

**PREFILED EVIDENCE OF**

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Union's Lead/Lag Study has been updated for the 2007 test year. The update was based on 2004 actual results. The approach used to update the study remains unchanged from that approved by the Board in E.B.R.O. 486. Supporting schedules follow this evidence.

This section of evidence will describe the following:

1. Lead/Lag Methodology
2. Adjustments to 2004 Study Results
3. Study Results

**1. LEAD/LAG METHODOLOGY**

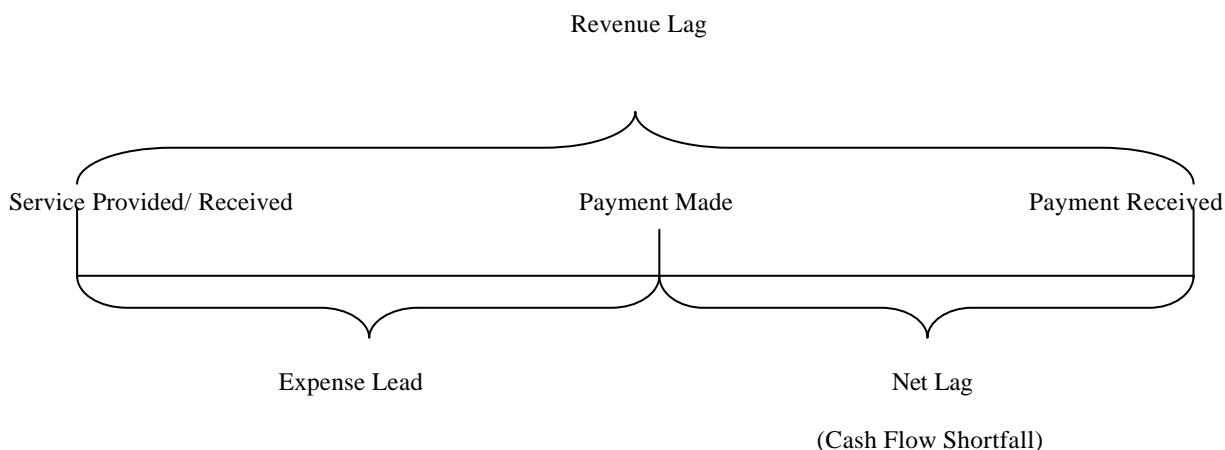
**Background**

The Lead/Lag study is conducted to determine Union's cash working capital needs. Working capital refers to the funds available for carrying on the activities of a business after an allowance is made for bills paid within the year. In simple terms, working capital is the difference between the funds available and funds required.

December, 2005

The timing and dollar amounts of revenues collected from gas sales, storage and transportation business, and other services are different than those of Union's major expenses such as gas purchases, salaries and wages, and employee benefits. The Lead/Lag Study is a method of measuring this difference.

The time between when Union has received a good or service and when payment is made is referred to as the **Expense Lead**. Similarly, the time between when Union has provided a good or service and when it receives payment is the **Revenue Lag**. The difference between the total Expense Leads and the total Revenue Lags is the **Net Lag**. A net lag number greater than zero indicates a cash "shortfall" position, while a net lag number less than zero indicates a cash "surplus" position.



The other key component of the Lead/Lag Study is the GST component. A **GST Lead** is the time between GST collection from customers and when Union is required to remit the same to the

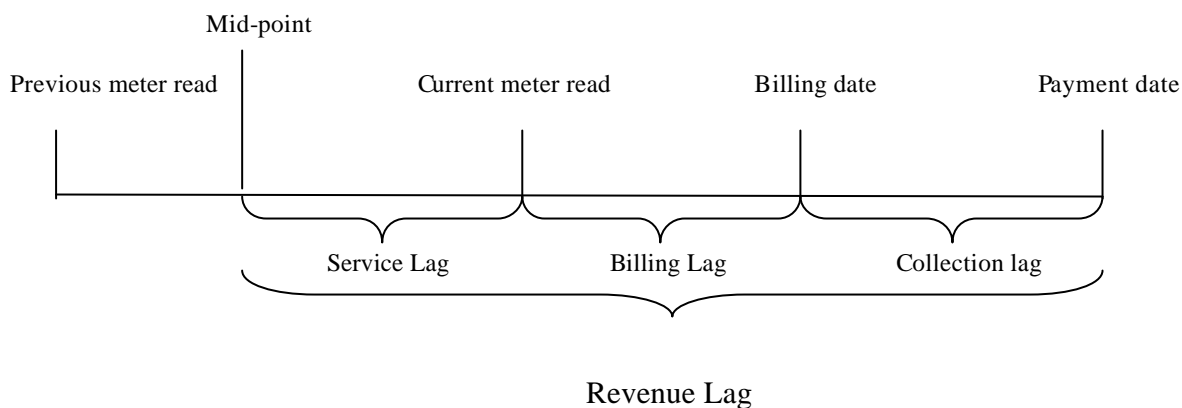
Receiver General. A **GST Lag** is the time between GST payment on Union's expenses and when it is actually recognized/received from the Receiver General. The difference between the GST Leads and the GST Lags is the **Cash Flow Requirement for GST**.

The combination of the above two cash flow components equals Union's **Total Cash Working Capital Need**.

#### Calculation of Revenue Lag

Using actual 2004 information, the number of days between the date the service was provided and the date related revenues were received and available to Union was measured for each major category of Operating Revenues (i.e. gas sales, storage and transportation and other revenue).

The revenue lag is the sum of the service lag, the billing lag and the collection lag. The service lag is the number of days from the date service is rendered (i.e. service date) to the date of the meter read. The billing lag is the number of days between the current meter read and the billing date. The collection lag is the number of days from the billing date to the date the payment is received from the customer.



The service date was assumed to be the mid-point of the billing period. The due dates and dollar amounts were identified from actual payment records. The payment date, or invoice date, whichever is later, is considered relevant for the purpose of this study.

All customers do not necessarily pay on the due date. Therefore, to calculate the collection lag it was important to know the percentage of customers that pay on/before the due date, the customers who pay late and by how many days and the customers who do not pay at all. Over 14 million customer records were analysed to come up with these relative percentages.

Customers that delayed payment for unusually long periods of time, or did not pay their bills, were excluded from the study since this is considered bad debt. Therefore, this long revenue lag is not reflected in the weighted average revenue lag determined from the sample. This is consistent with an assigned bad debt expense lead of zero days.

1 Information on customer class, meter reading date, previous read date, billing date, billed revenue  
2 amount and payment date was obtained from each customer payment transaction. In determining  
3 the overall revenue lag, each payment lag was dollar weighted according to the amount of billed  
4 revenue.

5  
6 Table 1 illustrates the revenue lag estimate that was completed for Rate M2 and 01 customers.

7 The revenue lag for contract customers was estimated based on the actual revenue lag  
8 experienced over the study period. Similarly, the storage and transportation revenue lag was  
9 measured using 2004 payment records for each S&T customer. Other revenue includes delayed  
10 payment charges, account opening charges, ABC-T charges, line locates, NSF cheques, and mid  
11 market contributions. The other revenue lag was calculated based on the payment records  
12 available for 2004.

1

Table 1  
Analysis of Revenue Lag for Rate M2/01  
Year Ending December 31, 2004

Line No.	<u>Month</u>	<u>Lag Days</u> (a)	<u>Total Remittance (\$000's)</u> (b)	<u>Weighted Dollar Days</u> (c) = (a) x (b)
1	Jan	44.3	250,382	11,093,652
2	Feb	41.6	234,738	9,772,595
3	Mar	41.8	170,009	7,099,063
4	Apr	42.2	145,549	6,143,160
5	May	42.3	99,053	4,188,163
6	Jun	42.5	59,056	2,496,982
7	Jul	42.5	46,604	1,978,664
8	Aug	42.6	45,733	1,946,270
9	Sep	42.6	49,155	2,093,099
10	Oct	42.4	59,753	2,535,424
11	Nov	41.9	106,129	4,447,556
12	Dec	42.3	<u>148,364</u>	<u>6,376,993</u>
13	Total	42.5	<u>1,414,524</u>	<u>60,171,622</u>

2

3 Calculation of Cost of Service Expense Lead

4 Expense leads were determined for major components of cost of service, including the following:

5

- 6 • Purchased Gas Cost
- 7 • Salaries and Wages
- 8 • Employee Benefits
- 9 • Other O&M

10

1 The expense lead measures the number of days from receipt of goods or services (i.e. the service  
2 date) until payment is made by the company. Actual 2004 information was used in the calculation  
3 of the expense lead. Payment dates were determined based on actual or scheduled payment dates.  
4 Service dates were determined depending on the characteristics of the cost of service item.

5  
6 For purposes of the Lead/Lag Study, all of the purchased gas costs, salaries and wages, and  
7 employee benefits were reviewed.

8  
9 Other O&M includes all gross O&M expenses other than employee salaries and wages and  
10 employee benefits.

11  
12 For purposes of determining the other O&M expense lead, prepaid insurance amortization and  
13 bad debt expense are assigned expense leads of zero days to exclude their resulting working  
14 capital impact from the study. The average balance of prepaid insurance is included in the  
15 working capital components of rate base and accordingly, should not be included in the cash  
16 working capital requirement.

17  
18 GST Adjustments to Working Capital Requirements

19 A GST lead occurs on revenue collected by Union. The GST lead represents the number of days  
20 from the date the GST is collected from the customer to the date Union is required to remit the  
21 same to the Receiver General.

1 In contrast, a GST lag occurs on Union's expenses. Union pays GST on Canadian expenses  
2 (O&M and gas costs) at the same time the supplier's invoice is paid. With respect to US expenses  
3 (gas purchases), Union remits GST directly to the Receiver General in the same month the  
4 supplier invoice is paid. The GST remittance to the supplier or directly to the Receiver General is  
5 claimed as an input tax credit on Union's monthly GST return. For Canadian expenses, the GST  
6 input tax credit is claimed in the last day of the month following the invoice payment (when  
7 Union is in a net GST payable position). When Union is in a net GST refund position, the GST  
8 refund is received 21 days after the end of the month following the billing month. With respect to  
9 US expenses, the GST input tax credit is claimed in the last day of the month in which the GST is  
10 remitted to the Receiver General (when Union is in a net GST payable position). When Union is  
11 in a net GST refund position, the GST refund is assumed to be received 21 days after the end of  
12 the month following the month of remittance.

13  
14 In summary, the GST lag is the time between the GST payment date (to supplier or directly to  
15 Receiver General) and the date when the Federal Government either refunds the GST to Union  
16 (in the months for which Union is in a net refund position), or when Union receives an input  
17 credit for the GST paid on taxable purchases upon filing the month end GST return (in the  
18 months for which Union is in a net payment position).



1 **2. ADJUSTMENTS TO 2004 STUDY RESULTS**

2 Prior to finalizing the working capital needs for 2007 based on 2004 findings, Union conducted a  
3 review of current cash flow operations. The conclusion was that two significant changes had  
4 taken place since 2004 in Union's cash collection or payment systems that would have a material  
5 impact on the study's findings.

6  
7 The first such adjustment is related to a pre-payment arrangement Union has in place with one  
8 large volume customer. Due to credit worthiness concerns, Union entered into an agreement  
9 where the customer pre-pays for service. The arrangement is scheduled to terminate in March  
10 2006. The termination of the pre-payment arrangement increases revenue lag days upon expiry.

11  
12 The second adjustment is related to the timing of the GST input tax credit claim for U.S. gas  
13 purchases. Prior to August 2005, Union claimed the GST input tax credit related to U.S. gas  
14 purchases in the same month as the remittance of the GST to the Receiver General. The Receiver  
15 General has since directed Union to delay the input tax credit claim until the following month  
16 (similar to Canadian gas purchases). This update resulted in a decrease to the GST gas purchase  
17 expense lead for 2007.

**3. STUDY RESULTS**

Table 2 provides a summary of the overall study results:

Table 2

<u>Line</u>	<u>Particulars (Days)</u>	<u>2007 Proposed (a)</u>	<u>E.B.R.O 486 Approved (b)</u>
1	Operating Revenue Lag	41.2	35.4
2	Cost of Purchased Gas Expense Lead	39.6	36.3
3	O&M Expense Lead	16.0	20.5
4	Net Gas Purchase GST Lag	14.1	18.9
5	Net O&M GST Lag	27.2	(6.1)

Union has not undertaken a comprehensive update of the study since E.B.R.O. 486 (which was based on a Fiscal 1993 study period). Understandably, a number of significant changes affecting Union's cash working capital have occurred. Table 2 provides a comparison of the proposed 2007 lead/lag days to the 2004 Board approved level (based on the E.B.R.O. 486 Board approved study). The updated lead/lag factors result in an increase to the 2007 rate base of \$17.6 million with a corresponding \$1.4 million increase in the 2007 revenue deficiency. The factors driving the significant changes in the number of lead/lag days from 2004 to the 2007 results are explained below.

1 i) Operating Revenue Lag

2 Operating revenue lag days have increased 5.8 days compared to the days approved by the Board  
3 in the RP-2003-0063 proceeding. There are two primary reasons why Union's customers are, on  
4 average, paying later as compared to the results of the previous study. Firstly, many of Union's  
5 customers have taken advantage of new payment options such as pre-authorized payment and on-  
6 line banking. These payment options are set up such that the customer's payments are withdrawn  
7 from the customers account on the due date. Withdrawals on the due date results in an overall  
8 delay in collection from customers. Secondly, an increasing number of customers pay their bill  
9 after the due date. This change in customer's payment behaviour is likely due to the significant  
10 increase in monthly bill amounts since 1993, as well as the reduction in Union's late payment  
11 charge (less incentive to pay on time).

12  
13 ii) Cost of Purchased Gas Expense Lead

14 Cost of purchased gas expense lead days have increased 3.3 days compared to the days approved  
15 by the Board in the RP-2003-0063 proceeding. The increase is due to a change in Union's gas  
16 purchase portfolio. The most significant change in the gas purchase portfolio is related to the  
17 elimination of the buy/sell service by 2001. Union was required to purchase gas from customers  
18 under the buy/sell service at an earlier date relative to purchases from third party vendors.  
19 Therefore, eliminating the buy/sell service increased the overall lead days required for gas  
20 purchases.

1 iii) O&M Expense Lead

2 O&M expense lead days have decreased 4.5 days compared to the days approved by the Board in  
3 the RP-2003-0063 proceeding. In an effort to improve business cash flow, many of Union's  
4 suppliers have accelerated the preparation and mailing of invoices and have also accelerated  
5 invoice payment terms. The preparation and distribution of invoices, in many cases, immediately  
6 follows the provision of the service or delivery of goods. In addition, payment terms that are "due  
7 upon receipt" rather than specifying a particular due date, are now more prevalent. Both the  
8 acceleration of invoice preparation and distribution as well as a change in payment terms have  
9 reduced the O&M expense lead days.

10  
11 iv) Net Gas Purchase GST Lag

12 Net gas purchase GST lag days have decreased 4.8 days compared to the GST lag days approved  
13 by the Board in the RP-2003-0063 proceeding. The decrease is primarily due to a reduction in  
14 number of days between the invoice payment (including GST) and the date Union claims the  
15 input tax credit. The decrease in the gas purchase GST expense lead is related to the increase in  
16 the gas purchase expense lead. In summary, Union has longer to pay for gas purchases (including  
17 GST). Therefore, the number of days between the GST payment and GST input tax credit claim  
18 is reduced.

1 v) Net O&M GST Lag

2 Net O&M GST lag days have increased 33.3 days compared to the GST lag days approved by the  
3 Board in the EB-2003-0063 proceeding. The increase is primarily due to an increase in number of  
4 days between the invoice payment (including GST) and the input tax credit claimed on the  
5 monthly GST return. As described above, Union's suppliers are accelerating both the preparation  
6 and mailing of invoices and invoice payment terms. The combination of these two factors  
7 accelerates the invoice payment (including GST) and therefore increases the GST expense lead  
8 time between the GST payment to suppliers and the date Union claims the GST input tax credit.

UNION GAS LIMITED  
Summary of Lead Lag Results  
Study Year - Calendar 2004

<u>Line No.</u>	<u>Particulars (Days)</u>	<u>Lead/Lag</u>
	<u>Operating Revenue Lag:</u>	
1	Gas Sales Revenue	41.5
2	Transportation and Storage Revenue	39.0
3	Other Revenue	<u>40.5</u>
4	Overall Operating Revenue Lag (1)	<u>41.2</u>
	<u>Cost of Service Expense Leads:</u>	
5	Cost of Purchased Gas (2)	39.6
	O&M:	
6	Salaries and wages	14.2
7	Employee Benefits	14.5
8	Other O&M	<u>18.2</u>
9	Overall O&M Expense Lead (3)	<u>16.0</u>
10	Gas Purchase Cost Lag (Line 4-Line 5)	<u><u>1.6</u></u>
11	O&M Cost Lag (Line 4-Line 9)	<u><u>25.2</u></u>

Notes:

- (1) Exhibit B1, Tab 8, Schedule 2
- (2) Exhibit B1, Tab 8, Schedule 6
- (3) Exhibit B1, Tab 8, Schedule 7

UNION GAS LIMITED  
Operating Revenue Lag  
Study Year - Calendar 2004

<u>Line No</u>	<u>Particulars (\$000's)</u>	<u>Amount</u> (a)	<u>Revenue Lag (Days)</u> (b)	<u>Dollar Days</u> (c) = (a) x (b)
1	Gas Sales (1)	\$ 1,580,493	41.5	\$ 65,640,824
2	Transportation & Storage (2)	188,761	39.0	7,360,509
3	Other Revenue (3)	<u>30,882</u>	<u>40.5</u>	<u>1,250,402</u>
4	Total	<u>\$ 1,800,136</u>	<u>41.2</u>	<u>\$ 74,251,736</u>

Notes:

- (1) Exhibit B1, Tab 8, Schedule 3
- (2) Exhibit B1, Tab 8, Schedule 4
- (3) Exhibit B1, Tab 8, Schedule 5

UNION GAS LIMITED  
Gas Sales Collection Revenue Lag  
Study Year - Calendar 2004

Line No	Particulars (\$000's)	Total Remittance (a)	Revenue Lag (Days) (b)	Dollar Days (c) = (a) x (b)
	<u>General Service</u>			
1	Rate M2 (Contrax)	7,459	32.8	244,854
2	Rate 01/M2 (Banner)	1,414,524	42.5	60,171,622
3	Rate 10	15,196	32.8	498,710
4	Rate 16	6,188	31.0	191,838
5	Rate T-2	1,488	33.2	49,466
6	Total General Service	1,444,855	42.3	61,156,490
	<u>Wholesale Utility</u>			
7	Rate M9	742	32.8	24,363
8	Rate M10	91	33.0	3,005
9	Rate 77	33	31.9	1,050
10	Total Wholesale	866	32.8	28,418
	<u>Contract</u>			
11	Rate M4	5,502	33.8	186,038
12	Rate M7	16,635	32.8	546,263
13	Rate 20	42,321	32.0	1,352,234
14	Rate 30	621	33.3	20,642
15	Rate 100	5,817	33.0	191,977
16	Rate T-1	44,425	34.1	1,515,114
17	Rate T-3	4,901	34.0	166,497
18	Rate T-4	1,737	31.5	54,723
19	Rate T-5	12,449	33.0	410,347
20	Rate M5	362	33.4	12,081
21	Total Contract	134,771	33.1	4,455,916
22	Total	1,580,493	41.5	65,640,824



UNION GAS LIMITED  
Transportation and Storage Revenue Lag  
Study Year - Calendar 2004

Line No.	Particulars (\$000's)	Total Remittance (a)	Lag Days (b)	Weighted Dollar Days (c) = (a) x (b)
1	Customer 1	64,462	38.5	2,481,800
2	Customer 2	20,222	38.5	778,532
3	Customer 3	45,422	38.5	1,748,739
4	Customer 4	9,064	40.5	367,107
5	Customer 5	3,094	39.0	120,679
6	Customer 6	2,360	41.6	98,171
7	Other (less than \$2 million)	<u>44,137</u>	<u>40.0</u>	<u>1,765,481</u>
8	Total	<u><u>188,761</u></u>	<u><u>39.0</u></u>	<u><u>7,360,509</u></u>

UNION GAS LIMITED  
Other Revenue Collection Revenue Lag  
Study Year - Calendar 2004

<u>Line No.</u>	<u>Particulars (\$000's)</u>	<u>Total Remittance (a)</u>	<u>Lag Days (b)</u>	<u>Weighted Dollar Days (c) = (a) x (b)</u>
1	Delayed Payment Charges	9,535	41.5	396,006
2	Account Opening Charges	7,552	41.5	313,649
3	NSF Cheque	292	41.5	12,127
4	ABC-T charges	9,338	39.6	370,130
5	Mid Market Contribution	1,711	33.1	56,571
6	Other	<u>2,454</u>	<u>41.5</u>	<u>101,919</u>
7	Total other revenue	<u><u>30,882</u></u>	<u><u>40.5</u></u>	<u><u>1,250,402</u></u>

UNION GAS LIMITED  
Gas Purchase Expense Lead  
Study Year - Calendar 2004

Line No	Particulars (\$000's)	Amount (a)	Revenue Lag (Days) (b)	Dollar Days (c) = (a) x (b)
1	TCPL Transport	88,323	35.2	3,108,956
2	Other Transport	72,609	39.2	2,846,281
3	Affiliate Transport	1,748	40.2	70,254
4	Commodity	856,144	40.2	34,416,985
5	Risk Management	(13,665)	40.2	(549,313)
6	Local Producers	11,756	35.2	413,811
7	Storage	815	40.2	32,771
8	Total	<u>1,017,730</u>	<u>39.6</u>	<u>40,339,744</u>

UNION GAS LIMITED  
O&M Expense Lead Summary  
Study Year - Calendar 2004

<u>Line No</u>	<u>Particulars (\$000's)</u>	<u>Amount</u> (a)	<u>Revenue Lag (Days)</u> (b)	<u>Dollar Days</u> (c) = (a) x (b)
1	Salaries & Wages (1)	149,661	14.2	2,123,692
2	Employee Benefits (2)	42,736	14.5	619,593
3	Other O&M (3)	<u>155,569</u>	<u>18.2</u>	<u>2,823,840</u>
4	Total	<u><u>347,967</u></u>	<u><u>16.0</u></u>	<u><u>5,567,125</u></u>

Notes:

- (1) Exhibit B1, Tab 8, Schedule 8
- (2) Exhibit B1, Tab 8, Schedule 9
- (3) Exhibit B1, Tab 8, Schedule 10

UNION GAS LIMITED  
Salary and Wages Lead  
Study Year - Calendar 2004

Line No	Particulars (\$000's)	Amount (a)	Revenue Lag (Days) (b)	Dollar Days (c) = (a) x (b)
1	Weekly Employees	37,652	16.7	627,583
2	Management	69,622	9.4	654,506
3	Technical/ Salary	<u>42,386</u>	<u>19.9</u>	<u>841,603</u>
4	Total	<u><u>149,661</u></u>	<u><u>14.2</u></u>	<u><u>2,123,692</u></u>

UNION GAS LIMITED  
Employee Benefit Lead  
Study Year - Calendar 2004

Line No	Particulars (\$000's)	Amount (a)	Revenue Lag (Days) (b)	Dollar Days (c) = (a) x (b)
1	Employee Pension Plan	19,948	12.9	257,937
2	Employee Savings Plan	4,918	13.0	63,787
3	Employee Health Tax	3,227	30.1	96,987
4	Workmans Compensation	408	43.5	17,733
5	Employee Life Insurance AD&D	15	12.9	191
6	Employee Health Benefits	175	12.7	2,223
7	Long Term Disability	50	12.6	626
8	Weekly Indemnity	10	13.0	136
9	Employee Dental Insurance	64	12.7	815
10	Employee Flex Benefits	6,502	12.8	83,294
11	Employee Future Benefits	<u>7,420</u>	<u>12.9</u>	<u>95,863</u>
12	Total	<u><u>42,736</u></u>	<u><u>14.5</u></u>	<u><u>619,593</u></u>

UNION GAS LIMITED  
Other O&M Lead  
Study Year - Calendar 2004

<u>Line No</u>	<u>Particulars (\$000's)</u>	<u>Amount</u> (a)	<u>Revenue Lag</u> <u>(Days)</u> (b)	<u>Dollar Days</u> (c) = (a) x (b)
1	Prepaid Insurance	2,077	-	-
2	Bad Debt	12,300	-	-
3	Other	<u>141,192</u>	<u>20.0</u>	<u>2,823,840</u>
4	Total	<u><u>155,569</u></u>	<u><u>18.2</u></u>	<u><u>2,823,840</u></u>

UNION GAS LIMITED  
GST Lag  
Study Year - Calendar 2004

<u>Line No.</u>	<u>Particulars (Days)</u>	<u>Lead/Lag</u>
	<u>Gas Purchase Working Capital</u>	
1	GST Revenue Lag	(24.1)
2	GST Gas Purchase Expense Lead	<u>38.1</u>
3	Gas Purchase GST Lag	<u><u>14.1</u></u>
	<u>O&amp;M Working Capital</u>	
4	GST Revenue Lag	(24.1)
5	GST O&M Expense Lead	<u>51.3</u>
6	O&M GST Lag	<u><u>27.2</u></u>