

March 27, 2008

Ms. Kirsten Walli,
Board Secretary
Ontario Energy Board
2300 Yonge Street, 27th Floor
Toronto, ON M4P 1E4

Dear Ms. Walli:

**Re: Multi-Year Incentive Rate Regulation for Natural Gas Utilities
EB-2007-0606**

Enclosed, please find:

- Reply Evidence of Jack Mintz and Thomas Wilson
- Updated Exhibit List

pertaining to Union's application for an order approving a multi-year incentive rate mechanism to determine rates for Union's regulated gas distribution, transmission and storage services effective January 1, 2008.

Yours truly,

[original signed by Joanne Clark for]

Connie Burns
Manager, Regulatory Initiatives

Enclosure

cc: All Intervenors
Michael Penny, Torys

INCENTIVE REGULATIONEXHIBIT LIST

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Reply Evidence of Jack Mintz and Thomas Wilson

1. Introduction

Intervenors have raised several issues in their filed evidence. The first is whether corporate tax reductions would benefit capital intensive industries and firms (such as Union). The second is whether lags in the adjustment of prices to reductions in corporate taxes confer an advantage to Union over the 5-year IR period. The final issue raised is whether the Bank of Canada's policy of targeting inflation would prevent the GDPIPIFDD from reflecting the effects of the tax reductions on Union's average costs. For each of these issues, intervenors argue that any benefit to Union should be offset by appropriate Z-factor adjustments to Union's price cap formula.

This submission reviews each of these issues. Our conclusion is that the evidence does not suggest that Union would receive a benefit related to any of these factors: no Z-factor adjustments are appropriate.

2. Impact of Tax Changes on Union's Input Costs and on the GDPIPIFDD

Intervenors have raised the issue whether general corporate tax reductions would benefit capital intensive industries and firms (such as Union), and have argued that a Z-factor adjustment may therefore be appropriate. This section addresses this issue for the proposed price cap regime. We first examine the effects of corporate tax reductions over the period used to develop March 27, 2008

Union's price cap formula, and compare them with known prospective tax changes for the price-cap period (2007-2012). The point we emphasize is that any favourable effects of general corporate tax reductions over the historical analytical period will be embodied in Union's price cap formula through the implicit input price differential adjustment.

We then examine whether the corporate tax reductions over the 2006-2008 period have reduced Union's average costs relative to other corporations, and whether their effect on Union is adequately reflected in their impact on the GDPIPIFDD.

2.1. The Effects of General Corporate Tax Reductions: 2000-2006 and 2007-2012

The price cap regime set up for Union implicitly includes allowances for a) a productivity differential, reflecting the difference between Union's productivity trend and the aggregate productivity trend; and, b) an input price differential, reflecting the difference between input price trends for Union's average unit costs and the aggregate price index.

These differentials are based in part on the analysis of the Pacific Economic Group (PEG) for data over the 1998-2006 period¹. Any tax changes that occurred over the analytical period would have had an impact on Union's input costs, the aggregate price index, Union's productivity growth, and aggregate productivity growth. Any differential effect of these tax

¹ It is our understanding that the "X" factor incorporating productivity and input price differentials in Union's price cap formula was arrived at through a negotiated settlement. However all of the parties involved were aware of the PEG study commissioned by Energy Board staff, and the negotiated X factor is quite close to the PEG recommendation.

changes that created advantages or disadvantages for Union would primarily be reflected in the input price differential.²

An issue raised by the intervenors is whether general corporate tax reductions would create an advantage for Union because Union is more capital intensive than the average Canadian corporation. While this could occur, it could also be offset by tax reductions for other inputs, and by differential corporate tax changes that favour other industries, such as manufacturing. We address this in the second section below. Furthermore, to the extent that general corporate rate reductions favour capital intensive corporations, the effects of general rate reductions over the analytical period used to assess input price differentials should be captured by the input price differential.

The Mintz and Chen model used to develop Table 1 in our pre-filed evidence shows that the average marginal effective tax rate (METR) for capital declined by 7.6 percentage points between 2000 and 2006 (a significant portion of the period used by PEG to determine productivity and input price differentials). For the price cap period (2007-2012) the prospective reduction in the average METR for capital is 5.7 percentage points (Chen; Mintz & Chen). Thus the METR actually declined more in the period used to develop Union's IPD than the current forecast for the IR period.

² Tax changes that are favourable to capital intensive industries will initially have a favourable impact on their average unit capital costs. As these industries respond to the lower cost of capital, there may also be effects on their relative productivity performance. However as the PEG study analyzed productivity differentials based on U. S. data, any relative productivity effects of corporate tax reductions in Canada would not have been incorporated.

However, a portion of the impact of the 2000-2006 corporate tax reductions on prices will not have been realized by 2007, because of lagged effects. We therefore view the two periods as roughly comparable. What this would suggest is that any favourable effects of prospective future general corporate tax reductions are likely captured in the input price differentials that have been implicitly incorporated in Union's price cap formula.

2.2. The impact of tax changes on Union's average input costs, and on the GDPIPIFDD 2006-2008

Table 1 in our pre-filed evidence showed the impact of corporate tax changes on the marginal effective tax rate (METR) for capital for all large corporations and for the utility sector for Canada and Ontario.

Intervenors have raised the issue of whether reductions in taxes on capital would have a differential effect favouring capital intensive industries. In order to address the issue of the effects of taxation on average unit costs, we have analyzed the effects of taxes on all inputs, including labour. We have computed the METR on Union's "cost of business" compared to all large corporations in Canada, which takes into account the effects of changes in taxes on labour as well as on capital.

Our approach is to analyze value added rather than gross output. While this approach is

clearly appropriate for the economy as a whole, at the industry or sectoral level it ignores the effects of changes in the costs of other inputs - e. g., purchased materials and services - on prices. An analysis based on unit labour costs and unit capital costs would explain the impact of taxes on the price of an industry's "real value added" (or implicit deflator for its contribution to real GDP). What is needed in this case is the impact of taxes on Union's average unit costs, which includes purchased materials and services as well as labour and capital.

To address this issue, we have calculated the impact of corporate tax changes for 2006-2008 on the unit costs for Union, taking into account the METR on capital and the METR for labour for Union, and indirectly taking into account the effects of taxes on Union's other input costs (through the impact of aggregate tax changes on average costs for the economy as a whole).

Table 2 presents the relevant data for both large Canadian corporations generally and for Union. The results indicate that, although Union is more capital intensive than the average Canadian corporation, the impact of the tax reductions on Union's average unit costs were slightly lower than the impact on all corporations. This is largely due to the significant tax reductions in the manufacturing sector that are not available to Union.

Table 2: Impact of Tax Changes on Prices (after complete pass-through of cost reductions)

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All Large Corporations:	2006-2007	2007-2008
Taxes on Capital	-5.7%	-2.8%
Taxes on Labour	-0.2%	-0.0%
Taxes on Cost of Business	-2.1%	-1.0%
Cumulative change	2006-2008	-3.1%
Impact on GDPIPIFDD (after scaling by 0.7) ³	-1.5%	-0.7%
Effects of GST reductions	-0.2%	-0.4%
Net effect of tax changes on GDPIPIFDD	-1.7%	-1.1%
Cumulative change	2006-2008	-2.8%
Union Gas:		
Taxes on Capital	-2.1%	-2.1%
Taxes on Labour ⁴	0.0%	-0.2%
Taxes on purchased material and services. ⁵	-1.5%	-0.7%
Taxes on cost of business (58% capital, 25% labour, 17% Materials)	-1.5%	-1.4%
Cumulative change	2006-2008	-2.9%

Impacts Of Tax Changes On The GDPIPIFDD

The overall METR on the cost of business is calculated for large corporations. The corporate sector as a whole generates about seventy percent of GDP. The remainder is produced by unincorporated enterprises, owner occupied housing, governments, and non-commercial entities.

³ See discussion below.

⁴ Taxes on labour are based on data for the Ontario Utilities sector.

⁵ Taxes on purchased materials and services are based on the tax impacts on the GDPIPIFDD (before adjusting for GST reductions) shown above.

Although there could be competitive spillovers from the corporate to the non-corporate sectors, we make the conservative assumption that a one percent reduction in the METR on cost of business for corporations translates into a 0.7% reduction in the GDPIPIFDD. The adjusted figures are presented in Table 2. After adjusting for the effects of taxes on corporations, we need to incorporate the effects of the two one percentage point reductions in the GST on the GDPIPIFDD. As the GST is largely a tax on consumption, changes in the GST have no direct effects on Union's input costs, but will affect the GDPIPIFDD.

Finance Canada estimates indicate that a one percentage point reduction in the GST would reduce the GDPIPIFDD by about 0.4%⁶. As the first GST cut took effect on July 1, 2006, its impact on the GDPIPIFDD for 2007 over 2006 would be only 0.2%. However, the more recent GST cut, which occurred on January 1, 2008, would reduce the GDPIPIFDD for 2008 over 2007 by 0.4%.

When these GST reductions are added to the estimated effects of taxes on corporations, we derive estimates of the total tax impacts on the GDPIPIFDD, also shown in Table 2. Over the 2006-2008 period, tax changes would reduce the GDPIPIFDD by 2.8%, slightly smaller than the 2.9% tax reduction for Union.

⁶ Finance Canada (Economic Statement Oct 30, 2007 p. 95) estimates that the revenue loss for fiscal 2008-9 from the one percentage point GST reduction would be about \$6 billion, which represents about 0.4% of final domestic demand.

3. Lags

Intervenors have raised the issue whether lags in the adjustment of prices to reductions in corporate taxes should be offset by an appropriate Z-factor adjustment. It should be noted at the outset that the issue of lagged effects for the GDPIPIFDD is not unique to tax changes. Other factors that impact on costs may be subject to lagged effects of varying degrees.

If there were no costs associated with tracking the lagged adjustments to tax changes (and to other factors) then Z-factor adjustments may, in some circumstances be appropriate. However, tracking the lagged effects of tax changes (and other factors) would be difficult. One would not only have to make allowances for the partial effect of tax reductions on prices when the tax reductions are initiated, but also will have to track the subsequent gradual adjustment of prices to previous tax changes. What this would mean, in practice, is that the Board, in determining the Z-factor adjustment for 2008, would have to determine the impact not only of tax changes implemented for 2008, but also for all previous tax changes where lagged effects have not fully been realized, and, as noted above there is no reason to limit this approach to tax changes.

Moreover, since the input price differential incorporated in Union's price cap formula is affected by the impact of tax reductions implemented during the recent historical period, the Board would have to determine the extent to which the lagged adjustments to previous tax changes, and the current adjustment to current tax changes, deviated from past experience. A
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similar analysis would be required for other cost factors.

Approximate estimates of the lagged adjustments are difficult to obtain. A forthcoming study⁷ examines the effects of replacing Ontario's Retail Sales Tax (RST) by a Value Added Tax (VAT) similar to the GST. An important consequence of this sales tax reform is that the sales tax burden on business investments would be reduced significantly. The study includes model simulations with the FOCUS macro-econometric model that show the effects of the resulting changes in the effective tax rates on capital on investments in machinery and equipment and non-residential construction. These simulation results indicate that just over seventy percent of the longer term (10 year) adjustment of the capital stock of machinery and equipment is realized within the first five years. However for non-residential construction, the lags are longer; just under half of the longer term adjustment of the non-residential capital stock is realized within the first five years.

However, it is worth noting that these lags will be shortened when tax changes are legislated in advance of their implementation, as was the case with the 5-year tax reduction plan implemented in 2000, and recent corporate tax changes announced in the Economic Statement of October 30, 2007. This is because businesses can plan in advance to take advantage of future tax reductions. Moreover, future announced statutory rate reductions can stimulate investment today to take advantage of CCA deductions at higher current tax rates.

⁷ P. Dungan, J. Mintz, F. Poshmann, and T. Wilson, Mending Provincial Finances: Replacing the Retail Sales Tax With a Made-in-Ontario VAT (Forthcoming 2008)

4. Implications of Bank of Canada Policies for the Price Cap Regime

Intervenors have raised the issue whether the Bank of Canada's policy of targeting price inflation would prevent the GDPIPIFDD from reflecting the effects of tax reductions on Union's average unit costs.

The Bank of Canada is committed to maintaining inflation in Canada within a range of 1% to 3%, with a central target of 2% per year. The central bank primarily targets the 'core' rate of inflation of the CPI, which excludes the effects of changes in indirect taxes as well as volatile food and energy prices. The 'core' inflation rate deviates from the inflation rate of the GDPIPIFDD. Unlike the 'core', the GDPIPIFDD includes the effects of indirect tax changes and food and energy prices. Furthermore the GDPIPIFDD is a broader price index than the CPI, as it includes prices of housing, business fixed investment, and government purchases of goods and services.

Whether the Bank of Canada would act to offset a tax change that affects the GDPIPIFDD depends on:

- a) Whether the tax change also affects the core inflation rate, and
- b) Whether inflation would be above or below the Bank's 2% target.

For tax changes that affect the GDPIPIFDD but not the core inflation rate, such as the

recent GST reduction, the Bank of Canada would not offset the direct effects of the tax reduction.

For tax reductions that do affect the core inflation rate as well as the GDPIPIFDD, such as recent corporate tax reductions, the Bank would not offset their effects if the inflation rate would otherwise be above the 2% target. If the core inflation rate would otherwise be below the 2% target, then the central Bank may offset the effects of the tax reductions on the core inflation rate.⁸ It should be noted that even if the Bank reacts to reductions in GDPIPIFDD inflation below 2%, many factors other than tax impact on the price deflator that the Bank may react to. We would not recommend creating Z factor adjustments for everything that might influence the GDP deflator including regulatory changes, exchange rate effects etc. The purpose of the GDP deflator is to provide a guide as to how much Union's costs can go up in a year – many factors influence the trend, including tax changes and the Bank of Canada's interventions to target inflation. All of these factors are reflected in the GDPIPIFDD.

Even if the Bank of Canada were to intervene to offset the effects of tax reductions on prices, the GDPIPIFDD would nevertheless continue to be the appropriate price measure under Union's price cap formula, without necessitating a Z-factor adjustment. When the central bank introduces an expansionary monetary policy, wages and prices increase as the price index moves back towards the Bank's target. Union's average unit costs would increase in line with the

⁸ If the Bank of Canada views a tax change as having a 'one-off' effect on the price level, it would be unlikely to offset these effects. Where the tax change(s) are expected to have a continuing effect on prices, the Bank would tend to offset any significant movement away from its two percent inflation target.

general increase in wages and prices.

Table 3 illustrates how taxes affect the GDPIPIFDD and Union's average costs, with and without the Bank of Canada responding. The first column summarizes the effects of the tax changes on the GDPIPIFDD and Union's costs over the 2006-2008 period, based on the numbers presented in Table 2. The second column shows the effects of the Bank of Canada's neutralizing the impact of the tax changes on the core inflation rate. The final column shows the net impact of the tax changes and this offsetting monetary policy. What is clear is that the small 0.1% difference between the GDPIPIFDD and Union's average costs is not affected by the offsetting monetary policy. There is no need to adjust Union's price cap formula for the actions of the Bank of Canada.

Table 3: GDPIPIFDD and Union's Costs Changes With and Without a Bank of Canada Response

Effects of Tax Changes: Cumulative Changes 2006-2008

	Without Bank of Canada Response	Effect of Bank of Canada offsetting core inflation impact	Net effect of Taxes and Bank's Policies
Impact on core inflation	-2.2%	+2.2%	0%
GST TAX Reduction	-0.6%	0%	-0.6%
Impact on GDPIPIFDD	-2.8%	+2.2%	-0.6%
Impact on Union's Gas Average costs	-2.9%	+2.2%	-0.7%

Note that in both scenarios Union's average cost reductions are 0.1% larger than the reduction of the GDPIPIFDD.

Whether or not the Bank of Canada offsets the effects of the corporate tax reduction on
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prices, the real economic consequences are the same. Labour productivity would increase as a result of increased capital formation, and real wages would increase in line with the productivity increase. The only differences are that when the price effects of the tax change are not offset, the real wage increases are generated by price reductions, whereas when the central bank neutralizes the price effects of the tax reductions, real wage increases are accompanied by equivalent money wage increases. In either situation, the GDPIPIFDD would appropriately reflect the combined impact of the tax policies and monetary policies on Union's average unit costs.