Report to Utility Committee
December 4, 2020

EPCOR WATER SERVICES INC.

Performance Based Regulation Renewal
Return on Equity and Efficiency Factor Review

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1.0 OVERVIEW

In the 2017-2021 PBR application for Water and Wastewater, both EWSI's (EPCOR Water Services Inc.) rate of return expert and the City's consultant recognized that:

i) EWSI's business risks are greater than the average Alberta electric and gas utility, and

ii) it is reasonable to add a risk premium to the Alberta Utility Commission's generic cost of capital to derive the allowed return on equity for EWSI.

The Utility Committee observed that prior PBR decisions had not specifically quantified the appropriate risk premium and suggested that EPCOR work with City Administration to quantify the risk premium in advance of the next PBR application. The Utility Committee also provided commentary on the method used to determine the efficiency factor. These discussions lead to the following directions:

a. That the support to be provided for the rate of return and the productivity factor start as a baseline with the measures as determined by the Alberta Utilities Commission.

b. That Administration work with EPCOR on the following: Establish appropriate method to calculate the Efficiency Ratio prior to next Performance Based Rates.

This report will provide commentary on each of these directions.

2.0 RISK PREMIUM APPROACH

In mid-2019, EWSI and City Administration began discussions towards developing an approach to quantifying EWSI's risk premium. This culminated in the development of a formal "Request for Information" (RFI) that was circulated to the consulting community. The intent of the RFI was to seek guidance and input from industry experts to fully define the risk premium approach. The RFI defined the risk premium approach as identifying and quantifying the various risk factors that support the need for an equity risk premium for EWSI above the Alberta Utilities Commission's approved generic cost of capital.

The information from the RFI was planned to be used in seeking approval of the final approach from the Utility Committee and to inform the eventual "Request for Proposal" (RFP). The RFP would then be issued to select a consultant to complete the actual assessment and quantification of the risks and the development of the return on equity recommendation.

The RFI submissions were received in January, 2020. Unfortunately, only two firms responded. Neither response adequately defined a method that would lead to the intended outcome of defining and quantifying the various risk factors. Subsequent conversations with the consultants revealed that the risk premium approach, while conceptually sound, is difficult to enact as there is no basis to adequately quantify and justify the risk factors. At best, the assessment could be completed with business risks being identified and aggregated into larger "buckets" and then the associated risk premium subjectively determined. Both consultants indicated that this approach is not an established industry practice.

Based on these discussions, EWSI concluded that continuation of a risk premium approach as the sole method for determining the rate of return on equity is not the preferred course and explored more traditional approaches[1]. This work is detailed in the next section.

3.0 COMMON EQUITY RATES OF RETURN FOR THE 2022-2026 PERIOD

The City of Edmonton (City) determined that a 10.175% common equity rate of return was reasonable for the Water and Wastewater businesses of EPCOR Water Services Inc. (EWSI) during the 2017 – 2021 PBR period. This decision was based, in part, on evidence submitted by EWSI and reports prepared by Grant Thornton (GT) and Mr. W. J. Beckett (WJB) in 2016.

The City must now consider the question of an appropriate common equity rate of return for the 2022 – 2026 PBR period. EWSI understands that GT and WJB are advising the City on this matter.

This report proposes that an update of Grant Thornton's 2016 analysis be used to address the 2022 – 2026 PBR common equity rate of return. We believe this is the most straightforward approach and best aligns with the City's desire to determine a risk premium to the Alberta Utility Commission's generic cost of capital to derive the allowed rate of return on equity for EWSI. This report is divided into the following parts.

1. Impact of the Global Pandemic
2. The Relationship Between Risk Premiums and Bond Yields
3. Updating the Grant Thornton Analysis · Pre-Pandemic Conditions
4. Updating the Grant Thornton Analysis · Consensus 2022 Conditions
5. EWSI's Proposal to Moderate Drainage Rate Increases
6. Summary of Conclusions

Impact of the Global Pandemic

In late February/early March 2020, investors and share markets reacted negatively to announcements surrounding the COVID-19 global pandemic. Many countries, including Canada, began to "lock down" their economies; and federal governments and central banks used fiscal and monetary policy initiatives to diminish the economic devastation of the lockdowns on citizens and businesses.

What is the qualitative impact of these changes on data used to estimate capital costs and appropriate common equity rates of return? Will the consequences of these lockdowns persist for some while or prove to be a short-term phenomenon? How should the impact of the global pandemic be reflected in estimated capital cost rates? Or should it be reflected in them at all? These questions are addressed below.

[1] EWSI was assisted by an industry-recognized consultant in this work.

Impact of the Pandemic on Data Used to Estimate Capital Cost Rates

There are virtually no financial ratios, interest rates or other capital cost inputs or indicia which have remained stable throughout 2020, making reliance on these "roller coaster" 2020 data problematic in applying traditional methods for estimating capital cost rates.

In *Decision 24110-D01-2020* (released October 13, 2020), the Alberta Utilities Commission (the Commission) refers on several occasions to the impact of the global pandemic on capital markets.

> Subsequent to evidence being filed, the Commission received a motion on March 17, 2020, from the Office of the Utilities Consumer Advocate (UCA) requesting that the proceeding be suspended in light of the extraordinary turmoil and uncertainty in financial markets at the time on account of the COVID-19 pandemic. The UCA requested a six-month suspension with an opportunity for all parties to update their evidentiary submissions thereafter. On March 19, 2020, the Commission suspended the proceeding and indicated that it would review and reassess its decision every 30 to 60 days, unless circumstances changed dramatically and called for earlier action.[2]
>
> The Commission's last communication with registered parties in this proceeding was on August 7, 2020, at which time the Commission acknowledged that all parties, except for the Consumers' Coalition of Alberta, maintained their positions that the ongoing COVID-19 pandemic and related economic and financial market uncertainty/volatility continued to preclude the immediate successful resumption of the proceeding.[3]
>
> The partially developed record, combined with the unprecedented and ongoing turmoil in global financial markets, provided no reasonable basis for the Commission to extend its previous GCOC findings on a *final* basis for 2021, without regulatory due process.[4]

The increased uncertainty associated with economic prospects, Government deficits and increased capital market volatility have increased investors' required rates of return in 2020 compared to, say, 2019. Because public utility common equity rates of return are based largely on investors' required market rates of return with an adjustment for common equity flotation costs, it follows that fair rates of return under conditions prevailing in 2020 are higher than fair rates of return under the conditions prevailing in 2019.

[2] *Decision 24110-D01-2020,* paragraph 5.

[3] *Decision 24110-D01-2020,* paragraph 7.

[4] *Decision 24110-D01-2020,* paragraph 10.

What Will Be the Duration of the Pandemic's Impact?

Will the pandemic's economic impact be short-term? Will we return to the world of late 2019? Or will the pandemic affect capital markets and elevate required market rates of return for some time to come?

At this time, there is no reasonably definitive answer to any of these questions.

Should the Impact of the Pandemic Be Reflected In Estimated Capital Cost Rates?

If the pandemic continues to exert upward pressure on capital cost rates for some while, it would then be appropriate to reflect these new conditions in costs of capital for regulatory purposes. Alternatively, if the pandemic's impact largely dissipates – especially between now and when EWSI's 2022 – 2026 PBR period begins – then it would be more appropriate to rely on estimates that exclude the impact of the pandemic.

To avoid placing reliance on capital cost estimates that may be unduly inflated by temporary pandemic conditions which will not apply during the PBR period, EWSI urges the City and its advisors to exclude the adverse impact of the pandemic by assuming that conditions will return to "normal" by the time EWSI's 2022 – 2026 PBR period commences. This exclusion is practically accomplished in this report by avoiding the use of post-2019 data.[5] The exclusion of post-2019 information also addresses the data stability problems described above. In short, this approach does not capture the greater uncertainties, risks and higher capital costs that prevail in 2020 on the assumption that these higher capital costs will have moderated by the time EWSI's 2022 rates come into effect.

The Relationship Between Risk Premiums and Bond Yields

An understanding of the relationship between risk premiums and bond yields is an important prerequisite to updating GT's 2016 analysis in respect of EWSI's common equity rate of return. As a result of the differential taxation of interest versus dividends/capital gains, risk premiums tend to compress as bond yields rise and expand as bond yields decline. Another way of expressing the same phenomenon is that common equity rates of return rise by less than the increase in bond yields and decline by less than the decrease in bond yields. To illustrate, if bond yields rise by, say, 1%, then common equity rates of return will tend to rise by less than 1%; and if bond yields decline by 1%, then common equity rates of return will tend to decline by less than 1%.

Historically, Canadian regulators have assumed that the degree to which common equity rates of return vary as interest rates decline or rise is in the approximate range of 75 – 80%, with the focus at

[5] Inasmuch as the pandemic gripped capital markets starting in the first quarter of 2020, the final quarter of largely pre-pandemic conditions is the fourth quarter of 2019.

75%.[6] Thus, if bond yields decline by 1%, then the tendency is for common equity rates of return to decline by 0.75% - i.e., risk premiums expand by 0.25%. And if bond yields rise by 1%, then the tendency is for common equity rates of return to rise by 0.75% - i.e., risk premiums contract by 0.25%. The rationale for the expansion/compression of risk premiums is the maintenance of constant after-tax risk premia for taxable investors. Appendix A to this report provides hypothetical examples of this phenomenon using Alberta and Ontario 2020 income tax rates.

The analyses in the next two parts of this report assumes that common equity rates of return vary by 75% of the change in bond yields. This is consistent with the views of the Alberta Energy and Utilities Board and most Canadian regulators.

Updating the Grant Thornton Analysis · Pre-Pandemic Conditions

In 2016, GT prepared an *EPCOR Performance Based Regulation Filing Review* (the GT Report). In light of the practical limitations and concerns with applying traditional rate of return methods in the current pandemic environment and in an effort to avoid controversy, EWSI has updated the analysis in the GT Report to reflect the 2019 pre-pandemic generic cost of capital determined by the Alberta Utilities Commission and bond yield changes, having regard for the compression and expansion of risk premiums.

The GT Report concludes that the appropriate common equity rate of return for EWSI's Water and Wastewater operations is 1.875% higher than the Alberta Utilities Commission's generic cost of capital.[7] Inclusion of the Drainage business in the 2022 - 2026 PBR period with the same 40% common equity ratio as the Water and Wastewater businesses implies that EWSI's investment risks

[6] In *Decision 2004-052*, the Alberta Energy and Utilities Board adopted an Annual Adjustment Mechanism for rate of return that assumed a 75% compression/expansion factor (see *Decision 2004-052*, page 32). The Board stated that: "…most parties favored an adjustment formula with the ROE changing by 75% of the change in the forecast long-Canada bond yield, provided that the Board accepted their starting positions on ROE. The Board also notes Dr. Evan's evidence that a change based on 75% of the change in the long-term Canada bond yield is driven by the differential tax rates between bonds and equity." (*Decision 2004-052*, page 31) A survey conducted at the time Dr. Evans' evidence was prepared in the proceeding that led to *Decision 2004-052* indicates that a 75% compression/expansion factor was used by the National Energy Board (*Decision RH-2-94*, March 1995, pages 30-33), the Ontario Energy Board (*Draft Return on Equity Guidelines*, March 1997, pages 1-2) and the Quebec Regie de l'energie (*Re Gaz Metropolitain*, February 10, 1999, pages 48-50). An 80% compression/expansion factor was used by the Newfoundland Board of Commissioners of Public Utilities (*Re Newfoundland Power Inc.*, July 31, 1998, pages 105-106) and the Public Utilities Board of Manitoba (*Order 49/95*, May 5, 1995, pages 50-52). The situation in British Columbia is not as clear. In *Return on Common Equity for a Benchmark Utility*, August 26, 1999, page 24, the British Columbia Utilities Commission adjusted "one-for-one" at bond yields of 6.0% or below and at 80% of the change in bond yields for bond yields above 6.0%. The BCUC subsequently elected not to use a rate of return adjustment formula and then reinstated a new formula in *Re Generic Cost of Capital Proceeding*, May 10, 2013, page 90. The new formula assumed a compression/expansion factor of 50% *vis-à-vis* yields on long-term Government of Canada bonds subject to a "floor" of 3.8% on the bond yield. However, the formula also included a 50% adjustment for changes in the spread between yields on long-term public utility bonds and long-term Government of Canada bonds.

[7] GT Report, page 145.

are higher today than they were in 2016.[8] Thus, the appropriate premium *vis-à-vis* the Commission's generic cost of capital is no less than 1.875% today.

In *Decision 22570-D01-2018*, the Commission found that an 8.5% common equity rate of return was reasonable for test years 2018, 2019 and 2020.[9] All things equal, the indicated common equity rate of return for EWSI based on the GT Report and the 8.5% for generic Alberta utilities is therefore 10.375% (= 8.5% + 1.875%). However, the Commission's 8.5% in *Decision 22570-D01-2018* was predicated on a 2.3% yield on long-term Government of Canada bonds.[10] In contrast, the 2019 pre-pandemic yield on long-term Government of Canada bonds is 1.8%.[11] The lower 2019 bond yield suggests that a downward adjustment should be made to the 10.375% common equity rate of return but with recognition given to the fact that risk premiums expand as bond yields decline.

The indicated common equity rate of return for EWSI is currently no less than 10.00% based on a 75% risk premium compression/expansion factor, the Commission's 8.5% 2019 generic cost of capital, GT's 1.875% risk premium from 2016 and the change in bond yields subsequent to the Commission's decision. The 10.00% should be regarded as a minimum, because it does not consider the increased business risks of the Drainage business which was not part of EWSI's asset portfolio when the GT Report was prepared.

The formal calculations that lead to the 10.00% conclusion are set out in Table 1 below.

[8] The Drainage business has a longer capital recovery period, a greater proportion of non-productive contributed assets and higher operating leverage than the Water and Wastewater businesses. Thus, the addition of the Drainage business to the EWSI portfolio increases EWSI's overall business risk profile. If the Drainage assets are financed with the same 40% common equity ratio as the Water and Wastewater businesses, it then follows that the investment risks – the combination of business and financial risks – have increased. The assumption of a 40% common equity ratio for EWSI's overall operations is consistent with the September 3, 2020 DBRS rating report that states: "Over the long-term, DBRS Morningstar expects leverage for EWSI to be at the approved capital structure of 60% debt."

[9] Alberta Utilities Commission, *Decision 22570-D01-2018*, August 2, 2018, Paragraph 500, page 104. In its recently-released *Decision 24110-D01-2020*, the Commission did not provide a detailed rate of return analysis. Nevertheless, the 8.5% common equity rate of return from *Decision 22570-D01-2018* was extended through 2021 on a final basis. See *Decision 24110-D01-2020*, Paragraphs 14 and 20.

[10] Alberta Utilities Commission, *Decision 22570-D01-2018*, August 2, 2018, Paragraph 299, page 65.

[11] The average of the daily 2019 yields reported by the Bank of Canada for Series V39056 is 1.80%.

Table 1
INDICATED COMMON EQUITY RATE OF RETURN
BASED ON GRANT THORNTON 2016 EWSI RISK PREMIUM,
AUC 2019 GENERIC RATE OF RETURN,
2019 PRE-PANDEMIC LONG-TERM BOND YIELD
AND 75% RISK PREMIUM COMPRESSION/EXPANSION FACTOR

2019 Yield on Long-Term Government of Canada Bond	1.80%
Less: Yield on Long-Term Government of Canada Bond in *Decision 22570-D01-2018*	(2.30%)
Bond Yield Change	(0.50%)
x 75% Compression/Expansion Factor	x 0.75
Change in Common Equity Rate of Return	(0.38%)
AUC 2019 Generic Cost of Capital	8.50%
Plus: Grant Thornton 2016 Premium for EWSI Risk	1.88
Less: Change in Common Equity Rate of Return	(0.38)
Indicated Common Equity Rate of Return Based on Pre-Pandemic Conditions	10.00%

Updating the Grant Thornton Analysis · Consensus 2022 Conditions

The analysis in Table 1 is based on the Commission's 8.50% generic rate of return and long-term Government of Canada bond yields during the pre-pandemic conditions of 2019. EWSI urges the City and its advisors to accept this approach for reasons set out in the discussion of the *Impact of the Global Pandemic*.

Alternatively, however, EWSI observes that the same result coincidentally arises from using the Commission's 8.5% 2021 generic rate of return from *Decision 24110-D01-2020* and an analysis of consensus 2022 yields on long-term Government of Canada bonds.

The 2022 average consensus yields on ten-year Government of Canada bonds is 1.35% (October 12, 2020 issue of *Consensus Forecasts*). The relevance of 2022 is that it is the first year of the PBR period. Yields on long-term Government of Canada bonds are typically higher than yields on ten-

year bonds. The difference – the "maturity premium" – varies with market conditions. In *Decision 22570-D01-2018*, the Commission remarked: "…the spread between 10-year and 30-year GOC bonds is likely to be lower than the historical average of some 50 bps that the Commission has accepted in past GCOC decisions."[12] Thus, the Commission indicates that the "historical average" maturity premium has been approximately 50 basis points; however, the Commission adopted an unspecified lower maturity premium in *Decision 22570-D01-2018*. A reasonable inference is that this lower maturity premium was in the range of 0 – 50 basis points. More recently, differences between yields on long-term and ten-year Government of Canada bonds have exceeded the 50 basis points historical average.[13]

Giving equal weight to the 50 basis points historical average, the 25 basis points midpoint of the 0 – 50 basis points range and the current yield difference of 59 basis points, the indicated average maturity premium is 45 basis points.[14]

The sum of the 1.35% consensus 2022 yield on ten-year Government of Canada bonds and the 45 basis points maturity premium is 1.80%.[15] Coincidentally, the 1.80% is the same as the actual average yield on long-term Government of Canada bonds for 2019. Thus, the assumption that investors expect that long-term bond yields will return to 2019 pre-pandemic levels by 2022 is supported by an independent analysis of those expectations as captured in the *Consensus Forecasts* survey.

The indicated common equity rate of return for EWSI from this alternative analysis is 10.00% as shown in Table 2.

[12] *Decision 22570-D01-2018*, Paragraph 297, page 65.

[13] Based on Bank of Canada data for the five trading days ending October 29, 2020, the average maturity premium is 59 basis points..

[14] See Appendix B.

[15] See Appendix B.

Table 2
INDICATED COMMON EQUITY RATE OF RETURN
BASED ON GRANT THORNTON 2016 EWSI RISK PREMIUM,
AUC 2021 GENERIC RATE OF RETURN,
2022 CONSENSUS LONG-TERM BOND YIELD
AND 75% RISK PREMIUM COMPRESSION/EXPANSION FACTOR

Consensus 2022 Yield on Long-Term Government of Canada Bond	1.80%
Less: Yield on Long-Term Government of Canada Bond in *Decision 22570-D01-2018*	(2.30%)
Bond Yield Change	(0.50%)
x 75% Compression/Expansion Factor	x 0.75
Change in Common Equity Rate of Return	(0.38%)
AUC 2021 Generic Cost of Capital	8.50%
Plus: Grant Thornton 2016 Premium for EWSI Risk	1.88
Less: Change in Common Equity Rate of Return	(0.38)
Indicated Common Equity Rate of Return Based on Consensus 2022 Bond Market Conditions	10.00%[16]

EWSI's Proposal to Moderate Drainage Rate Increases

EWSI acquired the Drainage business in 2017 and has been striving to improve service dependability, the quality of asset maintenance and the profitability of the business while not exposing customers to overly-aggressive rate increases. EWSI proposes to continue this program

[16] The analysis in Table 2 uses a 1.35% consensus 2022 yield on ten-year Government of Canada bonds as the point of departure. However there is a sharp increase in the consensus yield over the 2022 - 2026 period. The annual average yields rise from 1.35% in 2022 to 1.80% in 2023, 2.20% in 2024, 2.55% in 2025 and 2.80% in 2026. The average yield on ten-year Government of Canada bonds for the 2022 – 2026 PBR period is 2.14%. The addition of a 45 basis points maturity premium leads to a consensus yield on long-term Government of Canada bonds for the 2022 – 2026 PBR period of 2.59% (= 2.14% + 0.45%). If the 2022 – 2026 2.59% yield on long-term Government of Canada bonds were used in the Table 2 analysis rather than the 2022 value of 1.80%, then EWSI's indicated common equity rate of return would rise to 10.60% (= 8.50% + 1.88% + ((2.59% - 2.30%) x 75%)).

throughout the 2022 – 2026 PBR period; and in its effort to balance the need to replace failing infrastructure with moderate rate increases, EWSI proposes to accept a 5.50% common equity rate of return on its "Base" Drainage operations in 2022 with the rate of return "ramping up" in linear fashion to 10.00% by 2024.[17]

The impact on EWSI's consolidated rate of return from moderating rate increases in this fashion is shown in Table 3.

Table 3
BUSINESS UNIT AND CONSOLIDATED
RATES OF RETURN ON COMMON EQUITY
2022 – 2024

Year	Water	Wastewater	Drainage Base	Drainage SIRP/CORe	Drainage Consolidated	Total Consolidated
2022	10.00%	10.00%	5.50%	10.00%	5.71%	7.94%
2023	10.00%	10.00%	7.75%	10.00%	7.93%	8.97%
2024	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%
2022-2024	10.00%	10.00%	7.85%	10.00%	8.03%	9.02%

Note: Calculations are based on forecast 2022 – 2024 annual rate bases and Drainage rates of return calculated using the method described above.

Three conclusions are drawn from the data in Table 3. First, with the exception of the 2024 rate of return, each of the forecast consolidated rates of return in the final column are less than the 10.00% indicated common equity rates of return from Tables 1 and 2.

Second, the average consolidated rate of return of 9.02% is materially less than the 10.00% from Tables 1 and 2 and provides a premium above the Commission's 8.50% generic cost of capital of approximately 50 basis points, whereas the premium for EWSI's risks from the GT Report is 1.875%.

Third, the 9.02% is modest in the context of straightforward market-derived 2019 benchmarks. To illustrate, the 2019 average and median earnings-price ratios of the five Tier 1 chartered banks including a traditional 50 basis points flotation allowance are 9.8% and 9.5% respectively. These earnings-price ratios understate the benchmark cost applicable to EWSI for two reasons. First, the 2019 average and median market-t0-book ratios for the banks were 154% and 140% respectively; and the earnings-price ratio understates the investors' required rate of return if the market-to-book

[17] Base Drainage operations do not include capital expenditures in respect of the Storm Water Integrated Resource Plan and the Corrosion and Odour Reduction Strategy. A 10.0% common equity rate of return is used to develop revenue requirements for the Storm Water Integrated Resource Plan and the Corrosion and Odour Reduction Strategy.

ratio is greater than 1.0.[18] Second, EWSI is undeniably exposed to greater investment risks than the Tier 1 chartered banks.[19]

Summary of Conclusions

The appropriate common equity rate of return for EWSI's 2022 – 2026 PBR period should conservatively reflect pre-pandemic conditions rather than the higher capital cost rates arising from the greater uncertainties and risks in 2020. This approach avoids needless controversy about the longevity of the pandemic and the use of highly-variable 2020 data which render the reliable estimation of capital cost rates extraordinarily difficult if not entirely problematic. Use of pre-pandemic 2019 data is consistent with the assumption that capital market conditions will "normalize" prior to 2022.

EWSI has updated the analysis in the 2016 GT Report to reflect the most recent generic cost of capital determined by the Alberta Utilities Commission and recent bond yield changes, having regard for the compression and expansion of risk premiums. The compression and expansion of risk premiums as bond yields rise and decline is well-accepted in regulatory circles.

Based on a 75% risk premium compression/expansion factor, the Commission's 8.5% generic cost of capital, GT's 1.875% risk premium from 2016 and the 2019 pre-pandemic bond yields, the indicated common equity rate of return for EWSI is currently no less than 10.00%. The 10.00% should be regarded as a minimum, because it does not reflect the increased business risks of the Drainage business. Drainage was not part of EWSI's asset portfolio when the GT Report was prepared.

Alternatively, EWSI undertook a similar analysis using the 8.5% generic rate of return approved by the Commission for 2021 pursuant to *Decision 24110-D01-2020* and a consensus long-term Government of Canada bond yield for 2022 developed from data reported by *Consensus Forecasts.* Coincidentally, the alternative analysis also leads to a 10.00% indicated common equity rate of return for EWSI.

Finally, in an effort to moderate Drainage rate increases, EWSI proposes that the common equity rate of return for "Base" Drainage operations be established at 5.50% for 2022 and "ramped up" to 10.00% in linear fashion over the 2022 – 2024 period. Based on this plan, the forecast three-year average common equity rate of return for EWSI's consolidated operations is 9.02%.

[18] Gordon, Myron J. and Eli Shapiro, "Capital Equipment Analysis: The Required Rate of Profit," *Management Science,* 1956, pages 107-108.

[19] Although this report gives no weight to 2020 post-pandemic data, the current (October 29, 2020) average and median earnings-price ratios for the Tier 1 chartered banks including the traditional 50 basis points flotation allowance are 9.5% and 9.2% respectively with average and median market-to-book ratios of 114% and 110% respectively. The indicated cost of capital based on Tier 1 bank earnings-price ratios is therefore greater than 9.2-9.5%. Thus, irrespective of whether 2019 or 2020 data are used, the 9.02% five-year average consolidated rate of return is less than the indicated cost of capital based on Tier 1 bank benchmarks.

The 9.02% is materially less than the 10.00% indicated common equity rate of return from the updated GT analyses. Moreover, with the exception of the final year, the EWSI consolidated rates of return for each year of the PBR period are all less than 10.00%.

The 9.02% is also modest when tested by reference to the 2019 average and median earnings-price ratios of the Tier 1 chartered banks of 9.8% and 9.5% respectively.[20] For reasons set out earlier in this report, these earnings-price ratios understate the benchmark cost applicable to EWSI.

4.0 EFFICIENCY FACTOR

Under the PBR rate setting formula, an efficiency (or productivity) factor is applied as a reduction to the inflation factor to reduce rates to customers. The efficiency factor represents the minimum amount by which EWSI must improve operational efficiency in order to maintain its allowed rate of return on equity. The efficiency factor was determined at 0.25% for the 2017 to 2021 PBR term for both Water and Wastewater.

In developing the efficiency factor evidence for the 2017 – 2021 PBR term, EWSI engaged Kaufmann Consulting, a recognized expert in advising utilities and regulatory agencies on efficiency factors. EWSI's believes that Kaufmann Consulting used the approach advocated by the AUC in determining the proposed efficiency factor by basing the proposal on industry wide-parameters. There were a limited number of instances where Kaufmann deviated from the AUC approach, but this was limited to the application of the underlying data to a water utility rather and a departure from the established method.

Kaufmann Consulting recommended a negative 0.5% efficiency factor based on the clear evidence that comparable utility industry productivity levels have been less than 0%. In the application, EWSI proposed a 0% efficiency factor for the 5-year term in recognition of the continuing commitment to its customers to maintain operational efficiency even through the fourth renewal of its PBR while at the same time improving service levels to meet higher regulatory and safety standards and greater expectations for environmental performance. EWSI ultimately proposed to maintain the previous term's 0.25% efficiency factor in order to maintain alignment with City of Edmonton efficiency objectives.

EWSI believes that an external consultant study completed for the 2022-2026 PBR term will yield similar results to the previous Kaufmann Consulting report. The underlying industry parameters have not changed since that time. As an alternative, EWSI is contemplating maintaining the 0.25% efficiency factor in its application for Water, Wastewater and Drainage. This will allow EWSI to remain in alignment with City of Edmonton goals.

[20] Including a traditional 50 basis points flotation allowance.

One counter argument to this approach is that efficiency factors generally decline over successive PBR terms and the efficiency factor for drainage should be higher than 0.25% as the upcoming application will establish their first, formal PBR term. A declining efficiency factor was the historic trend for Water until the 2007-2011 PBR term where it was set at 0.25% and has been maintained at that level since then. Under normal circumstances, the approach to reduce the efficiency factor over time may be appropriate for Drainage. However, in transferring Drainage to EPCOR, the City of Edmonton established aggressive efficiency expectations for both operating and capital costs (to deliver the capital program at 10% lower costs and 5% lower operating costs by 2021). As Drainage has met those targets, a significant level of efficiency has already been extracted.

The ramped Drainage RoE, as described above and intended to be included in the application, effectively reduces Drainage's return below a level commensurate with the risk the utility takes on. Drainage is seen as a higher risk business due to its longer capital recovery period, a greater proportion of non-productive contributed assets and higher operating leverage than the Water and Wastewater businesses. Thus, the addition of the Drainage business to the EWSI portfolio increases EWSI's overall business risk profile, yet EWSI will propose a lower RoE in order to mitigate rate increases. The addition of an efficiency factor above 0.25%, in combination with the ramped RoE, is seen as moving the risk/return profile beyond an acceptable level.

APPENDIX A

EPCOR Water Services Inc.

HYPOTHETICAL EXAMPLES OF RISK PREMIUM COMPRESSION/EXPANSION USING 2020 MARGINAL TAX RATES

	Alberta Taxable Investors		Ontario Taxable Investors	
	Over $314,928	**$97,069 - 131,220**	**Over $220,000**	**$97,069 - 150,000**
Tax on Interest	48.00%	36.00%	53.53%	43.41%
Tax on Capital Gains	24.00%	18.00%	26.76%	21.70%
Tax on Eligible Dividends	31.71%	15.15%	39.34%	25.38%
Pre-Tax Equity Rate of Return	10.00%	10.00%	10.00%	10.00%
Less: Pre-Tax Debt Rate of Return	(4.00%)	(4.00%)	(4.00%)	(4.00%)
Pre-Tax Risk Premium	6.00%	6.00%	6.00%	6.00%
After-Tax Equity Rate of Return	7.21%	8.34%	6.70%	7.65%
Less: After-Tax Debt Rate of Return	(2.08%)	(2.56%)	(1.86%)	(2.26%)
After-Tax Risk Premium	5.13%	5.78%	4.84%	5.38%
Assume that Bond Yields Decline by 1% · Pre-Tax Debt Rates of Return Decline from 4.00% to 3.00%				
Pre-Tax Debt Rate of Return	3.00%	3.00%	3.00%	3.00%
After-Tax Debt Rate of Return	1.56%	1.92%	1.39%	1.70%
Plus: After-Tax Risk Premium	5.13%	5.78%	4.84%	5.38%
After-Tax Equity Rate of Return	6.69%	7.70%	6.23%	7.08%
Pre-Tax Equity Rate of Return	9.28%	9.23%	9.31%	9.26%
Less Pre-Tax Debt Rate of Return	(3.00%)	(3.00%)	(3.00%)	(3.00%)
Pre-Tax Risk Premium	6.28%	6.23%	6.31%	6.26%
Change in Pre-Tax Equity Rate of Return	(0.72%)	(0.77%)	(0.69%)	(0.74%)
divided by: Change in Pre-Tax Debt Rate of Return	(1.00%)	(1.00%)	(1.00%)	(1.00%)
Risk Premium Compression/Expansion Factors	72.08%	76.72%	69.41%	74.01%

Note: The equity rate of return tax calculations assume that 50% of the income is derived from dividends and 50% of the income is derived from capital gains. The impact of varying this proportion is not material.

Source: The 2020 combined Federal/Provincial tax rates are taken from www.taxtips.ca.

APPENDIX B

EPCOR Water Services Inc.

CONSENSUS 2022 YIELD ON LONG-TERM GOVERNMENT OF CANADA BONDS
BASED ON TEN-YEAR YIELDS REPORTED BY *CONSENSUS FORECASTS* AND MATURITY PREMIUM ANALYSIS

Consensus Yield on Ten-Year Government of Canada Bonds Reported in the October 12, 2020 Issue of Consensus Forecasts

October 2021 Ten-Year Yield on Government of Canada Bonds	1.10%
December 31, 2022 Ten-Year Yield on Government of Canada Bonds	1.60%
Average 2022 Yield on Ten-Year Government of Canada Bonds	1.35%

Maturity Premium on Long-Term Government of Canada Bonds

	Long-Term Bond Yield	Ten-Year Bond Yield	Maturity Premium
Oct 23, 2020	1.24%	0.64%	0.60%
Oct 26, 2020	1.21%	0.62%	0.59%
Oct 27, 2020	1.19%	0.60%	0.59%
Oct 28, 2020	1.17%	0.59%	0.58%
Oct 29, 2020	1.22%	0.63%	0.59%
		Average	0.59%

On page 65 of *Decision 22570-D01-2018* , the Commission notes "…the spread between 10-year and 30-year GOC bonds is likely to be lower than the historical average of some 50 bps that the Commission has accepted in past GCOC decisions." Thus, the Commission gave no indication of the maturity premium on which it relied; however, it is reasonable to assume that the maturity risk premium was in the range of 0-50 basis points.

October 14, 2020 - October 20, 2020 Maturity Premium	0.59%
Midpoint of 0 - 50 Basis Points Maturity Premium Range	0.25%
Historical Maturity Premium in Past GCOC Decisions	0.50%
Average Maturity Premium	0.45%

Consensus Long-Term 2022 Government of Canada Bond Yield
Based on Ten-Year Yields Reported by Consensus Forecasts and Maturity Premium Analysis

Average 2022 Yield on Ten-Year Government of Canada Bonds	1.35%
Plus: Average Maturity Premium	0.45%
Consensus Long-Term 2022 Government of Canada Bond Yield	1.80%