



Appendix L

EPCOR WATER SERVICES

Lead Lag Studies

May 31, 2024

APPENDIX N

Lead Lag Studies

Contents

1.0	Introduction	2
2.0	Executive Summary.....	3
3.0	Revenue	6
3.1	Average Consumption Period Lag.....	6
3.2	Average Tariff Bill File Publish Lag and Invoice Lag.....	7
3.3	Customer Payment Lags.....	7
4.0	Expenses.....	8
4.1	Labour, Salary and Benefits.....	8
4.2	Incentive Payments	9
4.3	Parent Charges	9
4.4	Property Taxes.....	9
4.5	Franchise Fees	9
4.6	General Operating Expenses	9
5.0	Capital Expenses	12
5.1	Retained Earnings and Depreciation.....	13
5.2	Interest on Long Term Debt	13
5.3	Common Dividends	13
6.0	GST	13
7.0	Study Results.....	15

1.0 INTRODUCTION

1. This lead-lag study has been undertaken to support the necessary working capital allowance for EWS' Wastewater Collection and Wastewater Treatment operations for the 2025 to 2027 PBR filing with the City of Edmonton. EWS has prepared the lead-lag analysis for Wastewater Collection and Treatment separately. However, given the commonalities of the lead-lags in both operations, EWS will present the results together in this study.

2. A lead-lag study recognizes the timing differences between EWS' provision of a service and payment by customers, (revenue lag), and the timing differences between when an expense is incurred and subsequently paid by EWS, (expense lag). The net lag for an expense category is the difference between the associated revenue lag and the expense lag.

3. Lags are derived from analysis of each revenue and expense streams and are broken down into their individual components in order to more precisely determine the total lag. EWS' revenues are derived from fixed and metered consumption charges for residential, multi-residential, commercial customers, and other sources. Since revenue cycles and the lead periods for each are not significantly different, they are considered together. Operating expenses are broken down into labour, salary and benefits, incentives, general expenses, property taxes, parent charges and franchise fees. An overall operating expense lag is then calculated on a weighted average basis and netted against the appropriate revenues. Net lags are also calculated for GST and individual capital expenses including debt interest, retained earnings, dividends, and depreciation.

4. The working capital ratio ($\text{net lag}/365$) is then applied against the corresponding expense amount in order to determine the portion of necessary working capital related to each component.

5. Lags are made up of two general components: consumption and payment.

- Consumption lag is the lag between when a service is provided or good consumed and the end of a consumption period. For example, if a service is billed on a weekly basis, the consumption period is a week and the consumption lag would vary between zero and seven days, depending on when the service was provided. As it is generally assumed that consumption occurs evenly over the consumption period, the mid-point of a consumption period is used to determine the consumption lag. For example, in a weekly consumption period, the consumption lag would be 3.5 days ($7/2$) or in a

monthly consumption period with 30 days the consumption lag would be 15 days (30/2).

- Payment lag is the time between the end of the consumption period and the receipt of cash. The payment lag sometimes includes a processing lag, which is the time required to receive, process, and issue the order to proceed, however this is not always considered separately from the payment lag. The payment lag is also measured in days and is the length between the last day of the consumption period and payment issue.

6. The lead-lag methodology used in this report is consistent with studies prepared in prior EWS PBR applications. See further discussion in the Study Results section.

2.0 STUDY SUMMARY

7. The overall impact of the lead-lag study using 2020, 2021 and 2022 actual financial results are shown in Table 2.0-1 and Table 2.0-2 for wastewater treatment and wastewater collection, respectively.

Table 2.0-1
Summary of Necessary Working Capital – Wastewater Treatment
(\$ millions)

	A			B			C			D			E			F			G			H			I		
	2020									2021									2022								
	Working			Working			Working			Working			Working			Working			Working								
	Actual	Ratio	Cap	Actual	Ratio	Cap	Actual	Ratio	Cap	Actual	Ratio	Cap	Actual	Ratio	Cap	Actual	Ratio	Cap	Actual	Ratio	Cap	Actual	Ratio	Cap			
1 Operating Expense	54.0	2.9%	1.6	56.7	2.4%	1.4	70.6	2.2%	1.6																		
2 Depreciation	19.7	12.6%	2.5	20.8	12.6%	2.6	23.3	12.6%	2.9																		
3 Retained Earnings	20.1	12.6%	2.5	29.0	12.6%	3.7	26.9	12.6%	3.4																		
4 Dividends	10.0	-50.1%	(5.0)	10.0	-50.0%	(5.0)	35.0	-50.0%	(17.5)																		
5 Interest Expense	11.6	-3.4%	(0.4)	11.6	-3.2%	(0.4)	11.0	-2.3%	(0.3)																		
6 GST Collection	0.0	0.1%	0.0	0.0	0.1%	0.0	0.0	0.1%	0.0																		
7 GST Input Tax Credit	2.4	5.9%	0.1	2.7	5.9%	0.2	2.4	5.9%	0.1																		
8 Necessary Working Capital			1.3			2.4			(9.7)																		

Table 2.0-2
Summary of Necessary Working Capital – Wastewater Collection
(\$ millions)

	A	B	C	D	E	F	G	H	I
	2020			2021			2022		
	Working			Working			Working		
	Actual	Ratio	Cap	Actual	Ratio	Cap	Actual	Ratio	Cap
1 Operating Expense	124.8	3.2%	4.0	132.9	3.6%	4.7	127.7	3.7%	4.8
2 Depreciation	39.7	12.6%	5.0	38.0	12.6%	4.8	39.7	12.6%	5.0
3 Retained Earnings	30.3	12.6%	3.8	34.3	12.6%	4.3	48.1	12.6%	6.1
4 Dividends	-	-50.1%	-	-	-50.0%	-	-	-50.0%	-
5 Interest Expense	22.1	-0.6%	(0.1)	24.2	-1.4%	(0.3)	35.1	3.2%	1.1
6 GST Collection	-	0.1%	-	-	0.1%	-	-	0.1%	-
7 GST Input Tax Credit	9.6	5.9%	0.6	10.1	5.9%	0.6	9.1	5.9%	0.5
8 Necessary Working Capital			13.2			14.1			17.6

8. The ratios used to determine EWS' necessary working capital requirements reflect the revenue and expense lags as shown in Tables 2.0-3 to 2.0-5. As confirmed by the results, lead/lags for both wastewater treatment and wastewater collection are very similar.

Table 2.0-3
Summary of Lags and Working Capital Ratio – 2020
(days)

	A	B	C	D	E	F	G	H
	Waste Water Treatment				Waste Water Collection			
	Revenue	Expense	Net	Ratio	Revenue	Expense	Net	Ratio
1 Revenue	46.0	35.4	10.6	2.9%	46.0	34.4	11.6	3.2%
2 GST Collection	46.0	45.8	0.3	0.1%	46.0	45.8	0.3	0.1%
3 GST Input Tax Credit	66.8	45.2	21.6	5.9%	66.8	45.2	21.6	5.9%
Capital Expenses	Revenue	Expense	Net	Ratio	Revenue	Expense	Net	Ratio
4 Debt interest	46.0	58.3	(12.3)	(3.4%)	46.0	48.0	(2.0)	(0.6%)
5 Retained Earnings	46.0	-	46.0	12.6%	46.0	-	46.0	12.6%
6 Dividends	-	183.0	(183.0)	(50.1%)	-	183.0	(183.0)	(50.1%)
7 Depreciation	46.0	-	46.0	12.6%	46.0	-	46.0	12.6%

Table 2.0-4
Summary of Lags and Working Capital Ratio – 2021
(days)

	A	B	C	D	E	F	G	H
	Waste Water Treatment				Waste Water Collection			
	Revenue	Expense	Net	Ratio	Revenue	Expense	Net	Ratio
1 Revenue	46.0	37.2	8.8	2.4%	46.0	33.0	13.0	3.6%
2 GST Collection	46.0	45.6	0.4	0.1%	46.0	45.6	0.4	0.1%
3 GST Input Tax Credit	66.6	45.1	21.5	5.9%	66.6	45.1	21.5	5.9%
Capital Expenses	Revenue	Expense	Net	Ratio	Revenue	Expense	Net	Ratio
4 Debt interest	46.0	57.7	(11.7)	(3.2%)	46.0	51.1	(5.1)	(1.4%)
5 Retained Earnings	46.0	-	46.0	12.6%	46.0	-	46.0	12.6%
6 Dividends	-	182.5	(182.5)	(50.0%)	-	182.5	(182.5)	(50.0%)
7 Depreciation	46.0	-	46.0	12.6%	46.0	-	46.0	12.6%

Table 2.0-5
Summary of Lags and Working Capital Ratio – 2022
(days)

	A	B	C	D	E	F	G	H
	Waste Water Treatment				Waste Water Collection			
	Revenue	Expense	Net	Ratio	Revenue	Expense	Net	Ratio
1 Revenue	46.1	38.0	8.0	2.2%	46.1	32.4	13.7	3.7%
2 GST Collection	46.1	45.6	0.4	0.1%	46.1	45.6	0.4	0.1%
3 GST Input Tax Credit	66.6	45.1	21.5	5.9%	66.6	45.1	21.5	5.9%
Capital Expenses	Revenue	Expense	Net	Ratio	Revenue	Expense	Net	Ratio
4 Debt interest	46.1	54.6	(8.5)	(2.3%)	46.1	34.2	11.8	3.2%
5 Retained Earnings	46.1	-	46.1	12.6%	46.1	-	46.1	12.6%
6 Dividends	-	182.5	(182.5)	(50.0%)	-	182.5	(182.5)	(50.0%)
7 Depreciation	46.1	-	46.1	12.6%	46.1	-	46.1	12.6%

9. Generally, working capital lags for both business units between 2020 and 2022 have remained relatively consistent compared to the previous study. Changes in expense lags are primarily attributable to changes in the levels of incentives, which are paid annually in arrears and have longer lags. As well, debt issuances in the latter part of each year, and timing of interest payments are reasons for changes in the interest expense lag. See Table 2.0-6 below for a comparison of the current and previous lag studies.

**Table 2.0-6
Comparison of Working Capital Lead/(Lag) Days**

	WWT				WWC			
	A	B	C	D	E	F	G	H
	Current Study Ratio	Current Study Lag Day	Previous Study Ratio	Previous Study Lead/Lag Day	Current Study Ratio	Current Study Lag Day	Previous Study Ratio	Previous Study Lead/Lag Day
1 Operating Expense	2.5%	9.1	4.9%	17.9	3.5%	12.8	4.0%	14.4
2 Depreciation	13%	46.0	13.9%	50.7	12.6%	46.0	13.5%	49.1
3 Retained Earnings	13%	46.0	13.9%	50.7	12.6%	46.0	13.5%	49.1
4 Dividends	-50%	(182.7)	-50.0%	(182.6)	-50.0%	(182.7)	-50.0%	(182.5)
5 Interest Expense	-3%	(10.8)	-2.5%	(9.0)	0.4%	1.6	-5.6%	(20.4)
6 GST collection	0%	0.4	1.4%	5.1	0.1%	0.4	1.0%	3.5
7 GST Input Tax	6%							
7 Credit		21.5	5.8%	21.2	5.9%	21.5	5.8%	21.2

3.0 REVENUE

10. The revenue lag is the measure of time from consumption or provision of a service by EWS to the receipt of payment from the customer. All of EWS' revenue streams, including: metered, fixed, overstrength surcharges, stormwater and miscellaneous revenues, are subject to similar billing and payment cycles. Therefore, since these revenues are all billed in the same manner and are based on the same payment and consumption schedules, the lag period is similar for each revenue function and will not be considered separately for the purposes of this report. Similarly, wastewater treatment and wastewater collection are billed at the same time and follow the same revenue cycle. As such, the revenue lead-lags for wastewater treatment and wastewater collection are the same.

3.1 Average Consumption Period Lag

11. In order to determine the average lag for each consumption period, an average consumption period between meter readings must be determined. Each site is billed once per month, or 12 times per year. Given 365 days in 1 year, the average consumption period billed is calculated to be 30.42 days (365 divided by 12 = 30.42). EWS has used the mid-point of the average consumption period billed as the consumption period lag (30.4 days divided by 2 = 15.2 days).

3.2 Average Tariff Bill File Publish Lag and Invoice Lag

12. EWS publishes each billing cycle exactly 6 business days after the scheduled meter reading date. This is in accordance with performance requirements as specified in Section 2.13 of the Alberta Tariff Billing Code Rules¹. As such, the actual calendar lag is 7 days. Billing occurs the following business day after the Tariff Bill File (TBF) is published and invoicing occurs the following business days after billing. Since meter reading operations and billing cycles are performed on a business day schedule, the actual calendar day lag is 9 days for 3 out of the 5 cycles billed in a week (Monday – Wednesday) and 11 days for the tariff files published on Thursdays and Fridays, which factors in the extra weekend. These lags are summarized in Table 3.2-1.

Table 3.2-1
Tariff Bill File Publish Lag and Invoice Lag
(days)

A	B	C	D	E	F	G	H	
Bill Cycle	Meter Reading	Tariff Bill File Publish	Billing	Invoicing	TBF Lag	Invoice Lag	Total Lag	
1	1	Friday	Following Friday	Monday	Tuesday	7	4	11
2	2	Monday	Following Monday	Tuesday	Wednesday	7	2	9
3	3	Tuesday	Following Tuesday	Wednesday	Thursday	7	2	9
4	4	Wednesday	Following Wednesday	Thursday	Friday	7	2	9
5	5	Thursday	Following Thursday	Friday	Monday	7	4	11
6				Average	7	2.8	9.8	

3.3 Customer Payment Lags

13. Payment for invoices is due from customers 21 days after the invoice date. The overall revenue lags for EWS revenues are summarized in Table 3.3-1.

¹ https://media.www.auc.ab.ca/prd-wp-uploads/regulatory_documents/Consultations/Rule004.pdf

**Table 3.3-1
Revenue Lag Summary
(days)**

	A	B	C
	2020	2021	2022
1 Consumption period mid-point	15.25	15.21	15.21
2 TBF Publish lag	7.00	7.00	7.00
3 Invoicing lag	2.80	2.80	2.80
4 Customer payment	21.00	21.00	21.00
5 Total	46.05	46.01	46.01

14. As most expense lags are netted against these revenue lags to determine the corresponding working capital ratios and requirements, revenue lags play a significant role in the determination of EWS' overall working capital requirement.

4.0 EXPENSES

15. EWS examined operating expenses by breaking them down into the categories of labour, salary and benefits, incentive, property taxes, franchise fees, parent charges (inter-company allocations) and general operating expenses. The total operating expense lag is calculated by taking the weighted average of these components on a yearly basis.

4.1 Labour, Salary and Benefits

16. Labour expense is comprised of salary and benefits, including remittances to CRA, Sun Life and other employee benefits and withholding categories. The total labour and benefits lag is calculated using the weighted average of all expenses types (incentive is calculated separately). Contractor fees are included in general operating expense as they are paid through the general accounts payable process.

17. The individual labour and benefits lag for EWS was essentially unchanged between 2020 and 2022, which is as expected. The overall lag remained relatively flat from the prior lead lag studies.

18. Components of the labour lag other than salaries, overtime and wages are based on lag times and weightings calculated by the Payroll department of EWS' parent corporation EPCOR Utilities Inc. (EUI) for the EPCOR group of companies as a whole. These weighting reflect the fact that these payments are processed centrally for all EPCOR subsidiaries, so the lag times will not differ between the various EPCOR subsidiaries.

4.2 Incentive Payments

19. Employee incentives are categorized separately from other operating costs as they have a longer payment lag of approximately 290 days compared to 45 days for other operating costs and only 16 to 17 days for other labour costs. Employee incentives are paid annually in the second pay period of April for the previous fiscal year, resulting in a consumption lag of 182 days and a payment lag of 108 days in 2020, 106 days in 2021, and 104 days in 2022. Total lags for incentives were 290 days in 2020, 288 days in 2021 and 286 days in 2022.

4.3 Parent Charges

20. EPCOR Corporate or "Parent" EUI charges are categorized separately from other operating costs such as material costs and contractor costs as they have a shorter payment lag. Parent charges are allocated from corporate on a monthly basis. Therefore, the lag is the average monthly consumption period of approximately 15 days compared to around 45 days for other operating costs.

4.4 Property Taxes

21. Property taxes are due June 30 for the current fiscal year, halfway through the consumption period. Accordingly, the property tax lead is 1 day for 2020 and 1.5 days for 2021 and 2022.

4.5 Franchise Fees

22. EWS submits franchise fees to the City on a monthly basis. Franchise fees for the month are paid at the end of the same month. It is therefore assumed that the lag period is the average monthly consumption periods of approximately 15 days.

4.6 General Operating Expenses

23. A majority of EWS' general operating expenses are paid within 30 days of receiving the invoice; therefore, assuming expenses are incurred evenly over a month, the average consumption period is approximately 15 days. Assuming all expenses incurred during a given month are paid at the end of the next month, the total lag for general operating expenses is 45.2 days in 2020, and 45.1 days in each of 2021 and 2022.

24. Net lags for revenues and expenses for 2020 to 2022 are summarized in Tables 4.6-1 to 4.6-3. for wastewater treatment and wastewater collection.

Table 4.6-1
Net Lag (Lead) for Revenues and Expenses – 2020
(\$ thousands)

	Wastewater Treatment				Wastewater Collection			
	A Amount	B Percentage	C Lag Days	D Weighted Days	E Amount	F Percentage	G Lag Days	H Weighted Days
1 REVENUE LAG	105,412	100%		47.4	214,348	100%		47.4
EXPENDITURES								
2 Labour, salaries & benefits	17,006	31.5%	16.0	5.0	54,022	43.3%	15.96	6.9
3 Incentive	1,427	2.6%	290.0	7.7	4,443	3.6%	290.0	10.3
4 Other operating expenses	23,177	42.9%	45.2	19.4	38,301	30.7%	45.2	13.9
5 Parent charges	4,123	7.6%	15.3	1.2	17,364	13.9%	15.3	2.1
6 Property tax	593	1.1%	(1.0)	(0.0)	918	0.7%	(1.0)	(0.0)
7 Franchise fees	7,678	14.2%	15.3	2.2	9,715	7.8%	15.3	1.2
8 Subtotal	54,002	100%			124,763	100%		
9 NET EXPENSE LAG				35.4				34.4
10 Net Lag (Lead) For Receipts & Payments 2020				10.6				11.6

Table 4.6-2
Net Lag (Lead) for Revenues and Expenses – 2021
(\$ thousands)

	Wastewater Treatment				Wastewater Collection			
	Amount	Percentage	Lag Days	Weighted Days	Amount	Percentage	Lag Days	Weighted Days
1 REVENUE LAG	117,031	100%		47.4	231,490	100%		47.4
EXPENDITURES								
2 Labour, salaries & benefits	16,082	28.4%	16.6	4.7	54,116	40.7%	16.6	6.7
3 Incentive	1,835	3.2%	288.0	9.3	3,756	2.8%	288.0	8.1
4 Other operating expenses	24,548	43.3%	45.1	19.5	43,262	32.5%	45.1	14.7
5 Parent charges	4,946	8.7%	15.0	1.3	20,258	15.2%	15.0	2.3
6 Property tax	642	1.1%	(1.5)	(0.0)	1,351	1.0%	(1.5)	(0.0)
7 Franchise fees	8,630	15.2%	15.2	2.3	10,191	7.7%	15.2	1.2
8 Subtotal	56,682	100%			132,935	100%		
9 NET EXPENSE LAG				37.2				33.0
10 Net Lag (Lead) For Receipts & Payments 2021				8.8				13.0

Table 4.6-3
Net Lag (Lead) for Revenues and Expenses – 2022
(\$ thousands)

	Wastewater Treatment				Wastewater Collection			
	Amount	Percentage	Lag Days	Weighted Days	Amount	Percentage	Lag Days	Weighted Days
1 REVENUE LAG	131,369	100%		47.5	250,029	100%		47.5
EXPENDITURES								
2 Labour, salaries & benefits	17,790	25.2%	16.4	4.1	52,698	41.3%	16.4	6.8
3 Incentive	2,043	2.9%	286.0	8.3	3,528	2.8%	286.0	7.9
4 Other operating expenses	35,043	49.6%	45.1	22.4	40,012	31.3%	45.1	14.1
5 Parent charges	5,182	7.3%	15.2	1.1	19,013	14.9%	15.2	2.3
6 Property tax	678	1.0%	(1.5)	(0.0)	1,402	1.1%	(1.5)	(0.0)
7 Franchise fees	9,897	14.0%	15.2	2.1	11,064	8.7%	15.2	1.3
8 Subtotal	70,633	100%			127,718	100%		
9 NET EXPENSE LAG				38.0				34.2
10 Net Lag (Lead) For Receipts & Payments 2022				8.0				13.7

25. Overall for Wastewater Treatment, the net lags for receipts and payments are 10.6 days in 2020, 8.8 days in 2021, and 8.0 days in 2022. For Wastewater Collection, the net lags for receipts and payments are 11.6 days in 2020, 13.0 days in 2021, and 13.7 days in 2022. The changes in net lag times between 2020 and 2022 are primarily due to changes in expense levels. These expenses are based on the 2020 to 2022 actual costs. The lag days are converted to working capital ratios (i.e., net lag days/365) and are applied to the overall operating expense, net of revenue offsets, to calculate the appropriate necessary working capital for this component.

5.0 CAPITAL EXPENSES

26. Capital expenses include four categories: interest, retained earnings, common dividends and depreciation. Table 5.0-1 and Table 5.0-2 provides the capital expense lags from 2020 to 2022 for Wastewater Treatment and Collection, respectively.

Table 5.0-1
Capital Expense Lags 2020 to 2022 - WWT
(\$ millions)

Expense	2020		2021		2022	
	A	B	C	D	E	F
	Lag Days	Expense	Lag Days	Expense	Lag Days	Expense
1 Interest	58.3	11.6	57.7	11.6	54.6	11.0
2 Retained Earnings	-	20.1	-	29.0	-	26.9
3 Dividends	183.0	10.0	182.5	10.0	182.5	35.0
4 Depreciation	-	19.7	-	20.8	-	23.3

Table 5.0-2
Capital Expense Lags 2020 to 2022 - WWC
(\$ millions)

Expense	2020		2021		2022	
	A	B	C	D	E	F
	Lag Days	Expense	Lag Days	Expense	Lag Days	Expense
1 Interest	48.0	22.1	51.1	24.2	34.2	35.1
2 Retained Earnings	-	30.3	-	34.3	-	48.1
3 Dividends	183.0	-	182.5	-	182.5	-
4 Depreciation	-	39.7	-	38.0	-	39.7

5.1 Retained Earnings and Depreciation

27. Consistent with the generally accepted practice for lead-lag studies, retained earnings and depreciation both have expense lags equivalent to zero days.

5.2 Interest on Long Term Debt

28. EWS pays interest on inter-company long term debt issued by its parent EUI as well as interest on the City of Edmonton Debentures (COE debt). Both the COE debt and inter-company notes are paid at various times throughout the year. Wastewater Treatment's interest payments are paid on a semi-annual basis. Whereas interest payments for Wastewater Collection are paid on a semi-annual and annual basis. For this reason, there are differences in interest related lag days for the two utilities. The midpoint of the consumption period for long term interest is 182.5 days, or July 2. The overall lag (lead) for interest expense is calculated as the weighted average lag (lead) for each issued debt.

5.3 Common Dividends

29. EWS issued dividends annually during 2020 to 2022 period and annual dividends are expected to be issued over the 2025 - 2027 forecast period. As a result, common dividends have been included in the current lead lag study. EWS issues common dividends on December 31 for each fiscal year, at the end of the consumption period. Accordingly, the common dividend lag is 182.5 days ($365/2$) for 2020, 2021, and 2022.

6.0 GST

30. The Goods and Services Tax (GST) is not applicable to water sales, so EWS only collects GST on a small proportion of its revenues, mainly for surplus sales, facility revenues and miscellaneous fees. Accordingly, EWS is always in a refund position with the Canada Revenue Agency (CRA). GST returns are filed monthly (usually on the last business day of the following month). Input credits are normally received from the CRA within 2-4 weeks of filing the GST returns. Calculation of the GST remittance lag is shown in Appendix 5.

31. The day factor on GST applicable expenses is based on the lead-lag days for general operating expenses, since capital expenditures excluding labour are assumed to be on the same payment schedule as all other operating costs.

32. As shown in Table 6.0-1 and Table 6.0-2, the impact of GST on working capital is negligible. For Wastewater treatment it results in an increase to necessary working capital of \$0.14 million in 2020, \$0.16 million in 2021, and \$0.14 million in 2022. For Wastewater collection it results in an increase to necessary working capital of \$0.57 million in 2020, \$0.60 million in 2021, and \$0.54 million in 2022.

Table 6.0-1
GST Impact on Working Capital – WWT
(\$)

	A	B 2020	C 2021	D 2022
REVENUE				
1 Net Receipts applicable to GST		367,324	273,099	406,171
2 GST rate		5.00%	5.00%	5.00%
3 GST collected	(a)	18,366	13,655	20,309
4 Day factor - revenue lag		46.0	46.0	46.1
5 Day factor - GST Remittance		45.8	45.6	45.6
6 Net	(b)	0.26	0.38	0.42
7 Impact on Working Capital	(a)*(b)/365	13	14	24
EXPENDITURES				
8 Other operating costs		23,176,790	24,548,495	24,468,065
9 Capital expenditures excluding labour (assume 65%)		24,903,260	29,326,535	23,765,964
10 Net costs applicable to GST		48,080,050	53,875,030	48,234,028
11 GST rate		5.00%	5.00%	5.00%
12 GST remitted	(d)	2,404,002	2,693,751	2,411,701
13 Day factor - GST refund lag		66.8	66.6	66.6
14 Day factor - GST applicable expense lag		45.2	45.1	45.1
15 Net	(e)	21.58	21.50	21.50
16 Impact on Working Capital	(d)*(e)/365	141,766	158,673	142,059
17 Net GST impact on Working Capital		141,779	158,687	142,083

Table 6.0-2
GST Impact on Working Capital – WWC
(\$)

	A	B 2020	C 2021	D 2022
REVENUE				
1 Net Receipts applicable to GST		-	-	-
2 GST rate		5.00%	5.00%	5.00%
3 GST collected	(a)	-	-	-
4 Day factor - revenue lag		46.0	46.0	46.1
5 Day factor - GST Remittance		45.8	45.6	45.6
6 Net	(b)	0.26	0.38	0.42
7 Impact on Working Capital	(a)*(b)/365	-	-	-
EXPENDITURES				
8 Other operating costs		38,300,758	43,261,937	27,545,399
9 Capital expenditures excluding labour (assume 65%)		153,463,333	159,111,240	155,405,452
10 Net costs applicable to GST		191,764,091	202,373,177	182,950,851
11 GST rate		5.00%	5.00%	5.00%
12 GST remitted	(d)	9,588,205	10,118,659	9,147,543
13 Day factor - GST refund lag		66.8	66.6	66.6
14 Day factor - GST applicable expense lag		45.2	45.1	45.1
15 Net	(e)	21.58	21.50	21.50
16 Impact on Working Capital	(d)*(e)/365	565,425	596,031	538,828
17 Net GST impact on Working Capital		565,425	596,031	538,828

7.0 STUDY RESULTS

33. For the 2025-2027 PBR Term, EWS is proposing the lead lag ratios and days shown in Table 2.0-5 above and repeated below in Table 7.0-1 (columns A and C).

**Table 7.0-1
Summary of 2020-2022
Lead Lag Ratios**

	WWT		WWC	
	A	B	C	D
	Current Study Ratio	Current Study Lag Day	Current Study Ratio	Current Study Lag Day
1 Operating Expense, net of revenue offsets	2.5%	9.1	3.5%	12.8
2 Depreciation	12.6%	46.0	12.6%	46.0
3 Retained Earnings	12.6%	46.0	12.6%	46.0
4 Dividends	-50.0%	(182.7)	-50.0%	(182.7)
5 Interest Expense	-3.0%	(10.8)	0.4%	1.6
6 GST collection	0.1%	0.4	0.1%	0.4
7 GST Input Tax Credit	5.9%	21.5	5.9%	21.5

34. Comparison of EWS' Lead Lag Study with those of other Canadian regulated entities shows that both the items included in the lead lag study and the resulting working capital ratios are consistent with those of other Canadian regulated entities.

35. Table 7.0-2 compares working capital ratios among other regulated entities. Review of the calculation of these ratios shows a high degree of consistency in study methodology among regulated entities.

**Table 7.0-2
Comparative Study Working Capital Ratios
(%)**

	A	B	C	D	E	F	G	H	I	J	K
	Comparative Studies						Range			WWT	WWC
	EDTI Tran ²	ATCO Gas ³	ENMAX ⁴	AltaLin k ⁵	Hydro One ⁶	Hydro One ⁷	Low	High	Avg	Avg	Avg
1 O&M Expenses	4.7	1.5	4.3	9.5	1.6	5.1	1.5	9.5	4.4	2.5	3.5
2 Income Tax Installments	N/A	4.8	N/A	(0.1)	5.6	9.4	(0.1)	9.4	4.9	N/A	N/A
3 Other Taxes	(0.1)	(6.7)	0.7	(4.4)			(6.7)	0.7	(2.6)	0.1	0.1
4 Long Term Debt Interest	(37.8)	4.1	(10.6)	(12.7)	6.4	11.3	(37.8)	11.3	(6.6)	(3.0)	0.4
5 Common Dividends	(0.1)	(15.0)	-	(0.1)	N/A	N/A	(15.0)	-	(3.8)	(50.0)	(50.0)
6 Retained Earnings	12.4	8.5	12.5	12.2	N/A	N/A	8.5	12.5	11.4	12.6	12.6
7 Depreciation Expense	12.4	8.5	12.5	12.2	N/A	N/A	8.5	12.5	11.4	12.6	12.6

36. Comparison of EWS' working capital ratios to those of the other companies included in Table 7.0-2 shows the following:

- EWS' working capital ratios for O&M Expenses and Other Taxes are well within the range of the other companies included in the comparison;
- Since EWS is not subject to income taxes this category does not apply to it;
- EWS' working capital ratio for Dividends are higher than the other companies. The other companies included in the comparison issue dividends either quarterly or mid-year. EWS issue its dividend at the end of the year, resulting in a higher working capital lag;
- EWS' working capital ratios for retained earnings and depreciation are higher than those of the other companies included in Table 7.0-2. These ratios are based on revenue lag days. Since all of EWS' revenues are derived from retail customers, rather than settlement with the Alberta Electric System Operator (AESO) or other system operators, EWS' collection periods are longer than those of the comparators. Accordingly, EWS' ratios are reasonable; and

² EDTI 2020-2022 TFO Tariff Application, MFR Schedules, Schedule 11-3.

³ ATCO Gas GRA Filing 2011-2012, December 2010.

⁴ Exhibit 23966-X0060; EPC 2018-2020 Transmission General Tariff Application, Appendix Q - EPC Lead Lag Study (Chymko)

⁵ Exhibit 23848-X0003.01; Altalink 2019-2021 General Tariff Application, MFR Schedules, Schedule 11-3

⁶ Hydro One Exhibit C, August 5, 2021, A determination of the Working Capital Requirements of Hydro One's Transmission (2023-2027)

⁷ Hydro One Exhibit C, August 5, 2021, A determination of the Working Capital Requirements of Hydro One's Distribution (2023-2027)

- EWS' long term debt interest ratios are within the range of the other companies in Table 7.0-2. These ratios are based on the difference between revenue lag days and interest expense lag days. EWS based its calculation of interest expense lag days on the actual dates of interest paid during the year, a methodology also used by ENMAX, HydroOne, and AltaLink. This methodology provides a representative view of actual cash flows throughout the year. Accordingly, EWS' long term debt interest ratio is reasonable.