets the question as a request to consider generally whether a secondary market mitigates market power in the primary market, and, specifically, whether a secondary market in storage in Ontario can mitigate the market power of Union and EGD (the "Utilities") which own almost all of the storage assets in Ontario.

Those who hold the Utilities storage capacity in Ontario, including injection and withdrawal rights, and can sell it to others, comprise the secondary market for Ontario storage capacity. This storage capacity is not a substitute for the capacity being sold by the Utilities in the primary market.

In order for competition with utility owned storage in Ontario to be sufficient to protect the public interest, there must be available to Ontario gas consumers substitute physical storage capacity, including injection and withdrawal services and transportation to and from the storage area, at a cost comparable to the current rates charged by the Utilities. A secondary market in the storage capacity held by the Utilities does not enhance the availability of substitute storage capacity in Ontario. Accordingly, such a secondary market cannot constrain the market power of the Utilities in storage.

A primary or secondary market in storage capacity located outside of Ontario cannot constrain the market power of the Utilities unless it can provide storage services to Ontario gas consumers on a firm and annually ever-greening basis at prices competitive with the rates the Utilities currently charge. Since such a product is not currently available to Ontario gas consumers, there is no primary or secondary market in storage capacity outside of Ontario to mitigate the market power of the Utilities.

For all of these reasons, the fact that a secondary market in storage capacity exists does not reduce the market power of the Utilities. If unregulated, they have the power to increase the prices they are currently permitted to charge Ontario gas consumers by much more than 10% and to hold those prices at such increased levels on a sustained basis.