EPCOR WATER SERVICES

2025-2027
Performance Based Regulation Application

Wastewater Services

May 31, 2024

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1.0 APPLICATION OVERVIEW

1.1 Introduction

1. EPCOR Water Services Inc. ("EWS") submits this Performance Based Regulation (PBR) Application (herein referred to as the "Application") to Edmonton City Council, EWS' Regulator, for the review and approval of the proposed wastewater rates under the EPCOR Wastewater Services Bylaw No. 20865 for EWS' regulated Wastewater Collection (WWC) and Wastewater Treatment (WWT) operations.

2. EWS' PBR framework is designed to provide a transparent and performance-driven regulatory mechanism that aims to balance the interests of all involved stakeholders. This Application reflects EWS' programs and plans that aim to enhance operational efficiency and customer experience, while seeking to achieve regulatory certainty for EWS. EWS is confident that the applied-for rates are fair, reasonable and reflective of the cost of providing safe and reliable wastewater services to its customers while maintaining the long-term financial sustainability of its regulated utility operations.

3. This Application outlines the process for determining the forecast revenue requirement and proposed rates for the PBR period effective April 1, 2025 to December 31, 2027 (referred to as the "2025-2027 PBR term"). To enable the submission of a consolidated PBR Application for all three operations of EWS (namely, Water, Wastewater Collection, and Wastewater Treatment), the 2025-2027 PBR term has been intentionally shortened by three months. The term of this future consolidated PBR Application will commence on January 1, 2028, enabling EWS to schedule future rate changes to take effect on January 1st of each year rather than April 1st. This is the second PBR term for EWS' Wastewater Collection operations (or "Drainage Services") and the fourth PBR term for EWS' Wastewater Treatment operations.

4. EWS owns and manages Edmonton's wastewater collection and treatment systems. These systems are crucial for safeguarding the public health and environmental integrity of the Edmonton region. They play a direct role in sustaining a healthy quality of life for the residents by managing the daily wastewater generated by a growing urban population and by managing stormwater while protecting the North Saskatchewan River and other water bodies from pollution, thus maintaining the region's ecological balance.

5. The wastewater collection and treatment systems are complex and sophisticated systems, designed to collect, convey, and treat wastewater generated by the residential, commercial, and industrial sectors in Edmonton. The sanitary and combined wastewater collection system safely and efficiently collects, stores, and conveys over 300 million litres of wastewater per day. The collected wastewater is then conveyed to a wastewater treatment plant where it is treated and returned to the North Saskatchewan River or provided as reclaimed water to industrial customers.

6. Edmonton's stormwater collection system is a complex network of runoff capture, storage and conveyance components that work together to minimize the impacts of flooding for residents, businesses and the environment. The stormwater collection system includes thousands of kilometers of above and underground infrastructure, and hundreds of distributed storage facilities that work together to manage the volume, flow and quality of runoff entering the region's natural water bodies.

7. EWS' Gold Bar Wastewater Treatment Plant treats wastewater from both the sanitary and combined sewer systems for the residential, commercial and industrial customers within the city of Edmonton. Its prime objective is to safely and reliably treat wastewater in compliance with environmental regulations. The process of treating wastewater is a complex operation that involves handling hazardous gases such as methane and hydrogen sulphide (H2S).

8. Proper maintenance and upgrade of the wastewater collection and treatment infrastructure is crucial to minimizing the health and safety risks and avoiding any unplanned failures that could lead to the discharge of untreated wastewater into the North Saskatchewan River. The wastewater system (collection and treatment) protects river water quality by treating and limiting the discharge of untreated wastewater into the river. An untreated discharge would be detrimental to the environment and would violate EWS' Approval to Operate (issued by Alberta Environment and Protected Areas under the *Environmental Protection and Enhancement Act*[1]) and could result in significant fines of up to $1 million per day or other enforcement actions by the Government of Alberta.

9. EWS employs a robust asset management program that regularly assesses asset condition and recommends an appropriate amount of capital investment towards maintenance and replacement. This ensures that assets are maintained and replaced before any dangerous failures occur. The revenue required for the operation and maintenance of EWS' Wastewater Collection

[1] RSA 2000, cE-12

and Treatment systems reflects the reasonable and prudent costs necessary to provide safe and reliable wastewater services while meeting EWS' Approval to Operate requirements.

10. EWS aligns its capital and operational programs with the City of Edmonton City Plan objectives through regular collaboration with multiple branches of the City organization. This includes coordination on growth planning and zoning changes, joint development of design and construction standards, coordination of capital programs impacting city roads and open spaces, and supporting each other's operational requirements in the coordination of maintenance activities for maintenance holes, catch basins, ditches, and stormwater management facilities.

11. EWS also provides support to customers through a number of maintenance services related to sewer blockages, odour reduction, root management, and flood inspections and subsidies to support customers in building flood resiliency on private property.

1.2 Cost Forecast Process and Inflation Factor

12. EWS' operating cost forecasts for 2025 are prepared using a bottom-up approach based on the expected level of work activity and costs. These forecasts are prepared in 2024 dollars and are then escalated using the PBR forecast inflation of "i-x" (i.e., inflation less the efficiency factor). The inflation factor is calculated as the weighted average of two Statistics Canada inflation measures, specifically, Alberta Average hourly earnings (AHE) and Consumer Price Index (CPI). EWS' forecast capital expenditures and capital additions for 2025, 2026 and 2027 are based on its planned capital projects and programs for each year. These forecasts are developed using a comprehensive and well-defined capital management process.

1.3 2025-2027 PBR Capital Plan

13. EWS' PBR capital plan includes a range of capital projects and programs for supporting ongoing operations to ensure reliability, safety, efficiency, customer growth, and regulatory compliance while also aligning with the objectives of the City Plan. The PBR capital plan is developed using input from various sources, assessments, and expert resources. Projects and programs within the capital plan are evaluated based on scope, cost, and risk, using a risk-based prioritization approach, which provides a balanced outlook of the optimal capital requirements. During the execution of the capital plan, agility and flexibility are maintained to ensure the safety and reliability of the wastewater collection and treatment systems.

14. During the 2025-2027 PBR term, the planned capital investments for Wastewater Collection operations is expected to be $687.9 million, and for Wastewater Treatment, it is

expected to be $199.8 million. A significant portion of these capital investments relate to projects and programs within the Reliability/Life Cycle Replacement category. Approximately 76% of Wastewater Treatment's planned capital investments fall within the Reliability/Life Cycle Replacement category whereas, approximately 59% of Wastewater Collection's planned capital investments fall within the Reliability/Life Cycle Replacement category. In addition, approximately 28% of Wastewater Collection's planned capital investments are related to the Growth/Customer Requirements category, which includes addressing flood mitigation, relocation of assets, construction of new infrastructure and coordination with private developers and the City of Edmonton.

15. Significant investments planned for the Wastewater Collection operations over the 2025-2027 PBR term include a $406 million investment for various projects and programs in the Reliability/Lifecycle Replacement category to manage risks and improve system reliability by rehabilitating or replacing existing assets that are approaching the end of their useful lives; and a $192 million investment in the Growth/Customer Requirements category.

16. Significant investments planned for the Wastewater Treatment operations over the 2025-2027 PBR term include a $137 million investment for various structural, mechanical, electrical and process related projects and programs in the Reliability/Lifecycle replacement category to manage risks and improve reliability of the wastewater treatment plant; and a $27 million investment for the Odour Control Improvements and UV Disinfection upgrades projects to control odour, increase energy efficiency, address regulatory requirements and to continue meeting EWS' Approval to Operate requirements.

1.4 Operating Costs

17. For the 2025-2027 PBR term, the annual operating costs for Wastewater Collection operations are forecast to be $104 million in 2025 and projected to increase to $108 million by 2027, which includes the introduction of a new stormwater management rebate program available to residential and commercial customers to further encourage the wide-spread adoption of Low Impact Development (LID) installations to capture stormwater on private property during the 2025-2027 PBR term, see Appendix P for additional information regarding this new program.

18. The annual operating costs for Wastewater Treatment operations are forecasted to be $78 million in 2025 and projected to increase to $81 million by 2027, primarily due to inflationary cost increases.

1.5 Forecast Revenue Requirement

19. Tables 1.5-1 and 1.5-2 provide a detailed breakdown of the cost components of EWS' revenue requirement for Wastewater Treatment and Wastewater Collection operations for the 2025-2027 PBR term, along with the approved amounts for 2024 (2024D) and EWS' latest 2024 forecast amounts (2024F) for comparison.

Table 1.5-1
Financial Schedule 3-1
Wastewater Treatment Revenue Requirement
2024-2027
($ millions)

	Cost Component	A 2024D	B 2024F	C 2025F	D 2026F	E 2027F
1	Operations and Maintenance Costs	66.5	73.8	78.1	79.7	81.1
2	Franchise Fees and Property Taxes	10.8	11.6	11.7	12.0	12.5
3	Depreciation and Amortization	26.4	28.2	30.3	32.3	34.0
4	Return on Rate Base Financed by Debt	13.6	13.4	14.9	16.1	18.0
5	Return on Rate Base Financed by Equity	23.2	21.5	26.1	28.2	30.2
6	Revenue Requirement before Revenue Offsets	140.5	148.5	161.1	168.2	175.7
7	Less: Revenue Offsets	(7.3)	(8.8)	(8.9)	(9.1)	(9.3)
8	Wastewater Treatment Revenue Requirement	133.2	139.7	152.2	159.1	166.4
9	Variance	-	6.5	12.5	6.9	7.3

20. Beginning in 2025, the Wastewater Treatment revenue requirement is forecast to increase by $12.5 million. This increase is primarily driven by the following factors:

- The expiry of the power contract at the end of 2024 and the execution of a new contract is expected to result in higher power costs starting in 2025;
- Adoption of a standardized overhead capitalization methodology across all EWS operations starting in 2025 is expected to result in lower application of operation and maintenance (O&M) costs to capital, thereby increasing operating costs slightly;
- An increase in forecast depreciation costs driven by assets that are expected to be in service during the PBR term; and
- A higher cost of debt due to prevailing economic and market conditions and a higher forecast return on equity (ROE).

Table 1.5-2
Financial Schedule 3-1
Wastewater Collection Revenue Requirement
2024-2027
($ millions)

	Cost Component	A 2024D	B 2024F	C 2025F	D 2026F	E 2027F
	Sanitary Utility					
1	Operations and Maintenance Costs	49.1	53.5	52.0	53.1	54.1
2	Franchise Fees and Property Taxes	12.1	13.8	12.8	12.5	12.6
3	Depreciation and Amortization	21.4	22.5	24.5	26.2	28.3
4	Return on Rate Base Financed by Debt	20.3	24.1	26.8	28.7	31.7
5	Return on Rate Base Financed by Equity	34.5	35.6	43.1	50.2	58.6
6	Revenue Requirement before Revenue Offsets	137.3	149.5	159.1	170.7	185.3
7	Less: Revenue Offsets	(4.6)	(3.6)	(3.6)	(3.7)	(3.5)
8	Sanitary Utility Revenue Requirement	132.7	145.9	155.4	167.0	181.8
	Stormwater Utility					
9	Operations and Maintenance Costs	58.9	53.6	52.1	53.3	54.3
10	Franchise Fees and Property Taxes	1.0	0.7	0.7	0.7	0.8
11	Depreciation and Amortization	29.7	25.7	28.4	31.2	34.2
12	Return on Rate Base Financed by Debt	20.3	23.1	25.6	28.4	32.6
13	Return on Rate Base Financed by Equity	34.9	33.9	41.2	49.8	60.3
14	Revenue Requirement before Revenue Offsets	144.7	137.0	148.0	163.5	182.1
15	Less: Revenue Offsets	(0.7)	(0.7)	(0.7)	(0.7)	(1.0)
16	Stormwater Utility Revenue Requirement	143.9	136.4	147.4	162.8	181.0
17	Wastewater Collection Revenue Requirement	276.7	282.3	302.8	329.8	362.8
18	Variance		5.6	20.5	27.0	33.0

21. Starting in 2025, the overall revenue requirement for Wastewater Collection is forecast to increase by $20.5 million. This increase is largely driven by the following factors:

- An increase in forecast depreciation costs driven by assets that are expected to be in service during the PBR term;
- A higher cost of debt due to prevailing economic and market conditions;
- An increase in the cost of equity (ROE) for Wastewater Collection operations to gradually ramp up the ROE to align with that of Wastewater Treatment by 2027; partially offset by
- Adoption of a standardized overhead capitalization methodology across all EWS operations, effective 2025. This standardized methodology is anticipated to result in

a higher application of O&M costs to capital, leading to a reduction in forecasted operating costs.

1.6 Proposed Cost of Capital

22. EWS has determined its revenue requirement based on its best estimates of the forecast costs to provide wastewater treatment and wastewater collection services plus a fair return on its investment of 10.80% based on a 40% equity ratio (refer to Section 4.3.1 and Appendix D - Return on Equity Report).

23. EWS contracted an external cost of capital expert to develop the proposed fair return rate (return on equity) who based their analysis on traditional financial approaches, current financial market conditions and financial information from comparable utility peer groups, which included Canadian regulated electric and natural gas utilities and U.S. water and wastewater utilities.

24. In its 2024-2026 PBR Application, EWS proposed to ramp up the fair rate of return for Wastewater Collection over a 5-year period from 5.50% in 2022 to the full rate of return by 2026 in an effort to moderate rate increases. Through this voluntary reduction in the rate of return, EWS reduced cost to ratepayers by over $66 million for 2022-2024. EWS recognizes that the current economic environment with higher than normal inflation continues to cause affordability challenges for many customers. To moderate rate increases over the 2025-2027 PBR term, EWS is proposing to continue this commitment and will ramp up to the fair rate of return on equity of 10.8% by 2027. The proposed rate of return on equity for Wastewater Collection is 9.00% for 2025, 9.90% for 2026 and 10.8% for 2027. By voluntarily reducing the return on equity from the fair return of 10.8% in 2025 and 2026, EWS reduced costs to ratepayers by $25.6 million over the 2025-2027 PBR term.

25. EWS also proposes to fix the forecast cost of new debt issuances at 4.65% for the entire duration of the 2025-2027 PBR term, see Section 4.3.2.

1.7 2025-2027 PBR Rates

26. The proposed rates for Wastewater Treatment and Wastewater Collection for the 2025-2027 PBR term include (i) special rate adjustments to refund the accumulated balances for the consumption deferral account from the 2022-2024 PBR term, and (ii) special rate adjustments for rebasing to fully recover the forecast revenue requirement. These special rate adjustments are described in detail in Section 13.2 and Section 21.3 of this Application and in Section 2.3 of Schedule 3 to the Wastewater Services Bylaw.

1.7.1 Special Rate Adjustments to Refund Consumption Deferral Account

27. Special rate adjustments to refund the consumption deferral account balances are required in 2025, 2026, and 2027 as the accumulated consumption deferral account balances from the 2022-2024 PBR term reflect a positive balance. This positive deferral account balance will be refunded to ratepayers through special rate adjustments applied to Sanitary Utility variable monthly rates and Wastewater Treatment variable monthly rates. Details of the consumption deferral balances can be found on Schedules 20-1 and 20-2 of the Minimum Filing Requirements (MFR) Schedules included as part of this Application.

1.7.2 Special Rate Adjustments (SRAs) for Rebasing

28. Under EWS' PBR framework, annual rate increases are limited to the PBR inflation adjustment plus any special rate adjustments. Rebasing refers to the rate adjustment required to fully recover the forecast revenue requirement for the 2025-2027 PBR term. The forecast revenue requirement is prepared on a bottom-up basis utilizing the methodologies and key assumptions described in Section 4.0. Without the special rate adjustments for rebasing, annual rate increases would be limited to the PBR inflation adjustment, resulting in a revenue shortfall to fund the ongoing operations and planned capital investments for the 2025-2027 PBR term. Table 1.7.2-1 shows the revenue shortfall for Wastewater Treatment and Wastewater Collection, which will be collected through the special rate adjustment for rebasing, applicable to the fixed charges, the variable rates and the overstrength surcharges over the 2025-2027 PBR term.

Table 1.7.2-1
Revenue Shortfall Calculation
2025-2027
($ millions)

		A WWT 2025F-2027F	B WWC 2025-2027F
1	Revenue Collected at Prior Year's Rates	450.3	885.4
2	PBR Inflation Impact on Revenue	15.6	31.4
3	Revenue Collected at PBR Rates	465.9	916.8
4	Total Revenue Requirement	477.8	995.4
5	Revenue (Shortfall) to be recovered through Rebasing	(11.9)	(78.6)

1.8 Customer Bill Impacts

29. The proposed annual rate increases for the 2025-2027 PBR term include routine rate adjustments for inflation less the efficiency factors, and as described above, special rate adjustments for refunding the consumption deferral account and special rate adjustments required for rebasing.

30. Tables 1.8-1 to 1.8-3 present the average monthly bills for residential, multi-residential, and commercial customers and the factors contributing to annual rate increases on customer bills for Wastewater Collection and Wastewater Treatment. The average monthly bills take into account the anticipated reduction in water consumption over the PBR term, reflecting the water conservation efforts within the community and the adoption of efficient fixtures and appliances. As a result, the presentation of bill impacts aims to depict the bill experience of an average customer, rather than presenting rate increases. The average monthly bills also reflect updates to the runoff coefficients in order to align with the City's new zones, resulting in an overall reduction in the runoff factor for most premises. Additional information on customer bill increases is provided in Sections 13.3 and 21.3.

Table 1.8-1
Financial Schedule 22-5
Combined WWC and WWT Bill Impacts on the Average Residential Customer
2025-2027
($/month)

		A 2025	B 2026	C 2027	D Total / Average
1	Monthly Consumption per Customer - m^3	13.1	12.9	12.8	
2	Stormwater Equivalent Units (SEUs) per month	245	245	245	
3	Prior Year's Combined Bill	72.84	76.60	78.98	
4	Impact of Change in Runoff Coefficients	(0.66)	-	-	
5	Impact of Change in Consumption	(0.55)	(0.55)	(0.28)	
6	Monthly Bill at Prior Year's Rate	71.63	76.06	78.70	
7	PBR Inflation less Efficiency Factor (i-x)	1.33	1.65	1.42	
8	Special Rate Adjustment for Rebasing	3.64	1.28	1.41	
9	Current Year Bill before Consumption Deferral Refund	76.60	78.98	81.53	3.8%
10	Consumption Deferral Refund	(2.05)	(2.07)	(2.09)	
11	Current Year Combined Average Monthly Bill	74.55	76.91	79.44	
12	Change in Bill - $	1.70	2.36	2.53	6.60
13	Change in Bill - %	2.3%	3.1%	3.2%	2.9%
	Breakdown of Combined Average Monthly Bill				
14	Stormwater Utility	22.87	24.81	26.81	
15	Sanitary Utility	27.96	27.75	27.55	
16	Wastewater Treatment	23.71	24.36	25.09	

Table 1.8-2
Financial Schedule 22-5
Combined WWC and WWT Bill Impacts on the Average Multi-Residential Customer
2025-2027
($/month)

		A 2025	B 2026	C 2027	D Total / Average
1	Monthly Consumption per Customer - m^3	419.3	422.2	425.1	
2	Stormwater Equivalent Units (SEUs) per month	1,814	1,814	1,814	
3	Prior Year's Combined Bill	1,362.45	1,377.88	1,423.57	1,466.71
4	Impact of Change in Runoff Coefficients	(20.51)	-	-	
5	Impact of Change in Consumption	7.85	7.92	8.07	
6	Monthly Bill at Prior Year's Rate	1,349.78	1,385.80	1,431.65	
7	PBR Inflation less Efficiency Factor (i-x)	24.95	29.73	25.79	
8	Special Rate Adjustment for Rebasing	3.15	8.04	9.28	
9	Current Year Bill before Consumption Deferral Refund	1,377.88	1,423.57	1,466.71	2.5%
10	Consumption Deferral Refund	(79.29)	(81.55)	(83.59)	
11	Current Year Combined Average Monthly Bill	1,298.59	1,342.02	1,383.12	
12	Change in Bill - $	(63.86)	43.43	41.10	20.67
13	Change in Bill - %	-4.7%	3.2%	2.9%	0.5%

		A 2025	B 2026	C 2027	D Total / Average
	Breakdown of Combined Average Monthly Bill				
14	Stormwater Utility	169.40	183.75	198.53	
15	Sanitary Utility	581.04	585.08	586.63	
16	Wastewater Treatment	548.15	573.19	597.95	

Table 1.8-3
Financial Schedule 22-5
Combined WWC and WWT Bill Impacts on the Average Commercial Customer
2025-2027
($/month)

		A 2025	B 2026	C 2027	D Total / Average
1	Monthly Consumption per Customer - m^3	109.9	108.6	107.2	
2	Stormwater Equivalent Units (SEUs) per month	2,764	2,764	2,764	
3	Prior Year's Combined Bill	575.25	596.01	620.40	
4	Impact of Change in Runoff Coefficients	(35.26)	-	-	
5	Impact of Change in Consumption	(3.80)	(3.71)	(3.74)	
6	Monthly Bill at Prior Year's Rate	536.18	592.30	616.66	
7	PBR Inflation less Efficiency Factor (i-x)	9.98	12.90	11.13	
8	Special Rate Adjustment for Rebasing	49.85	15.21	16.66	
9	Current Year Bill before Consumption Deferral Refund	596.01	620.40	644.46	3.9%
10	Consumption Deferral Refund	(49.83)	(50.26)	(50.54)	
11	Current Year Combined Average Monthly Bill	546.19	570.14	593.91	
12	Change in Bill - $	(29.07)	23.95	23.78	18.67
13	Change in Bill - %	-5.1%	4.0%	3.8%	1.1%
	Breakdown of Combined Average Monthly Bill				
14	Stormwater Utility	258.04	279.90	302.42	
15	Sanitary Utility	153.57	151.86	149.54	
16	Wastewater Treatment	134.57	138.38	141.96	

1.9 Stakeholder Consultation

31. EWS developed a public awareness and engagement plan in alignment with the City of Edmonton's public engagement policy, ensuring community input into its PBR Application. Given the complexities of the PBR process, the engagement plan focuses on understanding the public's values and policy preferences, using non-technical language to facilitate meaningful contributions.

32. The public engagement objectives for the PBR application include informing policy choices, prioritizing operations and capital programs, performance measures, and designing rates based on community input. The primary audiences for engagement are residential, multi-

residential, and commercial wastewater and stormwater utility customers within Edmonton, including specific large users and community groups around the Gold Bar Wastewater Treatment Plant.

33. The public engagement survey results reveal a high level of awareness and satisfaction with EWS' services; however, concerns regarding costs have impacted satisfaction levels. The primary concerns identified include infrastructure reliability, sewer backups, and flood risks, with a strong emphasis on environmental protection and safety.

34. The public engagement surveys of residential, multi-residential and commercial customers have revealed four key themes, which are reflected in this PBR Application:

- EPCOR is viewed a trusted utility service provider;
- Cost, environmental protection, and safety are customer priorities;
- Support for efficient investment in infrastructure reliability; and
- Strong support for stability in billing.

1.10 Organization of 2025-2027 PBR Application

35. Part A of this PBR Application gives an overview of EWS' integrated organizational structure and a description of the various processes and components of the Wastewater Collection and Treatment system.

36. Part B describes the methodology and assumptions used to determine the forecast revenue requirement and summarizes the forecast revenue requirement for Wastewater Treatment and Wastewater Collection.

37. In Part C and D, EWS details the forecast wastewater treatment revenue requirement by component, cost of service and the calculation of rates applicable for the 2025-2027 PBR term.

38. Similarly, in Part E and F of this Application, EWS details the forecast wastewater collection revenue requirement, cost of service and the calculation of rates applicable to wastewater collection over the 2025-2027 PBR term.

39. Finally, Part G of this Application discusses the performance measures and related standards applicable to Wastewater Collection and Treatment over the 2025-2027 PBR term.

40. Table 1.10-1 summarizes the organization of this PBR Application.

Table 1.10-1
Organization of Wastewater Treatment and Collection PBR Application

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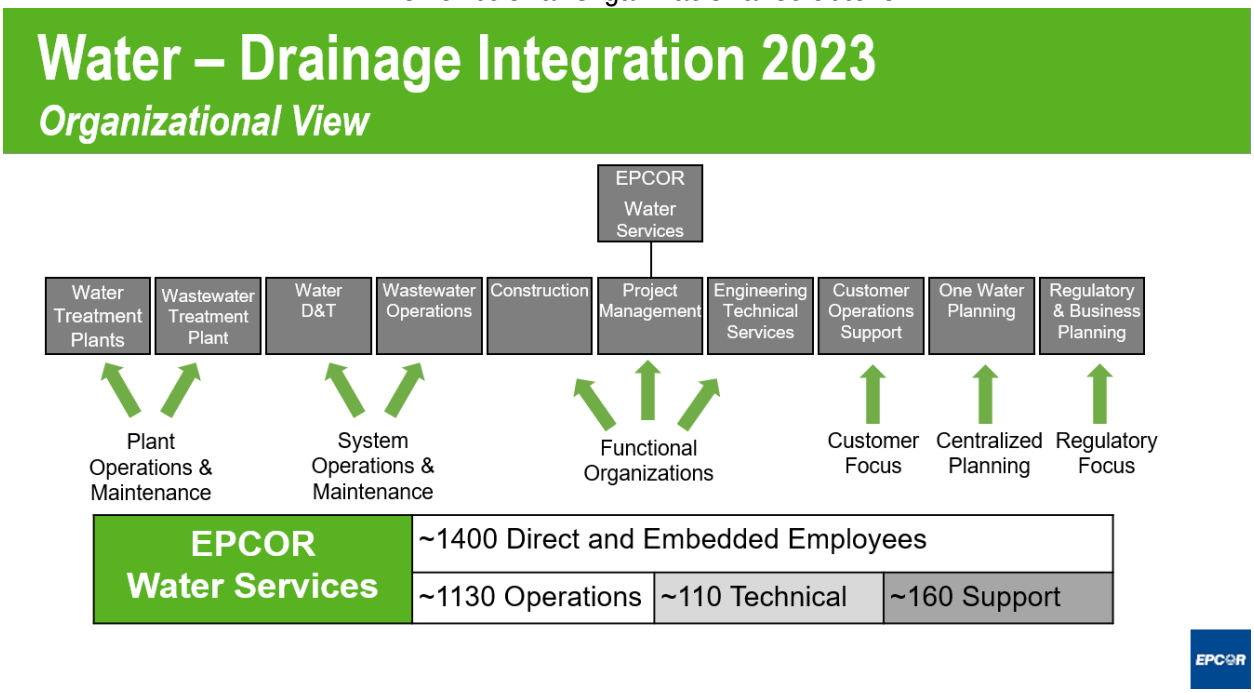
2.0 EWS ORGANIZATIONAL STRUCTURE

41. EWS is a wholly owned subsidiary of EPCOR Utilities Inc. (“EUI” or “EPCOR”). Through this ownership, EWS is affiliated with other corporations within the EPCOR group of companies. EWS receives services from and provides services to other EPCOR companies. This structure allows EWS to benefit from both the extensive experience that resides within the other corporations of EPCOR, and from economies of scale and scope that arise from the EPCOR group’s inter-corporate services approach to its business operations.

42. In 2017, Drainage Services was transferred from the City of Edmonton to EPCOR. Following this transfer, EPCOR directed its efforts towards streamlining operations across the entire water cycle by adopting a "One Water" approach. In 2023, EPCOR completed a comprehensive restructuring of its organizational framework, merging and integrating Water and Drainage operations into a unified business unit. The primary objective of this integration was to create a highly efficient and cohesive business unit capable of meeting service targets, providing superior customer experiences, and optimizing resource utilization across the water cycle. This unified approach involves transitioning from an asset-based structure to a more integrated cross-functional structure by centralizing numerous functions that were previously decentralized based on assets.

43. The organizational restructuring resulted in the creation of ten functional areas, led by one Senior Vice President within EWS. Figure 2.0-1 shows the new functional organizational structure of EWS.

Figure 2.0-1
EWS Functional Organizational Structure



44. These functional areas play a vital role in EWS' integrated operational structure, which includes water and wastewater treatment, distribution and transmission, wastewater collection, customer service, planning, and compliance. As of July 1, 2023, EWS began operating under this new organizational structure, consolidating decentralized services into functional areas to create a unified and integrated business unit. This consolidation aims to streamline operations and improve resource management, establishing a framework that facilitates enhanced decision-making and improved performance in the areas of employee health and safety, environmental stewardship, and the delivery of safe and reliable water and wastewater services to customers.

45. To implement the unified strategy, EWS undertook the relocation of various resources from diverse locations across Water and Drainage operations to the Aurum facility during 2023. This process included consolidating employees, equipment, and other resources to facilitate a more streamlined and optimized delivery of services. These services include control and dispatch, fleet dispatch and coordination, inspections, certified safety equipment, shops, site restoration, pre-job setup, and above-ground preventative maintenance. Consolidating these resources is expected to positively impact service delivery while promoting efficient resource allocation and improved operational performance.

46. A brief overview of the ten functional areas is provided below:

1) Water Treatment Plants - Operations and Maintenance: This area delivers high-quality drinking water by focusing on the efficient operation and maintenance of water treatment facilities, reservoirs, pump houses and other facilities such as the solar farm, encompassing routine inspections, upkeep, and compliance with water quality standards.
2) Wastewater Treatment Plant - Operations and Maintenance: The primary responsibility of this area is to ensure the proper functioning of wastewater treatment facilities and adhering to stringent environmental regulations.
3) Water Distribution & Transmission - Operations and Maintenance: Dedicated to the maintenance and operation of water distribution and transmission systems, ensuring consistent and reliable water supply to consumers.
4) Wastewater Collection - Operations and Maintenance: This area prioritizes the efficient operation and maintenance of wastewater collection systems, critical in preventing floods and maintaining optimal sanitary, combined and stormwater functionality.
5) Construction: This area is responsible for building new water and wastewater infrastructure and rehabilitating existing assets within the wastewater collection system, as well as supplying the construction equipment and support services for those activities.
6) Project Management: This functional area provides end to end project management services for EWS by delivering and implementing capital projects identified in the PBR for Water Treatment, Wastewater Treatment, Water Distribution and Transmission and Wastewater Collection services. Its primary objective is to ensure that projects are successfully executed to achieve the intended objectives while meeting safety and quality standards, and improve the processes, procedures, tools, and templates that project managers require for better visibility and control over their projects.
7) Engineering and Technical Services: Focuses on providing reliable and efficient engineering services and technical expertise to internal stakeholders. This includes design engineering services for all asset areas, process safety systems, laboratory operations, environmental and public health expertise and guidance, and plans for managing assets across the entire water cycle.
8) Customer and Operations Support: This area focuses on providing exceptional customer service to the citizens of Edmonton, the private development community and provides operational technical support to all internal areas within EWS. Customer

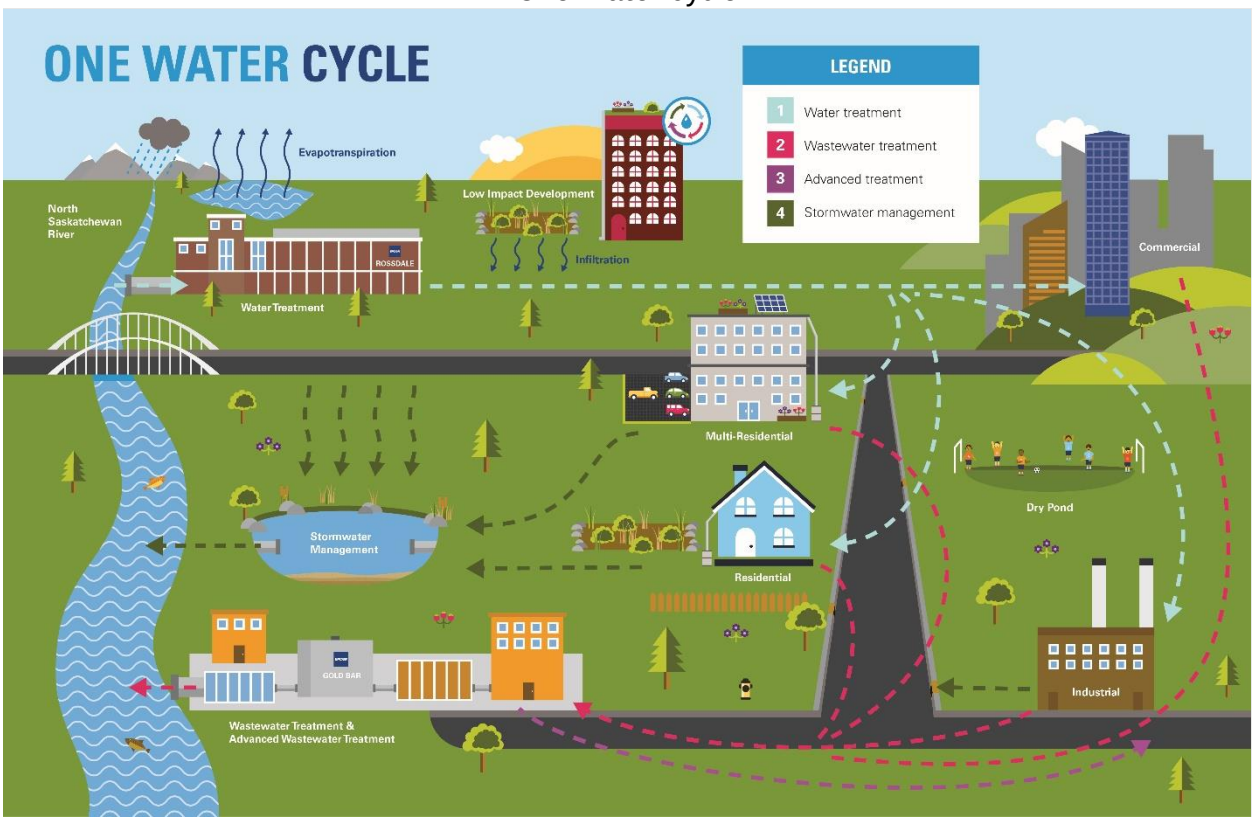
Support works with private developers to ensure infrastructure and site services are properly designed and constructed, and installed in a timely manner. Customer Support also provides meter installation, maintenance and meter reading services, as well as intake of customer's inquiries and trouble reports, and dispatching of crews to address customer issues. Operations Support provides SCADA design, installation and maintenance support to EWS' water and wastewater treatment plants, wastewater collection systems, and water distribution and transmission systems. Operations Support also provides support for data sharing, analysis, and visualization across all areas of EWS.

9) One Water Planning: The emphasis of this area is on centralized planning strategies across the entire water cycle in coordination with City of Edmonton growth planning objectives. Risk based capital plans are developed considering the key drivers of climate adaptation, sustainability, asset management, corrosion and odour control, growth needs, environmental regulatory drivers and affordability. The watershed programs for both the river and urban creeks is also managed by One Water Planning.
10) Regulatory and Business Planning: This area leads regulatory compliance and strategic business planning to align operations with regulatory requirements and future business strategies. This area also provides support across EWS in leading process improvement and redesign projects, providing standard tools and methodologies for process improvement projects, providing education and training in process improvement skills and methodologies, and change management support.

3.0 SYSTEM OVERVIEW

47. EWS owns and manages the wastewater collection and treatment systems that are crucial for environmental sustainability, public health and city growth in Edmonton. The wastewater collection and treatment systems are two components of the municipal one water cycle, as shown in Figure 3.0-1. One Water is the industry leading planning approach to overcoming water-related challenges. Taking advantage of the interconnections in the water cycle to develop holistic solutions, provides water and wastewater services that are more affordable, resilient and sustainable.

Figure 3.0-1
One Water Cycle



48. Wastewater collection and treatment systems are multifaceted operations that require adaptability and innovation to meet the demands of a growing urban population and evolving environmental standards. The significance of maintaining robust wastewater treatment and collection systems is paramount, as they have a direct impact on the environment, quality of life of residents and the ability for a city to grow. These systems manage the daily wastewater of a growing urban population and safeguard natural water bodies from pollution, thus sustaining the region's ecological balance.

49. EWS uses an integrated resource planning approach to guide the strategic capital and operational plans for Edmonton's wastewater collection (sanitary, combined and stormwater) and wastewater treatment (Gold Bar Wastewater Treatment Plant (GBWWTP) and Clover Bar Biosolids Resource Recovery Facility(CBRRF)) systems. Integrated resource planning is flexible and holistic, anticipates risks, adapts and mitigates against new and emerging threats to ensure greater operational, environmental and financial flexibility. The EPCOR Wastewater Integrated Resource Plan – Report EXT002260 presented on January 22, 2024 at Utility Committee, provides a summary of the strategies and planning principles for Edmonton's wastewater system. The result is an evolving path forward for building, operating and maintaining a municipal wastewater collection and treatment system (pipes and plants) that meets or exceeds all regulatory requirements, and helps ensure the continued provision of safe, reliable and resilient utility services to a growing population.

50. Sanitary wastewater collection and treatment in the Edmonton Capital Region is shared between EWS (GBWWTP) and ARROW Utilities (formerly Alberta Capital Region Wastewater Commission Wastewater Treatment Plant), as shown by Figures 3.0-2 and 3.0-3. EWS sends wastewater from nearly 30,000 customers in northeast Edmonton to the ARROW Utilities Wastewater Treatment Plant (WWTP) in Strathcona County for treatment. In return, wastewater from customers south of the city including Leduc, Leduc County, Beaumont and the Edmonton International Airport is sent to the GBWWTP in Edmonton. Both plants send their separated biosolids to the Clover Bar Biosolids Resource Recovery Facility for nutrient recovery. This flow balancing partnership provides more responsible infrastructure investments by avoiding the construction of overly-long and costly sewer pipes – helping ensure capital and operating costs per customer remain reasonable.

Figure 3.0-2
Overview of Edmonton's Sanitary Wastewater System

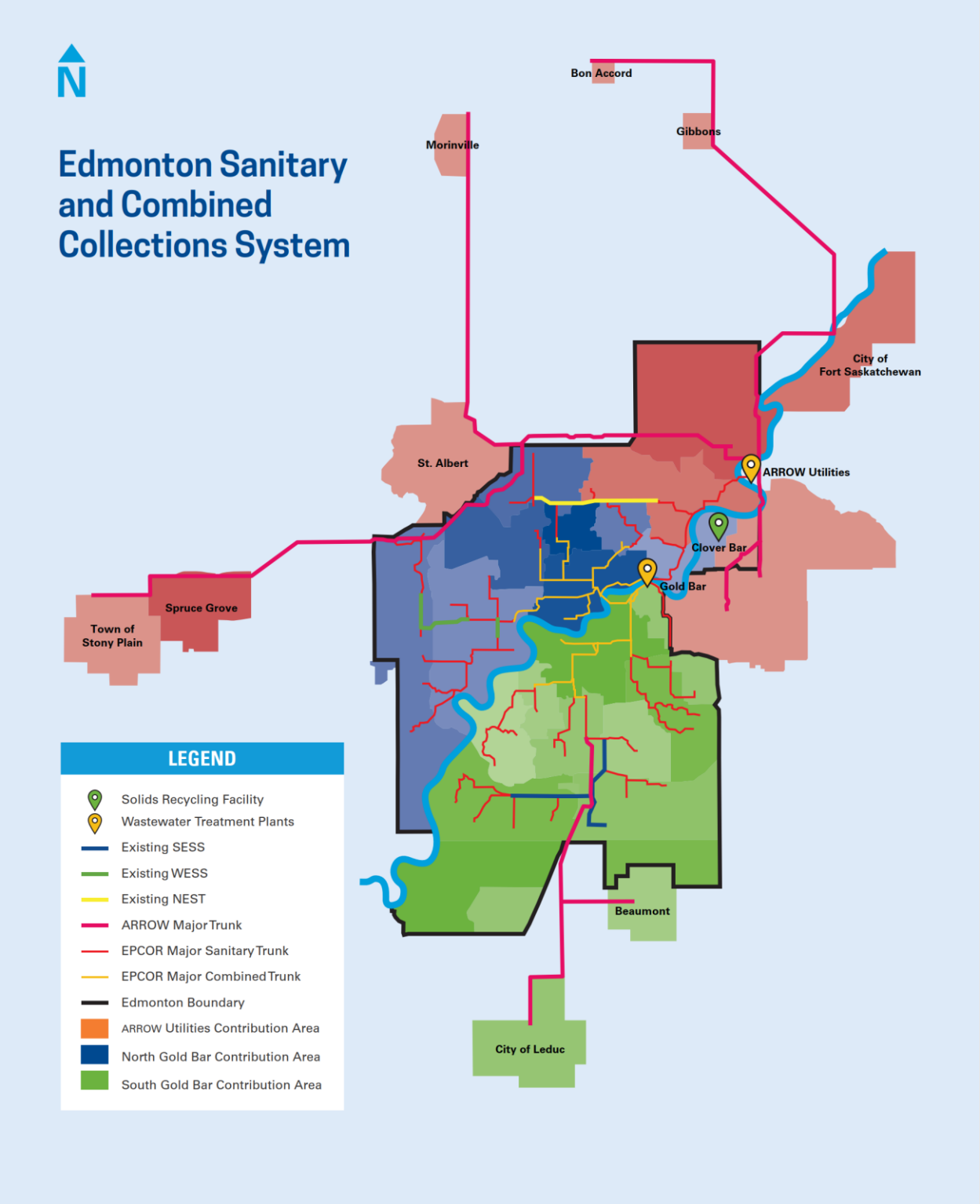
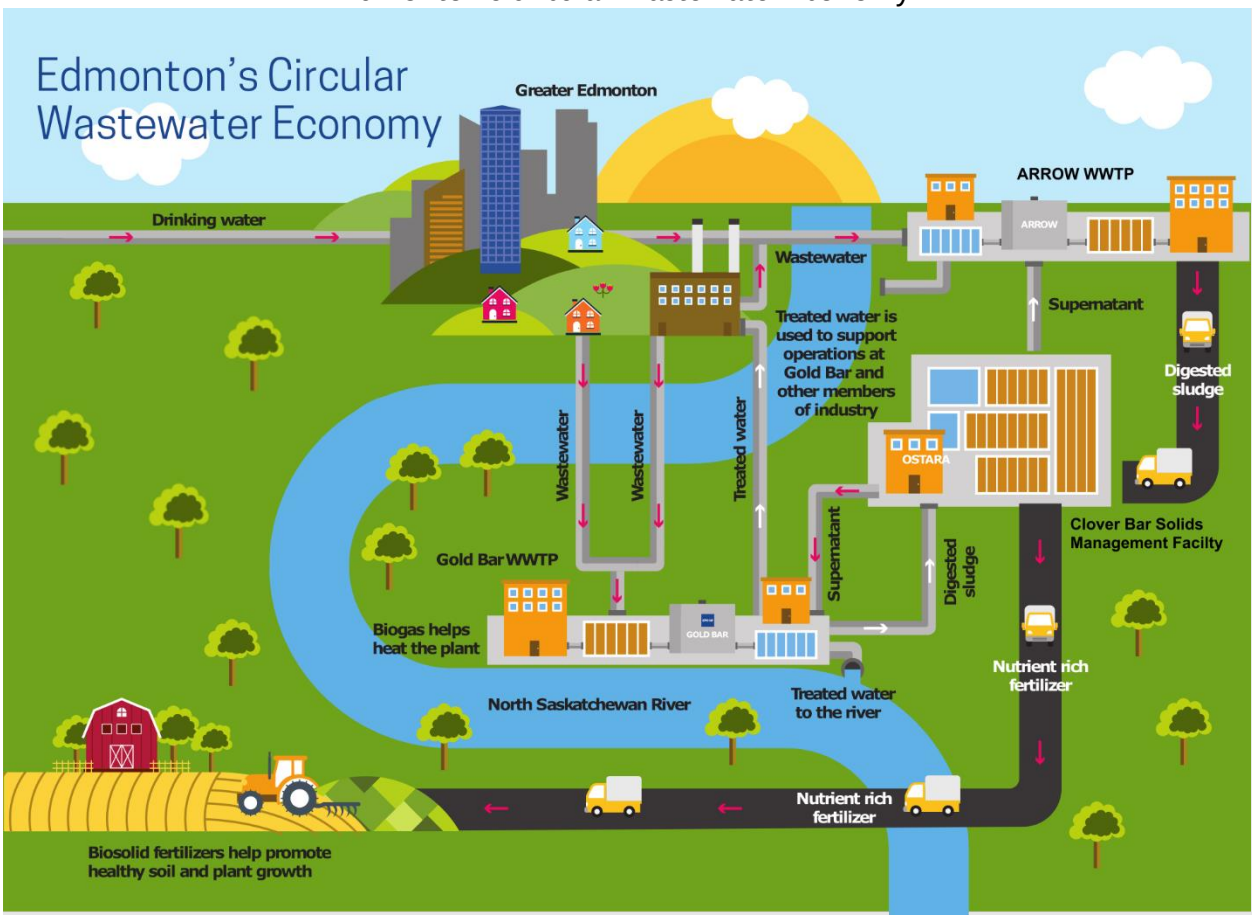


Figure 3.0-3
Edmonton's Circular Wastewater Economy



51. The following Sections provide an overview of the wastewater collection and treatment systems, highlighting the current system processes, strategic initiatives and future expectations.

3.1 Overview of the Wastewater Collection System

52. EWS' sanitary system safely collects, stores and conveys more than 300 million litres of wastewater per day from nearly 430,000 residential, commercial and industrial connections. The wastewater flows to the GBWWTP or ARROW Utilities WWTP where it is treated and either returned to the North Saskatchewan River (NSR), or is provided to industrial customers as reclaimed water.

53. The system includes over 4,200 km of sanitary and combined pipes, 81 pump stations, and hundreds of active and passive wastewater storage areas across the city. EWS employs a comprehensive approach to managing the wastewater collection network, involving risk-based asset management, regular operations and maintenance, monitoring and strategic upgrades.

This approach aims to address issues such as pipe blockages, corrosion and odour, wear and tear, and capacity limitations, thereby ensuring the collection system's reliability. Regular maintenance and system evaluation are essential to maintaining the collection network's efficiency, preventing potential system failures, and ensuring public health and environmental sustainability.

54. Edmonton's stormwater management system is a complex network of runoff capture, storage and conveyance elements that work to minimize the impacts of both pluvial (rainfall) and fluvial (river) flood risks and protects residents, businesses and the environment. Thousands of kilometers of overland flood routes (roadways, culverts, ditches and swales) and underground infrastructure (storm and combined sewers), 18 pump stations, and hundreds of distributed storage facilities (stormwater management facilities such as wet and dry ponds, underground storage, engineered wetlands and low impact developments) work together to manage the volume, flow and quality of runoff that enters Edmonton's urban creeks and the NSR.

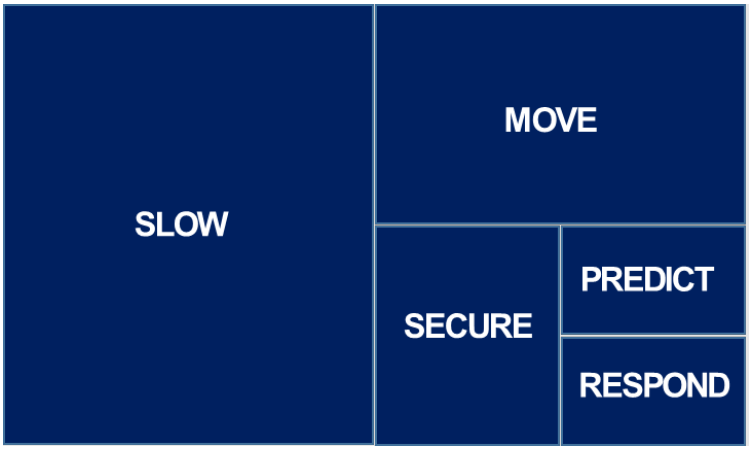
55. The collection system in the city's core and surrounding older neighborhoods stores and conveys both sanitary and storm wastewater through 850 km of combined pipe. The combined sewer and stormwater system faces challenges in handling stormwater and sanitary flows during heavy rainfall events. This can result in Combined Sewer Overflows (CSOs), posing threats to public health and the environment due to the risk of contamination. To mitigate these overflows, EWS has implemented various measures, such as overflow containment strategies, enhanced real-time monitoring, temporary storage of CSO flows and diversion to the WWTP and upgrades to the collection and treatment systems. In this PBR, additional investments in inflow/infiltration reduction and increased installations of LID will further reduce the risk of CSO occurring.

56. For the 2025-2027 PBR term, EWS continues to focus on reducing inflow and infiltration into the sanitary and combined sewer systems to decrease the risk of flooding due to sewer backups and to create capacity within the existing sewer network for future growth. The 2025-2027 capital plan includes funding for Inflow and Infiltration and continued investment in Low Impact Developments (LIDs) to reduce peak flows on the wastewater system. In addition, a new Stormwater Management Rebate Program is being introduced to provide incentives for private property owners to implement effective stormwater management practices and mitigate potential damage caused by sewer back-ups and flooding. See Appendix P for additional information regarding this new rebate program. This comprehensive approach is aimed at reducing the burden on the combined sewer system during heavy rain events and is intended to ensure the safety of both the public and the environment.

57. The 2024 Wastewater Integrated Resource Plan (WWIRP) outlines EWS' commitment to ensure the continued provision of safe, reliable, resilient utility services to a growing population. The plan aims to maximize the use of EWS' existing infrastructure by optimizing and enhancing the system, while maintaining reliability of its assets. This includes modular, right-sized solutions that can be scaled up with time according to growth projections and the impact of climate change, including balancing flows between GBWWTP and ARROW Utilities WWTP to ensure cost effective services. The city has also been delineated into 23 Sanitary Planning Areas (SPAs) to focus planning more locally versus solutions that were historically focused on the deep, trunk system. Local sanitary planning includes reducing inflow and infiltration, increasing situational awareness to improve visibility of the system, reducing odour and corrosion, capacity enhancements and managing asset risk and bypass capabilities.

58. The plan also includes initiatives that focus on advanced stormwater management across 18 major stormwater basins. EWS' Stormwater Integrated Resource Plan (SIRP), approved by the City of Edmonton Utility Committee and City Council in 2019, is a $1.6 billion investment that will be implemented over 20-30 years to mitigate flood risk by reducing the health and safety, financial and social risks of flooding.

59. The SIRP program is classified into the following five themes of investment:



- Slow: The entry of stormwater into the wastewater collection network is slowed by absorbing it in green infrastructure.
- Move: Excess water is moved away from areas at risk, quickly and efficiently.
- Secure: Individual properties in higher risk areas are secured against sewer backups, and flooding.
- Predict: Predict and manage the movement of stormwater through smart intelligent monitoring.

- Respond: Respond through fast rollout of flood barriers, traffic diversions, and public communications to protect life, safety, and property.

60. The Slow theme is the largest SIRP program investment category. A primary goal of the Slow theme is to adopt Low Impact Development (LID) solutions that promote sustainable urban development while enhancing the system's capacity to manage increased wastewater volumes and extreme weather events.

3.2 Overview of the Wastewater Treatment System

3.2.1 Gold Bar Wastewater Treatment Plant

61. EWS' Gold Bar WWTP is located in east Edmonton on the south shore of the NSR. The wastewater treatment plant is operated to treat wastewater flows from the city by removing solids, organic contaminants, nutrients and pathogens to protect public health and the regional ecosystem. An overview of the GBWWTP is shown in Figure 3.2.1-1. The plant is equipped with advanced technologies for treating large volumes of wastewater at the highest environmental standards. The treatment process involves several stages:

- The headworks and preliminary treatment stage uses coarse screening to remove large debris and inorganic solids from the wastewater. This stage also allows diversion of major CSO flows exceeding downstream capacity to the NSR.
- The primary treatment stage employs physical processes (fine screening and sedimentation) for the removal of organic solids along with fats, oil and grease.
- The secondary treatment stage involves biological processes to reduce organic content and nutrients like ammonia and phosphorus, followed by final clarification.
- The tertiary treatment stage utilizes ultraviolet (UV) disinfection for pathogen inactivation before the treated effluent is released to the NSR. Advanced membrane filtration and chemical processes are used on a portion of the secondary treated flow for further purification and reuse as process feed water for industrial clients.
- The solids handling system involves collection of the organic solids from wastewater, thickening them and breaking them down using digestion into stabilized sludge (biosolids) and biogas. Biosolids from the GBWWTP are conveyed to the Clover Bar Biosolids Resource Recovery Facility (CBRRF) via pipeline for nutrient recovery and land application.

- The biogas system involves collection and reuse of the biogas generated from wastewater within the digestion system at the GBWWTP. Biogas contains methane and is used as fuel in boilers, for process and space heating on site. The system also involves flaring of any excess biogas to minimize emissions to the environment.
- The odour management system collects odorous air from the treatment process using a network of covers and ducting and provides treatment using a total of nine odour scrubbers on site. The clean released air is constantly monitored for odour and an air quality monitoring station informs the performance of the system.

Figure 3.2.1-1
Gold Bar Wastewater Treatment Plant Overview

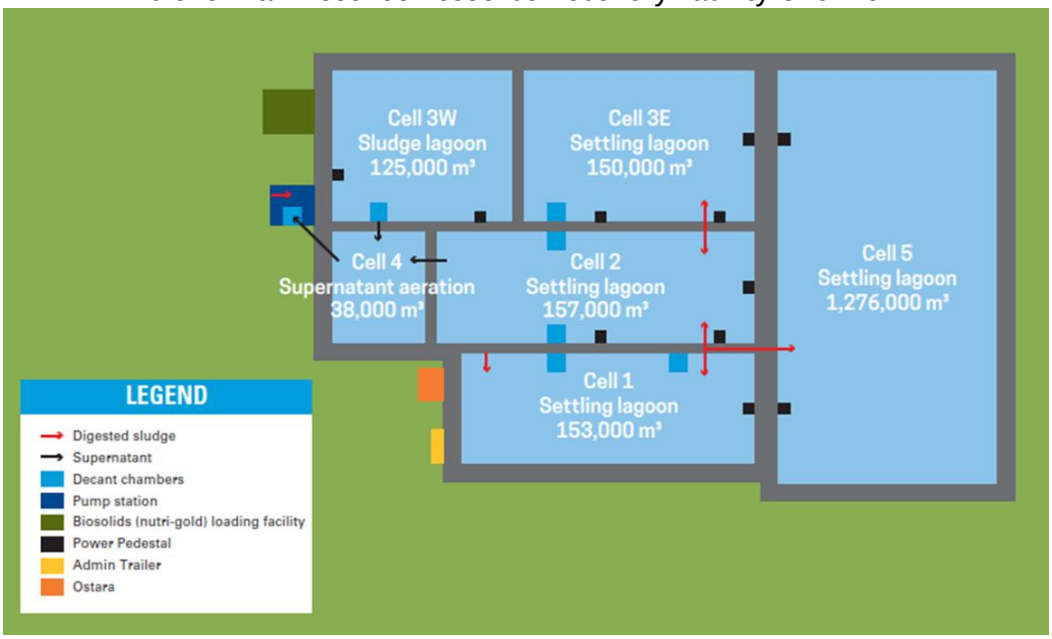
3.2.2 Clover Bar Biosolids Resource Recovery Facility

62. The CBRRF is in the north-east of Edmonton within the larger Edmonton Waste Management Centre (EWMC) site, on the south shore of the NSR. An overview of the CBRRF is

shown in Figure 3.2.2-1. The facility receives digested sludge or biosolids from the GBWWTP and ARROW Utilities, and provides storage, processing, and utilization of the biosolids for nutrient recovery and land application. The treatment process involves several stages:

- Biosolids Storage Basins consist of five large earthen basins / cells to facilitate the storage and thickening of the biosolids. Biosolids from the GBWWTP is piped into Cell 5 and ARROW sludge is trucked in and dumped into Cell 3. The liquid extracted from the biosolids (supernatant) is returned to both treatment facilities to protect the NSR. Supernatant is decanted into Cell 4 and then directed to the OSTARA Nutrient Recovery Facility (NRF) for phosphorus and ammonia removal. The treated supernatant is then pumped to the wastewater collection system and returned to the two treatment facilities. Supernatant can also be returned directly when the NRF is not in operation.
- OSTARA Nutrient Recovery Facility uses the supernatant from the biosolids storage basins and converts a portion of the phosphorus and ammonia into fertilizer, thereby allowing a reduction in the influent loading to the treatment facilities and a reduction in nutrient inventory in the basins. This also helps in reducing the rate of struvite buildup in the system.
- Biosolids Dewatering process currently utilizes a temporary setup to seasonally dewater a portion of thickened sludge from Cell 5. The temporary facility has been in operation since the closure of the permanent facility previously operated by the City of Edmonton.
- Nutri-Gold Program facilitates the land application of thickened and dewatered biosolids from the CBRRF. The program operates seasonally to allow the use of biosolids as a fertilizer and soil amendment via application on farmlands and for mine reclamation.
- Pipelines System between GBWWTP and CBRRF is used to convey biosolids and supernatant. The distance between the sites is approximately 10 km and the total amount of buried piping is approximately 33 km. The system also includes several buried chambers with mechanical and electrical assets. Maintaining the integrity, capacity and redundancy of this system is crucial for the wastewater treatment.

Figure 3.2.2-1
Clover Bar Biosolids Resource Recovery Facility Overview



63. The reliability and efficiency of the processes at both GBWWTP and CBRRF is critical for ensuring the effluent discharged into the environment meets stringent regulatory requirements. This multi-staged approach ensures that the wastewater treatment system remains compliant with evolving environmental standards while effectively managing the wastewater from the city without interruption.

64. The 2024 WWIRP outlines various initiatives for enhancing the wastewater treatment system. These include upgrading equipment to ensure reliability, implementing advanced process control systems, exploring sustainable treatment methods, and conducting regular maintenance and monitoring activities based on asset management principles. These initiatives are essential for ensuring the treatment system remains effective, efficient, and environmentally compliant in the future.

3.3 Future Expectations for the Wastewater Collection and Treatment Systems

65. The EWS wastewater collection system will expand and adapt due to growth and become more resilient in the face of increasing urbanization and climate change uncertainties. EWS plans to optimize the sewer network to accommodate new developments (both greenfield and redevelopment) while enhancing the system's resilience to manage increased stormwater volumes and extreme weather events. Investing in LID, inflow and infiltration reduction and smart technologies will play a significant role in the future for the wastewater collection system.

Continuing to encourage efficient water use along with the items above will allow for increased customer growth while limiting the need for new pipes to support these additional customers. These solutions are expected to make the system more sustainable, efficient, and adaptable to the changing urban landscape and environmental conditions.

66. EWS will continue to work collaboratively with ARROW Utilities to deliver reliable and resilient wastewater services to Edmonton and the capital region. Multiple additional opportunities to manage and balance flows between the two WWTPs are being investigated to maximize the operational resiliency of the wastewater collection and treatment operations.

67. As the city grows, the wastewater treatment systems face operational challenges in handling new and greater contaminant levels along with challenges posed by aging infrastructure, while adhering to increasingly stringent environmental regulations. EWS addresses these challenges by integrating advanced technologies and optimizing existing processes, thereby limiting physical expansion. For instance, intensification of nutrient recovery process, optimization of solids handling, use of new blower technology and advanced controls for process aeration are some of the innovative technologies adopted to improve system performance and sustainability.

68. EWS' wastewater collection and treatment systems are well positioned to meet current and future requirements of the city. The strategic initiatives outlined in the WWIRP demonstrate EWS' commitment to provide safe, reliable and resilient wastewater utility services. The capital plan, outlined in Section 7.2 and 15.2 of this Application, aligns with the 2024 WWIRP and Edmonton's growth and environmental goals.

4.0 METHODOLOGY AND KEY ASSUMPTIONS

69. The following is an overview of the key assumptions and methodology used by EWS to derive its revenue requirement for the 2025 – 2027 PBR term. It includes an overview of EWS' accounting policies, followed by an explanation of the process for forecasting both its operating and capital costs, which includes key economic assumptions. In addition, the method used to calculate depreciation, amortization, and capital overhead, and the approach taken to determine customer count and consumption volumes are outlined below.

70. All financial data contained in this Application, including both sub-totals and totals, have been rounded to the nearest $0.1 million to ensure consistency of data between tables and across years. Due to this rounding methodology, the sum of the rounded financial data in certain tables may not match the associated total or sub-total.

4.1 Accounting Policies

71. Since January 1, 2011, EUI has prepared its corporate financial information in accordance with International Financial Reporting Standards (IFRS) as required for Canadian publicly accountable enterprises. While EWS has implemented IFRS to support the public external financial reporting requirements of its parent company, EUI, there are certain IFRS requirements which are not consistent with the accounting treatment historically applied for rate-making and rate-regulated reporting requirements (referred to herein as "regulatory accounting").

72. In 2009, the Alberta Utilities Commission (AUC) issued Rule 026 "Rule Regarding Regulatory Account Procedures Pertaining to the Implementation of the International Financial Reporting Standards" (AUC Rule 026) to provide guidance to AUC-regulated utilities transitioning to IFRS. In preparing its regulatory applications, EWS has looked to existing regulatory accounting practices and guidance from AUC Rule 026 to assess IFRS requirements that may be applied for rate-making purposes. Although EWS' wastewater treatment and collection rates are not regulated by the AUC, EWS considers AUC Rule 026 as a source for guidance on IFRS requirements for two reasons: 1) to ensure relative consistency in practice with other regulated utilities in Alberta and 2) to promote administrative efficiency and effectiveness by minimizing the differences between regulatory accounting for both In-City and regional water customers which the AUC regulates on a complaint basis.

73. In this PBR application, EWS is proposing a change to its accounting policy in relation to the treatment of cloud computing costs as EUI is currently in the process of implementing several

cloud-based Software as a Service (SaaS) technology projects. This transition is necessary due to various on-premise solutions either having reached their end-of-life or are approaching it, with many vendors no longer providing support or upgrades to existing systems. Additionally, cloud-based solutions are cost-effective and offer other benefits such as scalability, security, and redundancy. As per the requirements of IFRS and Rule 026, these projects' costs must be classified as operating expenses rather than capital costs.

74. EWS' capital expenditure forecast includes the cost of these SaaS projects, which are expected over the 2025-2027 period. EWS is requesting capitalization of these SaaS costs with an estimated useful life of 10 years, consistent with the useful life of software intangible assets owned by EWS. This treatment would ensure that the expenses incurred to deliver the required functionality are recovered from customers over time. The 2025-2027 capital expenditure forecast includes SaaS costs of $11.1 million for Wastewater Collection and $2.2 million for Wastewater Treatment.

75. For regulatory accounting, EWS recommends capitalization of SaaS costs. Only a portion of cloud costs are then reflected in EWS' revenue requirement and rates over the 2025-2027 period, resulting in stable and predictable rates for customers. If these costs are classified as operating expenses, EWS' revenue requirement for Wastewater Collection and Wastewater Treatment would increase by $9.9 million and $2.0 million, respectively.

76. EWS' proposed capital treatment aligns with the capital treatment for comparable expenses approved by the AUC in Decision 27675-D01-2023 relating to EPCOR Distribution and Transmission Inc.'s 2023-2025 Transmission Facility Owner application.

77. For EWS, the most significant differences between IFRS and regulatory accounting relate to property, plant and equipment and associated accounts. Key differences between IFRS and regulatory accounting for EWS are described in Table 4.1-1.

Table 4.1-1
Regulatory vs. IFRS Accounting Treatment

	A Accounting Policy Item	B IFRS Accounting Treatment	C Regulatory Accounting Treatment used by EWS
1	Capitalized Interest – this item relates to financing related charges which are included in the capital cost for projects during construction.	For IFRS accounting, EWS uses Interest During Construction (IDC). IDC is charged to capital projects lasting longer than 6 months and only has a debt component to the charge.	For regulatory accounting EWS uses Allowance for Funds Used During Construction (AFUDC). AFUDC is charged to capital projects lasting longer than 12 months and has both debt and equity components to the charge.
2	Abandonments – this item relates to the treatment of expenses incurred to abandon, demolish, or decommission an asset which is no longer in use.	For IFRS accounting, EWS expenses abandonments as incurred.	For regulatory accounting, EWS charges abandonment costs to capital as incurred.
3	Retirements – this relates to losses incurred when an asset with the remaining net book value is taken out of service and proceeds when assets are sold.	For IFRS accounting, EWS records gains and losses on retirement as net expense in the period the retirement occurs.	For regulatory accounting, depending on the nature of the transaction, EWS may charge gains and losses on retirement to capital and amortize the gain/loss over the remaining life of the asset at the time of disposal.
4	Leases – this item relates to the use of assets held under rental or lease agreements where control of the asset for the lease term resides with the lessee	For IFRS accounting, unless the lease is a short-term rental, EWS records a right of use asset and a related obligation to the lessor and depreciates the right over the period of the lease term	For regulatory accounting, no right of use asset or obligation is recognized, and the lease cost continues to be treated as an operating expense.
5	Cloud Computing Costs – this item relates to technology solutions stored on a cloud server hosted by a third party	For IFRS accounting, EWS expenses cloud costs as incurred	For regulatory accounting, EWS has proposed to charge cloud costs to capital as incurred with costs depreciated based on the EWS useful life for software.

4.2 Cost Forecasting Process

78. EWS undertakes a comprehensive forecast of its revenue requirements for its regulated Wastewater Treatment and Wastewater Collection operations. The revenue requirement is based on forecasts of operating costs and capital expenditures prepared by managers for 2025, 2026, and 2027.

79. Operating cost forecasts are developed on a bottom-up basis for the year 2025 based on the best available information regarding expected work activity and cost levels for the upcoming year. Since these forecasts are initially prepared in 2024 dollars, the operating cost forecasts are then escalated using the PBR forecast inflation of "i-x" (i.e., the weighted average inflation factor less the efficiency factor of 0.25%) to arrive at the forecast costs in nominal dollars for 2025 to 2027. Rows 7 and 12 of Table 4.2.1-1 provides the PBR forecast inflation for Wastewater Treatment and Wastewater Collection.

80. EWS' forecast capital expenditures and capital additions for 2025, 2026 and 2027 are based on its planned capital projects and programs for each year. These forecasts are developed using the comprehensive and well-defined capital management process described below.

81. EWS then calculates its forecast revenue requirements for 2025 to 2027 based on the following:

- forecast operating costs;
- depreciation expense for existing assets and forecast capital additions; and
- debt and equity returns on in-service capital (the "rate base").

82. Financial Schedules 5-2, 15.5-1 and 15.5-2 provide a summary of EWS' annual operating and capital expenditure forecast.

83. Depreciation expense is calculated using the methodology and asset lives described in Section 4.4.

84. Debt and equity returns are calculated by multiplying EWS' rate base by its proposed capital structure of 60% debt and 40% equity to determine the portions of the rate base financed by debt and equity, respectively. Returns on the portion of the rate base financed by debt are calculated using the forecast weighted average cost of debt. The weighted average cost of debt includes interest on existing debt and interest on new debt issuances. The interest rate on new debt issuances is fixed over the 3-year PBR term. Returns on the portion of the rate base financed by equity are made at the proposed rate of return on equity, which is also fixed for the 3-year PBR term.

85. Adopting this approach enables EWS to forecast the revenues required to support its ongoing operations to treat wastewater safely and reliably in compliance with environmental regulations while supporting its capital infrastructure investment requirements for the upcoming PBR period. EWS bears the risk of any other cost increases above inflation, such as those related

to power, natural gas, chemicals, labour and materials, and other input price increases. Similarly, fixing interest rates on new debt issuances at 2025 rates and by fixing its return on equity at 10.80% for the 2025-2027 PBR term, ensures that EWS bears the risk of variations in its cost of debt and equity during the three-year period. Customers benefit from having stable, predictable rates and are shielded from rate increases associated with higher input prices (above inflation) and any increases in EWS' cost of debt and equity.

86. The following Sections summarize EWS' inflation forecast methodology along with operating and capital cost forecast process.

4.2.1 Inflation Factor Forecast

87. Consistent with the methodology approved for the 2022-2024 PBR, the inflation factor is calculated as a weighted average of two Statistics Canada inflation measures:

- Statistics Canada Table: 14-10-0209-01 (formerly CANSIM 281-0035): Alberta Average hourly earnings (AHE) including overtime for the industrial aggregate excluding unclassified businesses; and
- Statistics Canada Table: 18-10-0005-01 (formerly CANSIM 326-0021) – CPI, annual average, not seasonally adjusted, 2013 Basket, 2002 = 100, Alberta, All Items.

88. EWS is not proposing any change to the weightings of CPI (non-labour component) and AHE (labour component) approved for the 2022-2024 PBR, as there have been no substantive changes to input mix of non-labour and labour costs for either Wastewater Treatment Services or Wastewater Collection Services. Therefore, consistent with the 2022-2024 PBR, EWS is applying for a weighting of 65% CPI and 35% AHE for Wastewater Treatment Services and a weighting of 40% CPI and 60% AHE for Wastewater Collection Services.

89. EWS purchased a forecast for the two Statistics Canada inflation measures from the Conference Board of Canada in January 2024. EWS has used the Conference Board's 2025-2027 forecast to calculate the forecast escalators for Wastewater Treatment and Wastewater Collection. The forecast values and calculations are shown in Table 4.2.1-1.

Table 4.2.1-1
Inflation Factor Forecast

		A 2025	B 2026	C 2027
	Forecast Inflation Rate			
1	CPI	1.90%	2.00%	2.00%
2	AHE	2.30%	2.80%	2.10%
	Wastewater Treatment			
3	CPI weighting	65%	65%	65%
4	AHE weighting	35%	35%	35%
5	Weighted Inflation (i)	2.04%	2.28%	2.04%
6	Efficiency Factor (x)	0.25%	0.25%	0.25%
7	PBR Forecast Inflation (i-x)	1.79%	2.03%	1.79%
	Wastewater Collection			
8	CPI weighting	40%	40%	40%
9	AHE weighting	60%	60%	60%
10	Weighted Inflation	2.14%	2.48%	2.06%
11	Efficiency Factor (x)	0.25%	0.25%	0.25%
12	PBR Forecast Inflation (i-x)	1.89%	2.23%	1.81%

90. Consequently, EWS has used the forecast escalator for each year in the 2025-2027 PBR Application for Wastewater Treatment and Collection Services.

91. In accordance with Schedule 3 of the EPCOR Wastewater Bylaw, the inflation factor will be updated annually based on the projected inflation for the upcoming year provided by the Conference Board of Canada. EWS' wastewater treatment and collection rates for each year will also include an inflation adjustment to account for any differences between the forecasted and actual rate of inflation for the preceding calendar year. Since the actual rate of inflation may not be available for the entire preceding calendar year, actual inflation for the most recent consecutive 12-month period may be used as a substitute for calculating the inflation adjustment.

4.2.2 Operating Cost Forecast Process

92. The following summarizes the operating cost forecast process for EWS' major operating cost categories:

4.2.2.1 Staff Costs and Employee Benefits

93. This category consists of direct salaries, employee benefits, overtime and incentives, offset partially by labour recoveries for employee time spent on capital and commercial projects. EWS' compensation structure for its management employees includes a base level of compensation including benefits and an incentive component. The incentive component is paid

upon achieving specific performance targets, such as financial, safety, customer, operational and individual performance targets. Salaries for non-bargaining unit staff are reviewed annually and adjusted based on market assessments. Wages for union staff are determined based on the provisions of current collective bargaining agreements.

94. EWS developed its 2025 salaries and benefits cost forecast based on its best estimates of work levels for the upcoming year. Beyond 2025, there are no increases in operating costs related to additional staff. EWS then applied the inflation factor to obtain a forecast of salaries and benefits costs in nominal dollars for 2026-2027.

95. Under the 2025-2027 PBR structure, EWS bears the risk of staff costs and employee benefits increasing at a rate higher than the inflation factor. For example, salaries and wages for EWS' union staff are determined based on negotiated collective bargaining agreements with International Brotherhood of Electrical Workers Local 1007, Civic Service Union 52 and Canadian Union of Public Employees Local 30. One of the agreements expired on December 16, 2023 while the remaining two agreements are set to expire on December 14, 2024. EWS will bear the risk if the new collective agreements contain salary and wage increases higher than the forecast rate of inflation.

4.2.2.2 Power, Other Utilities and Chemicals

96. This category consists of utility expenses such as power, natural gas, water, and chemicals used in the wastewater collection, treatment, and nutrient removal processes. The utility expenses and related cost forecast process is described below:

Wastewater Treatment

97. Approximately 12% of the total operating costs for Wastewater Treatment operations are related to utility expenses, which include the following:

- Power: Approximately 78% of utility expenses for Wastewater Treatment are comprised of power costs, as detailed in Section 6. Power costs are based on the amount of power consumed by the various treatment processes, as detailed in Section 6. EWS' current long-term power contract is set to expire at the end of 2024 and EWS will pursue a new contract for the 2025-2027 period through a competitive bidding process. EWS developed its 2025 power cost forecast based on an energy price forecast provided by EDC Associates and incorporates contract pricing for renewable energy attributes from the Hilda Wind Farm in southern Alberta. EWS has

assumed no increase in power volumes due to relatively stable consumption levels. Beyond 2025, EWS has applied the inflation factor to obtain a forecast of power costs for 2026-2027.

- Water and Natural Gas: Approximately 5% of utility expenses for Wastewater Treatment are related to water, while approximately 3% of utility expenses are related to natural gas, as detailed in Section 6. Water and natural gas costs are based on estimates of consumption multiplied by the price per unit consumed. Beyond 2025, EWS has applied the inflation factor to obtain a forecast of water and natural gas costs for 2026-2027.
- Chemicals: Approximately 14% of utility expenses for Wastewater Treatment are related to chemicals, as detailed in Section 6. EWS developed its 2025 chemical cost forecast based on its best estimates of chemical volumes and prices. Beyond 2025, EWS has applied the inflation factor to obtain a forecast of chemical costs for 2026-2027.

Wastewater Collection

98. Approximately 2% of the total operating costs for Wastewater Collection operations are related to utility expenses. Due to the negligible value of these costs for Wastewater Collection, they are not detailed in Section 14.

4.2.2.3 Contractors and Consultants

99. This cost category represents approximately 28% of Wastewater Treatment's total operating costs while approximately 13% of Wastewater Collection's total operating costs are comprised of this category. Over the 2025-2027 PBR term, expenses related to the Biosolids Management Program account for over 75% of the total costs in this category for Wastewater Treatment. EWS uses contracted services for composting and dewatering, land application, monitoring and other services related to the Biosolids Management Program. The remaining costs included in this category pertain to contractors and consultants engaged by EWS when specialized equipment or in-house expertise is unavailable. Contractor and consultant costs for 2025 were estimated by each functional area based on the best estimate of the required scope of work. Beyond 2025, EWS has applied the inflation factor to obtain a forecast of contractor and consultant costs for 2026-2027.

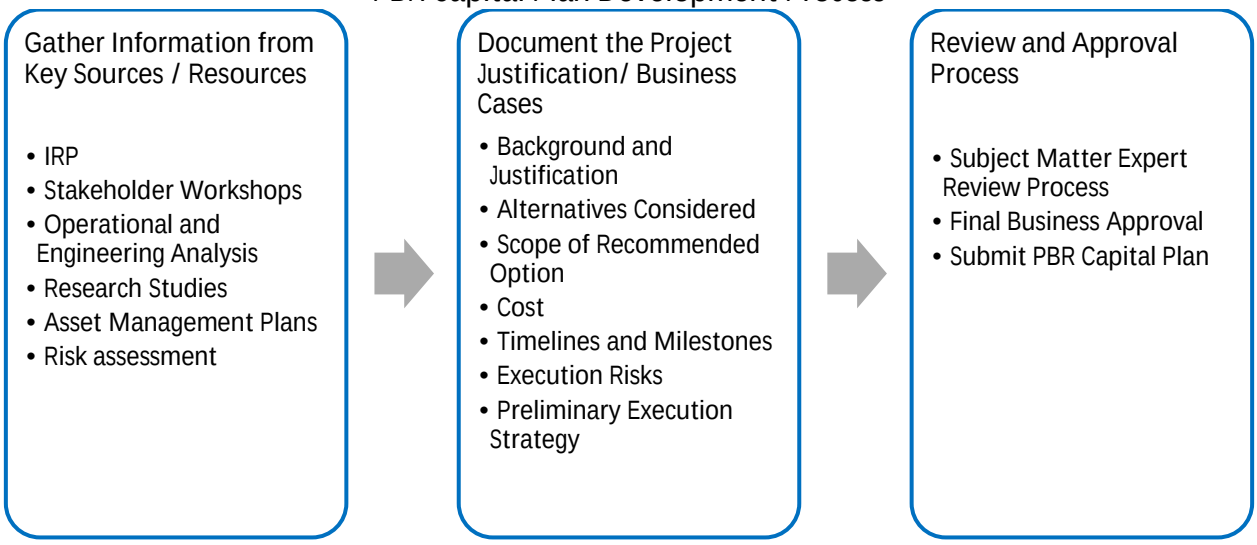
4.2.3 Capital Cost Forecast Process

100. The capital cost forecasts for the 2025-2027 PBR term are based on a well-established capital management process which covers the identification, evaluation, approval, execution, and monitoring of capital projects. Ongoing oversight of the capital management process is provided through EWS' Capital Steering Committee, Capital Governance and Reporting team, and the Financial Review Council, which is comprised of EPCOR's executive leadership.

4.2.3.1 PBR Capital Plan Development Process

101. EWS follows a three-step approach for the development of its capital plan. This approach is illustrated in Figure 4.2.3.1-1 and described further below.

Figure 4.2.3.1-1
PBR Capital Plan Development Process



Step 1: Gather Information from Key Information Sources

102. EWS' PBR capital plan is informed by various sources, both internal and external. These sources include research studies, asset management plans, operational and engineering analysis, Integrated Resource Plan (IRP), stakeholder workshops, and more. Although PBR submissions occur only once every few years, EWS continually assesses its operations and assets, maintaining a comprehensive understanding of its upcoming priorities and challenges.

103. To develop its capital plan, EWS draws on external processes and sources of information such as the City of Edmonton, external expert resources, and industry trends.

- City of Edmonton – EWS collaborates with the City of Edmonton on an ongoing basis, including through the City of Edmonton/EPCOR Capital Working Committee. Strategic documents, including the City Plan and Edmonton Region plans, are monitored to ensure alignment with the city's growth projections and strategic objectives.
- External expert resources – External engagements such as engineering studies, risk mitigation analyses, and inspections of assets are performed and incorporated into EWS' capital plans.
- Industry – EWS monitors trends occurring within the industry and collaborates frequently with other Canadian municipalities to address common challenges through research projects and active industry working group participation. EWS is represented on the Board of the Canadian Water Network and is an active participant in the Canadian Water Network municipal consortium leadership group, which meets regularly to collaborate on programs to improve the operation of the major utilities across Canada. EWS is also a member of the Water Research Foundation, where it collaborates with other municipalities to share best practices and participates in research initiatives for the water, wastewater treatment, and wastewater collection systems.

104. In addition to external information sources, internal processes and plans help identify new priorities and challenges in developing the capital plan, such as:

- Integrated Resource Plan (IRP) – Integrated Resource Planning is the iterative long range planning approach used by EPCOR for regulated water and wastewater operations in Edmonton. The IRP documents (Water IRP and Wastewater IRP) provide a summary of the strategies and planning principles for Edmonton's water, sanitary, and storm systems, including our treatment plants and solids management facilities. The result is an evolving path forward for building, operating and maintaining a municipal water and wastewater system that meets or exceeds all regulatory requirements and helps ensures the provision of safe, reliable utility services to a growing population. The approach also recognizes that society, the economy, and the environment interact and are constantly evolving. Therefore, in addition to traditional factors such as plant capacities, rainfall, and customer use and discharge, the plan also examines external factors such as changing regulatory requirements, corporate goals, and new technologies to identify factors that can shift what have traditionally been the "knowns" in the planning process. Scenario Planning is utilized as an enhancement

to the Integrated Resource Plan process to better account for a wide range of future situations for the storm and wastewater systems.

- Asset Management Approach and Plans – EWS' asset management approach is a systematic process that structures and documents asset inventory, measures, monitors, and maintains asset performance, minimizes exposure to risk, and guides and optimizes the sustainable investment of funds.
- Operational and Engineering Analysis – Operational and engineering analysis includes conducting system analysis and performance evaluation. Modeling tools are also used to identify significant deficiencies and opportunities to improve efficiency. Much of EWS' capital work is related to the life cycle replacement or rehabilitation of aging assets such as electrical, mechanical, structural, chemical, and control systems. Aging assets are assessed through inspection or engineering analysis to determine the optimum timing of rehabilitation or replacement work.
- Capital Planning Workshops – EWS regularly engages its staff from all areas to participate and contribute towards the development of the PBR capital plan through its capital planning reviews. Staff collectively review operational risks, project justification, and risk of reduced or deferred investment for major projects and programs. This enables the ranking and prioritization of projects based on risk and the development of an optimal investment level.

105. The primary objective of asset management is to optimize the total cost of ownership of assets while mitigating the risks associated with the assets that could potentially impact business objectives. To achieve this objective, EWS' asset management follows a risk-based approach for determining whether continued maintenance or capital investment is the optimal course of action for an asset. The assessment is based on evaluating each asset's potential to impact employee health and safety, environmental concerns, public health, operating permit requirements, customer and capacity needs, as well as the financial losses that may arise in the event of a failure. The condition of each asset is assessed to determine its likelihood of failure, including its physical state and operational performance, which helps confirm the assets that are most critical to the organization, regardless of their condition, and which ones are expected to fail soon. Assets with a high risk of failure and high impact/consequence at failure are given priority in EWS' capital plan as projects or programs to ensure sustained performance. This information heavily informs the Reliability/Life Cycle Replacement investment category.

106. In addition, critical assets that could result in significant downtime and loss of service are assessed to determine the best approach to manage risk. This may involve expanding the system with a redundant system, purchasing critical spare components, or developing emergency response plans and enhancing ongoing operations and maintenance activities.

107. The PBR capital plan is developed using input from various information sources, PBR specific assessments, and internal and external expert resources, which provides a consolidated and balanced perspective of the capital requirements.

Step 2: Project and Program Categorization and Business Case Preparation

108. EWS utilizes a project and program categorization system to facilitate the prioritization, justification, and analysis of each initiative. For the 2025-2027 PBR term, the following four categories are utilized to classify projects:

- Regulatory / Health, Safety and Environment (HSE) – projects and programs within this category are specifically identified to address current and upcoming regulatory requirements from operational regulatory bodies such as Alberta Environment and Protected Areas (AEPA) and/or identified to address health, safety and environmental considerations of employees and the public.
- Growth / Customer Requirements – projects and programs within this category are identified to address growth within the franchise area, customer requirements, specific requests from customers (e.g. City of Edmonton), or to meet required service level standards.
- Reliability / Life Cycle Replacement – this category includes projects and programs that rehabilitate or replace assets that are at the end of their useful life or to ensure asset reliability.
- Efficiency / Performance Improvement – projects and programs that result in operational efficiency and/or lower future costs.

109. Following an extensive review, analysis, and establishment of capital priorities, EWS applies a consistent and rigorous approach for the documentation of each project, which is supported by various tools and guidelines to support cost estimation and other critical components of project justification.

110. A formal business case is prepared for Wastewater Treatment projects and programs that exceed $5.0 million during the PBR term. For Wastewater Collection, a formal business case is

prepared for projects and programs that exceed $10.0 million during the PBR term. Project and program business cases for Wastewater Treatment and Wastewater Collection are provided in Appendix F and G, respectively.

Step 3: Review and Approval Process

111. The proposed projects are subjected to a thorough review process by various departments, including operations, finance, and regulatory staff. This is done to ensure accuracy, provide guidance on corporate contingency guidelines, and identify any interdependence between projects and programs. Senior management reviews at the project and program level and at the consolidated level to ensure a consistent risk-based approach is applied across all operational areas. Finally, EWS Executive leadership provides the final approval of the PBR capital plan, following a comprehensive review and discussion with operations, finance, and regulatory staff. This review ensures a clear understanding of the risks associated with executing the project or program and the risks mitigated by its execution.

4.3 Capital Structure and Cost of Capital

112. The cost of capital is comprised of EWS' cost of debt, cost of equity (return on equity) and its capital structure or proportion of debt and equity financing. EWS is applying for a deemed capital structure of 60% debt and 40% equity for the 2025-2027 term. This is consistent with EWS' actual capital structure, its historical approved capital structure and is consistent with capital structures of the proxy group companies. EWS' methodology for determining its return on equity and cost of debt are described below. Calculations of EWS' weighted average cost of capital and return on rate base are provided in Section 10.0 and Section 18.0.

4.3.1 Rate of Return on Equity

113. In general terms, the return on equity is the return investors require in exchange for making an equity investment and this principle is based on the "fair return standard". As affirmed in both Canadian[2] and U.S.[3] courts, a fair return is one that is:

- sufficient to attract capital at reasonable cost and terms;

[2] Canada Supreme Court Decision: Northwestern (1929) S.C.R. 186, at 192-193. Federal Court of Appeal (Canada) Decision: TransCanada, 2004 FCA 149 [6] [12] [13].

[3] U.S. Supreme Court Decision: Hope, 320 U.S. 591 (1944), at 603.

- sufficient to ensure financial integrity; and
- commensurate with returns expected elsewhere for investments having corresponding risks.

114. In determining the fair return for utilities, regulators across North America may take different approaches, however, they are primarily based on methods commonly used by cost of capital experts, which are established within academic and financial literature, and rely on economic assumptions related to the prevailing market conditions and financial information from comparable utility peer groups. It is a well established practice to rely on multiple methods to assess the fair return as each method provides useful evidence and each also have limitations.

115. EWS engaged Mr. Dylan W. D'Ascendis, a cost of capital expert and partner with ScottMadden Inc., to recommend a fair rate of return for EWS' operations. Mr. D'Ascendis' evidence on the proposed return on equity for EWS is provided in Appendix D.

116. Mr. D'Ascendis has provided expert testimony in over 150 proceedings regarding various financial and regulatory matters, including issues relating to return on equity and capital structure. Mr. D'Ascendis holds a Certified Rate of Return Analyst Professional Designation from the Society of Utility and Regulatory Financial Analysts, a Bachelor's Degree in Economic History and Masters in Business Administration with concentration in Finance and International Business, see Appendix D for his full qualifications.

117. As supported by his detailed evidence, Mr. D'Ascendis recommended a return on equity of 10.8% for EWS with a capital structure of 60% debt and 40% equity. The capital structure is reflective of EWS' actual capital structure, its historical approved capital structure and is consistent with the capital structures of the proxy groups. Mr. D'Ascendis assessed EWS' return on equity by applying three commonly used methodologies:

- the capital asset pricing model;
- the risk premium model; and
- the discounted cash flow model.

118. For purposes of this discussion, this is referred to as the "traditional approach" to assessing the return on equity.

119. Each of the three methods rely on empirical financial data from relevant and observable utility benchmarks with comparable risk. In the analysis, the utility benchmarks selected form the proxy group from which EWS' return is determined. As Mr. D'Ascendis indicates in his

evidence, appropriate proxy group selection is critical to the analysis. Since no two companies are identical, it is common for cost of capital experts to use a wide range of similar companies with similar risks. Since there are no other publicly traded water and wastewater utilities in Canada from which to compare EWS' risk, Mr. D'Ascendis determined that the closest peers to EWS are from two groups including:

- Canadian regulated electric and natural gas utilities; and
- U.S. water and wastewater utilities.

120. Other Canadian regulators, such as the AUC and the British Columbia Utilities Commission, have included U.S. utilities in their determinations of return on equity, and therefore this is acceptable practice. As detailed in Mr. D'Ascendis' report, EWS' operational risks are more accurately reflected by the results of the U.S. water and wastewater utilities industry.

Comparison of EWS' Proposed Return on Equity with the AUC's Generic Cost of Capital

121. The recommended rate of return on equity of 10.8% is higher than the AUC's 2024 Generic Cost of Capital (GCOC) of 9.28%. Historically, EWS has maintained an equity risk premium above the GCOC for every PBR term as shown in table 4.3.1-1. EWS has also maintained a capital structure of 40% equity and 60% debt since inception of its PBR in 2002.

Table 4.3.1-1
EWS Approved Risk Premium Over the AUC's Generic Cost of Capital (2012-2026)

		2012-2016 PBR	2017-2021 PBR	2022-2024/26 PBR
1	AUC GCOC	9.00	8.50	8.50
2	EWS Approved Return	10.875	10.175	9.64* / 9.89
3	Equity Risk Premium	1.875	1.675	1.14* / 1.39

**The approved return of 9.64% and the equity risk premium of 1.14% reflects a 0.25% reduction in the fair return of 9.89% to account for the consumption deferral account introduced for the 2022-2024/2026 PBR term.*

122. The higher return on equity aligns with conclusions of the City's own cost of capital expert, Grant Thornton. In the 2017-2021 PBR proceeding, the City's cost of capital expert Grant Thornton also agreed that EWS should be provided a higher return than the AUC's GCOC. In their 2016 report reviewing EWS' 2017-2021 PBR Application, Grant Thornton stated the following:

> *We have considered the elements of EWSI's PBR in contrast to the Alberta Utilities PBR's and concur with the findings of the Sussex Report regarding the EWSI PBR*

having greater inherent risk compared to other Alberta Utilities[4].

123. Grant Thornton concluded that an appropriate risk premium above the AUC's GCOC is within the range of 1.54% to 2.12% (mid-point of 1.83%). Grant Thornton also agreed with EWS' capital structure of 60% debt and 40% equity. This higher return for EWS is appropriate because it reflects EWS' different and unique risk compared to the Alberta electric and gas utilities. These risks were presented in EWS' 2022-2024/2026 PBR Application and are summarized below.

1) The AUC Generic Cost of Capital does not reflect the risks inherent in operating water-cycle utilities. EWS serves the full water cycle – from water treatment, to distribution, collection of wastewater, treatment and return of wastewater back to the river. This is fundamentally different than electric and gas distribution utilities who do not produce the product.

   EWS faces risks associated with varying river water quality and irrespective of these changes, EWS is required to maintain the quality and safety of the final product. Ensuring that the product remains safe at all stages and within strict regulatory guidelines represents a tremendous public health responsibility. EWS also bears the environmental responsibility of returning wastewater to the river while ensuring no degredation of river water quality. The AUC regulated utilities only face environmental regulatory risks which are much different from the environmental and public health risks that EWS must bear.

2) EWS' longer asset lives and higher contributed assets increase its risk. The AUC regulated utilities have shorter asset lives of approximately 35 years compared to the close to 60 years for EWS. For EWS there is a greater risk of initial capital investment recovery associated with the longer asset lives. The longer capital recovery period also results in EWS facing greater risks from operating and maintenance costs above inflation. The resulting lower depreciation rates means that reliance on depreciation as one of the sources of internal cash flow is lower.

   In addition, EWS faces greater risks of cost increases associated with the management of contributed assets. Approximately 15% of the assets of AUC regulated utilities are contributed compared to the approximately 50% for EWS.

[4] Page 143, Grant Thornton, EPCOR Performance Based Regulation 2017-2021 Filing Review, December 22, 2016.

EWS does not earn a return on these contributed assets, yet is required to maintain and assume operational responsibility for the assets, which represents a higher risk in comparison to the Alberta electric and gas utilities.

3) AUC regulated electric and gas utilities benefit from multiple de-risking tools within their PBR structure. EWS faces greater risk of revenue fluctuations associated with short-term and long-term variations in consumption which arises from EWS' largely volumetric rate structure[5]. The AUC regulated utilities do not bear this risk to the same degree largely because their rate structure is approximately 30% consumption-based rates compared to EWS' rate structure which is approximately 70% consumption-based rates.

   EWS also bears risks associated with having cost of debt that is locked in for the PBR term and does not update annually based on changes in market interest rates. EWS cannot pass on the variances to customers as AUC regulated utilities can.

   Finally, EWS has no deferral accounts for any of its expenses - even for highly variable costs outside EWS' control such as chemical costs for water treatment[6]. In contrast, Alberta electric and gas utilities do benefit from deferral accounts for certain expenses.

Rational for the Applying the Traditional Approach to Determining the Return on Equity

124. Since the PBR framework was first adopted for the water utility in 2002, EWS has relied on cost of capital experts to determine the fair return on equity using traditional methods. The traditional method of relying on the three financial models (capital asset pricing model, risk premium model and discounted cash flow model) is the standard approach used widely for utility rate proceedings.

125. For the 2022-2025/2026 PBR, EWS temporarily departed from relying on the traditional method because of the impact of the global COVID-19 pandemic on financial markets. Due to the pandemic's significant impact on financial markets at the time, EWS' cost of capital expert observed that financial market data would not be reliable for setting EWS' return for the 2022-

[5] Note this risk has been largely mitigated for the 2022-2024/2026 PBR term due to the consumption deferral account that was introduced for this PBR term to address the difficulty of EWS to reasonably forecast water consumption during the pandemic. EWS is not including a consumption deferral account in the 2025-2027 PBR term.
[6] This statement assumes EWS' only deferral account, the consumption deferral account, is removed for the 2025-2027 PBR term to allow EWS to provide rate stability and predictability to its customers.

2024/2026 applications. Therefore, adopting a traditional approach would lead to distorted results.

126. Given the difficulties with relying on the traditional method during this time, the cost of capital expert proposed a different methodology to determine the return on equity using the risk premium that was recommended by the City's cost of capital expert Grant Thornton in the 2017-2021 PBR proceeding. EWS used the mid-point of Grant Thornton's recommended risk premium of 1.83% (mid-point of recommended range of 1.54% to 2.12%)[7] over the AUC's GCOC. EWS' cost of capital expert then applied a formulaic extension to estimate the AUC's GCOC in 2022 which was then added to the Grant Thornton risk premium to derive the recommended return on equity for EWS for the 2022-2024/2026 PBR term.

127. Prior to this analysis, EWS also looked at quantifying the risk premium above the GCOC on a bottom up basis. This method was proposed by Utility Committee during the public hearing to approve EWS' 2017-2021 PBR. At the time, Utility Committee directed EWS to work with City Administration to quantify the risk premium in advance of the next PBR application (2022-2026). EWS and City Administration sought the advice of cost of capital experts to determine a risk premium through a Request for Information (RFI). The RFI was circulated in 2019 and was ultimately unsuccessful. The consultants concluded that the quantified risk premium approach, while theoretically 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. The consultants indicated that this approach is not an established industry practice. EWS is not aware of any jurisdictions where this approach is utilized by regulators to determine a fair return.

128. Since the financial markets have returned to more normal conditions, EWS adopted the traditional approach for determining the proposed return on equity for the 2025-2027 PBR term. As noted above, calculating a risk premium on a bottom up basis is not a method that cost of capital experts use to determine fair returns. Even if it was possible to calculate the risk premium, the AUC's GCOC is not necessarily an appropriate starting point from which to determine EWS' return. The AUC's GCOC only provides a single data point whereas multiple sources of data should be used to establish EWS' fair return to more appropriately reflect the risks associated with EWS' operations. More specifically, no water and wastewater proxy group utilities were included in

[7] Mid-point of the GT recommended range of 1.54% to 2.12% for the risk premium as indicated on page 145 of Grant Thornton LLP's 2016 Report, "EPCOR Performance Based Regulation 2017-2021 Filing Review".

the AUC's determination of the GCOC as the AUC GCOC is the fair return for Alberta electric and gas utilities. In contrast, the traditional approach to determining EWS' fair return relies on a wide range of peer utilities with similar risks – including water and wastewater utilities.

129. For the reasons above, EWS has not attempted to determine a risk premium over the AUC's GCOC for the 2025-2027 PBR term nor did it consider adopting the AUC's GCOC and increasing the equity component of its capital structure to reflect the required adjustment in risk relative to the AUC's electric and gas utilities. If EWS were to accept the current GCOC of 9.28% for the 2025-2027 PBR term and adjust the equity thickness to equate to a return that is equivalent to the proposed fair return of 10.8%, it would require a sizeable equity increase to align with the allowed capital structure.

4.3.2 Cost of Debt

130. EWS reflects new debt issuances from its parent company, EUI, through deemed inter-company loans. Like other regulated utilities of EUI, EWS calculates the cost of new long-term debt based on the stand-alone principle. This means that the cost of new debt for regulatory purposes reflects the credit rating of EWS' regulated Edmonton operations (which includes Water, Wastewater Treatment, and Wastewater Collection) rather than the credit rating of the legal entity EWSI, which covers both regulated and non-regulated operations. The stand-alone principle ensures that ratepayers are responsible for costs that are proportional to the utility's risks.

131. In the past, EWS has relied on Dominion Bond Rating Service (DBRS) to obtain a one-time private stand-alone credit rating to calculate its forecast cost of new long-term debt. However, starting in 2022, DBRS and other rating agencies have declined to provide such ratings to regulated utilities, including AUC regulated utilities, if their ratings and reports are publicly disclosed in regulatory proceedings. As a result, EWS has used its historical credit rating of A (low), previously issued by DBRS and relied upon by EWS' Regulator until 2021, as a proxy to calculate the forecast cost of new long-term debt. Notably, there have been no material changes in EWS' operational, regulatory, or financial environment since the previous rating issued by DBRS. In addition, EUI has historically applied a 0% risk premium for EWS over EUI's cost of debt. Currently, EUI has an A (low) rating from DBRS and an A- rating from S&P.

132. In order to determine the cost of new inter-company debt issuances, EWS relies on published forecasts of Government of Canada long-term bond yields and EUI's indicative credit

spreads sourced from major Canadian banks. This methodology aligns with the approach approved for the 2022-2024 PBR term.

133. EWS proposes to fix the forecast cost of new debt issuances at 4.65% for the entire duration of the 2025-2027 PBR term as shown in Table 4.3.2-1. This reflects an increase of 1.15% in EWS' cost of debt of 3.50% approved in the 2022-2024 PBR term. This increase is primarily attributable to the Bank of Canada's quantitative measures introduced since 2022 to regulate inflation.

134. Under EWS' PBR framework, EWS assumes the full risk associated with interest rate fluctuations, without transferring it to customers, which allows EWS to maintain stable and predictable rates over a long time. This aspect of the framework is one of many that distinguishes EWS' PBR approach from the AUC PBR approach, resulting in a higher risk premium for EWS. In contrast, the AUC PBR approach involves Alberta electric and gas utilities passing on interest rate risk to their customers through rate adjustments. This risk factor represents another component of the EWS risk premium, which is in addition to the AUC's Generic Cost of Capital.

Table 4.3.2-1
EWS Forecast Cost of New Debt Issues
2024-2027

		A 2024D	B 2025F	C 2026F	D 2027F
1	Cost of Debt for New Debt Issues	3.50%	4.65%	4.65%	4.65%

135. The 2025 forecast cost of debt is determined as follows:

- the 2025 average yield on 30-year Government of Canada bonds of 3.17% based on the average forecasts from five Canadian banks published from January 2024 – February 2024; plus
- EUI's indicative 30-year credit spread of 1.43% based on the median of three Canadian banks indicative spreads, published February 2024; plus
- a 0% risk premium for EWS over EUI's cost of debt reflecting that EWS and EUI have the same credit rating; plus
- a transaction cost of 0.05%.

4.4 Depreciation and Amortization

136. Utility assets are depreciated over the shorter of the assets' physical, technological, commercial or legal lives. Depreciation and amortization of EWS' capital assets are determined on a straight-line basis over the estimated service lives. When an asset is no longer used or useful, the asset is retired. Assets that are similar in the way they function and have similar useful lives are grouped together and depreciated (referred to as "group asset"). When a group asset is retired or disposed of, its original cost is charged to accumulated depreciation with no loss or gain reflected in income. Gains or losses on the retirement of other assets such as buildings and vehicles are reflected in income.

137. In 2023, EWS engaged Alliance Consulting Group, a firm specializing in conducting depreciation studies for the utility industry, to perform a comprehensive study of its fixed assets for the Wastewater Treatment and Wastewater Collection operations (herein referred to as the "Depreciation Study"). The depreciation study aimed to assess the current mix of asset components and their average service lives. The primary objective of this study was to recommend any updates to the service lives of componentized assets and identify any new component categories as appropriate. The depreciation study serves as a valuable tool to ensure that EWS' fixed assets are depreciated over their useful lives and that asset-related expenses are allocated appropriately. Appendix M provides an in-depth analysis of the study.

138. This was the first depreciation study conducted for the Wastewater Collection services since the transfer of Drainage Services from the City of Edmonton to EPCOR in 2017. The depreciation study recommended that EWS revise the average service lives for certain asset categories, as detailed in Tables 4.4-1 and 4.4-2. The recommendations reflect a thorough analysis of actual asset retirement data and incorporate expert judgement based on discussions with EWS management and industry experience. Table 4.4-1 and 4.4-2 provide a comparison of the average depreciation rates and useful lives approved for the 2022-2024 PBR term and the recommended depreciation rates and useful lives for the 2025-2027 PBR term.

Table 4.4-1
Financial Schedule 12-2-1
Annual Depreciation Rates – Wastewater Treatment

	Asset Category	A 2022-2024 Annual Depreciation Rate	B 2022-2024 Service Life (years)	C 2025-2027 Annual Depreciation Rate	D 2025-2027 Service Life (years)
1	Computer Equipment	25.00%	4.0	20.00%	5.0
2	Laboratory Equipment	10.00%	10.0	12.50%	8.0
3	Machinery & Equipment	10.00%	10.0	11.63%	8.6
4	Office Furniture & Equipment	12.50%	8.0	12.50%	8.0
5	Process Control Systems	10.00%	10.0	5.07%	19.7
6	Software Intangibles	10.00%	10.0	10.00%	10.0
7	Vehicles	10.00%	10.0	10.00%	10.0
8	Wastewater Treatment Plant	2.77%	36.1	3.87%	25.8
	Wastewater Treatment Plant Includes:				
9	Pre-Treatment	2.94%	34.0	4.32%	23.1
10	Primary Treatment	2.62%	38.2	4.21%	23.7
11	Secondary Treatment	2.67%	37.5	3.87%	25.8
12	Disinfection	2.67%	37.5	4.34%	23.0
	Solids Handling:				
13	• Fermentation	3.47%	28.8	4.60%	21.7
14	• Waste Activated Sludge	3.57%	28.0	4.13%	24.2
15	• Digester	2.72%	36.7	3.86%	25.9
16	• Clover Bar	3.00%	33.3	4.29%	23.3
17	• Sludge Supernatant Pumping	3.18%	31.4	3.54%	28.2
18	Buildings	2.22%	45.0	2.93%	34.1
19	Site Work	3.33%	30.0	3.81%	26.2
20	Utilities	2.70%	37.1	4.06%	24.6
21	Chemical Systems	3.75%	26.7	4.50%	22.2
22	Odour Control	2.94%	34.0	4.32%	23.1
23	Inspections	10.00%	10.0	10.00%	10.0
24	Clover Bar Biosolids Recycling Facility	4.76%	21.0	3.30%	30.0
25	Sanitary Grit Facility	2.50%	40.0	3.50%	28.5
26	EWS Composite Rate	3.90%	25.6	4.27%	23.4

139. The depreciation study for Wastewater Treatment recommends an overall reduction in the average service life of assets, which is primarily due to the increased componentization of common assets within each process area (rows 9 to 25 above). The approach to

componentization is discussed in further detail in Appendix M – Wastewater Treatment Depreciation Study. Examples of increased componentization include:

- Electrical Equipment – Each process area previously used a composite rate of 25 years. However, based on the wide range of assets, it was recommended to split this into four separate rates ranging from 5 years (for specific items such as active harmonic filters) to 40 years (for oil filled transformers and power capacitors). This results in an average useful life of 21.25 years for electrical assets.
- Mechanical equipment – A composite rate of 25 years was previously used within each process area. However, a range of lives of 10 years to 40 years was identified (10 years for items such as bioreactor mixers to 40 years for large valves and fire suppression). This results in an updated average life for mechanical equipment of 22.5 years.
- The structural asset category within each process previously was set at 75 years. However, it was identified that several structural related items such as railings, ladders and platforms have a significantly shorter life for which no comparable category currently exists. To capture these items, an additional 20-year structural life was added.
- Within the buildings category a new shorter life superstructure asset with a life of 10 years was identified based on operational replacement experience of items such as thermostats, fans, and hot water tanks. These were previously included in the 25-year superstructure category.

140. For general assets (rows 1 to 7 in Table 4.4-1), the most significant changes are:

- Increase in computer equipment life from 4 years to 5 years to align with current replacement policy for hardware, which also aligns with Wastewater Collection.
- Laboratory equipment – an additional shorter life category for items replaced more frequently.
- Additional 3-year, 5-year and 15-year tool categories to supplement the existing 10-year life category within machinery and equipment. The shorter life categories would be used for monitoring devices and electronic tools, while drill rigs and boring machines are considered closer to the 15-year range.
- Increase in the average service life for process control systems to reflect new categories for longer lasting assets such as fiber optic cable.

- In addition, a new shorter life component was added within the buildings category to reflect HVAC related components of 10 years. Previously, these were included within shorter life superstructure assets of 25 years.

141. Vehicle categories have been aligned across the Wastewater Treatment and Wastewater Collection operations. Other alignments include IT hardware (increased from 4 to 5 years) and the addition of two new tools categories (3-year and 5-year) within Wastewater Treatment.

Table 4.4-2
Annual Depreciation Rates – Wastewater Collection
Financial Schedule 12-2-2

	Asset Category	A	B	C	D
		2022-2024		2025-2027	
		Annual Depreciation Rate	Service Life (years)	Annual Depreciation Rate	Service Life (years)
1	Sanitary, stormwater and combined pipes	1.33%	75.0	1.34%	74.5
2	Catch basins & Manholes	1.33%	75.0	2.10%	47.7
3	Stormwater Management Facilities & Structures	1.33%	75.0	1.33%	75.0
4	Lagoons	1.33%	75.0	1.33%	75.0
5	Service Connections	1.33%	75.0	1.25%	80.0
6	Storage Tanks	1.33%	75.0	1.25%	80.0
7	Outfalls	1.33%	75.0	1.33%	75.0
8	Culverts & Swales	1.33%	75.0	1.62%	61.7
9	Inlets / Outlets	1.33%	75.0	1.18%	85.0
10	Low Impact Development	4.00%	25.0	2.0%	50.0
11	Ventilation units	6.67%	15.0	6.67%	15.0
12	Process control systems / SCADA	10.00%	10.0	10.0%	10.0
13	Computer Equipment – Hardware	20.00%	5.0	20.0%	5.0
14	Laboratory Equipment	20.00%	5.0	10.0%	10.0
15	Construction Equipment and tools	10.00%	10.0	15.15%	6.6
16	Construction Equipment and tools – TBM	16.67%	6.0	16.67%	6.0
17	Pump Station Equipment Enhancements	20.00%	5.0	-	-
18	Office Furniture and Equipment	16.67%	6.0	12.50%	8.0
19	Software Intangibles	20.00%	5.0	10.0%	10.0
20	Buildings – office / pump stations	2.27%	44.0	2.65%	37.7
21	Buildings – trailers / warehouse	10.00%	10.0	10.0%	10.0
22	Buildings – leasehold improvements	10.00%	10.0	10.0%	10.0
23	Vehicles – cars	14.29%	7.0	14.29%	7.0
24	Vehicles – others	10.00%	10.0	9.54%	10.5
25	EWS Composite Rate	2.34%	42.6	2.50%	40.0

142. The depreciation study for Wastewater Collection recommends changes in the depreciation rates for buildings and pump station assets (row 20 above). Previously, these assets were depreciated based on a composite average group of 44 years. The study recommends establishing component groups to reflect the differing lives within buildings and pump station asset group. Pump station assets are recommended to be depreciated based on the useful life of 20 years for electrical and mechanical components, and 15 years for instrumentation components. Building assets are recommended to be split into building substructure with lives

of 65 years and superstructure A, B and C categories with lives of 45 years, 25 years, and 10 years, respectively. The building componentization aligns with the categorization used in other EWS operations.

143. Other significant changes include:

- Separating liner and forcemain assets into different components with a lifespan of 50 years within the pipes section. Previously, drainage pipes had an average lifespan of 75 years. Offsetting this reduction is a longer recommended service life of 85 years for stormwater pipes from the previous life span of 75 years since they have a lower risk of early degradation.
- Catch basin and manhole assets are recommended to have a separate component for manhole tops and sealing assets, which requires replacement more frequently, with a useful life of 25 years.
- Within storage tanks, service connection and inlet outlet categories the overall increase in average service life reflects the recommended increase to stormwater related assets as noted above.
- Within the Low Infrastructure Development category, two new components were originally identified in the 2022-2024 application – one for vegetative material such as engineered soil at 25 years and one for the underlying structure at 75 years. Based on industry experience, these two categories have now been combined with a 50-year average service life.
- Within the culvert category, a separate component has been identified for metal culverts, distinct from concrete culverts with an expected life of 35 years compared to 75 years for concrete culverts.
- EWS proposes to adopt the recommended depreciation rates on a prospective basis for new capital additions, effective January 1, 2025. This treatment aligns with the depreciation rate adjustment approach employed in the previous 2017-2021 PBR term. The proposed depreciation rates would result in an increase in depreciation expense for Wastewater Treatment between $0.11 million in 2025 to $0.89 million by 2027. Similarly, the net depreciation expense is expected to increase for Wastewater Collection, ranging from $0.02 million in 2025 to $0.68 million by 2027, over the three-year period. Refer to Sections 8 and 16 of this application for further information on depreciation expenses.

4.5 Contributions in Aid of Construction

144. Certain EWS assets may be acquired or constructed with funding received from developers or customers, referred to as Contributions in Aid of Construction (CIAC). Contributions are grouped under the following four categories: (i) Contributions from Developer-Built Assets; (ii) Contributions from the Sanitary Servicing Strategy Fund (SSSF), (iii) Contributions from Government grants, and (iv) Other Contributions from Customers.

4.5.1 Contributions from Developer-Built Assets

145. Certain EWS infrastructure, referred to as private installations, are built and financed by property developers under a development servicing agreement between the developers and the City of Edmonton. Under the provisions of the servicing agreement and upon issuance of a construction final acceptance certificate, the developers will transfer ownership and title of private installations to the City of Edmonton. In accordance with private installation provisions under a franchise agreement between the City of Edmonton and EWS, the City of Edmonton will then transfer ownership of the private installation assets related to the public utility and EWS will record the transferred assets at cost with an equal offsetting entry to contributed assets. These private installations include those assets related to sanitary and stormwater pipes, stormwater management facilities and associated appurtenances such as manholes, catch basins and other infrastructure.

4.5.2 Contributions from Sanitary Servicing Strategy Fund (SSSF)

146. Certain EWS sanitary trunk lines and related infrastructure are built to meet the future growth needs of Edmonton. The SSSF committee, comprised of membership from the developer community, the City of Edmonton and EPCOR approve projects for funding through the SSSF and provide governance over projects as they progress through construction. SSSF funding is provided by assessment and permit fees from builders and developers and administered by the City of Edmonton. Where a project receives SSSF approval, all costs incurred are covered by the SSSF.

147. The original strategy for SSSF involved developing a long-term plan for the development of large sanitary trunks through a “just in time” approach to support growth. Since taking ownership of the sanitary and stormwater utilities in 2017, EWS has adopted an integrated resource planning approach, which focuses on monitoring flow trends and adjusting infrastructure in response, rather than creating a long-term infrastructure plan. As a result of this

change in planning approach, previously planned investments in large trunks are no longer required. The City recognized the need for a significant change in how large trunks are funded. To determine a new approach, the SSSF Transformation Project was initiated in 2023 to complete a comprehensive review of the SSSF program. A committee was established including the City, developers, EPCOR and an independent consulting team (Mooreview Management Consulting) has been retained to assist with the delivery of the SSSF Transformation project. It is anticipated that City Administration will bring its report to Utility Committee on recommendations from the SSSF Transformation Project in late 2024.

4.5.3 Contributions from Government Grants

148. Certain EWS infrastructure relating to stormwater pipes, stormwater management facilities and other related infrastructure are eligible for grant funding provided by the Provincial and Federal Government agencies. These included programs such as the Alberta Community Resilience Program (ACRP), New Building Canada Fund (NBCF) and Disaster Mitigation Adaptation Fund (DMAF) grant programs. Under these arrangements, while the contribution arrangement is between the City of Edmonton and the Government, EWS is a signatory to the related Ultimate Recipient Agreement and retains responsibility for construction and maintenance of the associated assets. As such EWS recognizes and receives grants based on the identified eligible costs in line with the specific requirements of each grant.

4.5.4 Other Contributions from Customers

149. EWS charges fees to customers to install new sanitary and stormwater service connections from the main trunk to the private property line, and to inspect private developer service connections. The application process is managed centrally within EWS on behalf of Wastewater Collection and Water as customers apply for water and sewer servicing.

4.6 Capitalized Overhead Methodology

150. The term “capitalized overhead” refers to indirect costs that are essential for the acquisition, construction, or production of an asset but cannot be traced to a specific project. These costs are considered necessary to bring an asset to its intended use and are included in the asset’s cost as capital overhead. Capital overhead encompasses indirect costs for several support functions, including but not limited to supervision and management oversight, project governance, accounting, supply chain, and health and safety resources. The methodology for charging capital overhead involves the application of a percentage rate to directly traceable labor

costs charged to a project. This rate is determined annually based on the estimated total capital overhead costs (overhead pool) as a ratio of the estimated total capitalized labor costs.

151. In 2023, EPCOR underwent a comprehensive restructuring of its organizational framework by merging and integrating the former Water and Drainage operations into a single functional structure. The new organizational structure is transformational and moves EWS towards a more efficient structure with most functions centralized, offering greater opportunities to align business processes more closely across the former stand-alone water and drainage utilities. The new structure facilitates the "One Water" approach to managing all operations through the alignment of capital planning and business processes across the entire water cycle. In line with this goal, starting in 2025, EWS will adopt a standardized methodology for capital overhead across all its operations. This methodology more accurately reflects the costs associated with the delivery of capital projects under the integrated business unit and aligns methodologies.

152. Previously, Wastewater Collection used a high-level approach to calculate its capital overhead pool due to limited historical information regarding the time charged between operating and capital activities. As a result, it applied its capital overhead on projects using a methodology different from that used by Water and Wastewater Treatment. Starting in 2025, Wastewater Collection will align its approach with the rest of EWS. Capital overhead will be applied to all groups charging time to capital through a standard approach. The change will result in an increase in capitalized overhead costs for Wastewater Collection with a corresponding reduction in its operating costs. In comparison, Water and Wastewater Treatment will experience a slight decrease in capitalized overhead costs with a corresponding increase in operating expenses, as shown in Table 4.6-1.

Table 4.6-1
EWS Impact of alignment of Capital Overhead Assumptions
2024-2025
($ millions)

		A 2024F	B 2025F	C Change in Capital Overhead Pool
1	Water	8.5	6.0	-2.5
2	Wastewater Treatment	3.0	2.2	-0.8
3	Wastewater Collection	5.9	10.9	4.9
4	Combined Capital Overhead Pool	17.4	19.1	1.6

153. This methodology change will enable the standardized application of capital overhead across EWS operations while ensuring that it remains in accordance with the International Financial Reporting Standards (IFRS) and maintains consistency with all EPCOR entities. The change will be implemented prospectively and will take effect starting in 2025. Therefore, approved rates for the 2022-2024 PBR term will remain unaffected. Additionally, any impact on water rates will be postponed until the end of the 2022-2026 Water PBR term.

4.7 Inter-Affiliate Transactions Summary

154. EWS is a member of the EPCOR group of companies and obtains corporate services from its parent corporation, EUI. The "Corporate Shared Services" are activities that the EPCOR group manages centrally due to their nature, scale and scope. EWS also provides certain services to, and receives certain services from, other members of the EPCOR group, which are referred to as "Affiliate Services".

155. The revenues received by EWS for Affiliate Services are included in the cost recoveries of EWS' regulated operating costs, and the costs charged to EWS for Affiliate Services provided by its affiliates are also included in EWS' regulated operating costs and certain regulated capital projects. A summary of all Affiliate transactions for EWS is provided in Table 4.7-1.

156. EUI recovers the Corporate Shared Services costs from EWS by using a direct assignment or allocation process with each regulated and non-regulated operation. Appendix I provides a detailed description of the Corporate Shared Service costs methodology used to allocate Corporate Shared Services costs to EUI's business units, including EWS.

157. The costs associated with Affiliate Services provided by EWS are recovered by EWS through direct assignment, invoicing of the costs to the affiliate or through an appropriate cost

allocation method. EWS Shared Services, which includes financial, administrative, and other services provided on a shared basis, are included in the Affiliate Services to achieve cost efficiencies for the three regulated operations under EWS, which are Water Services, Wastewater Treatment Services, and Wastewater Collection Services. A detailed description of the methodology used to allocate EWS Shared Services costs to the three regulated operations within EWS is provided in Appendix J.

158. Historically, the Corporate Shared Services provided by EUI to EWS have received approval for recovery in EWS' revenue requirement by its regulator, Edmonton City Council. Over the years, AUC regulated entities of the EPCOR group, including EDTI and EEA, have filed Tariff Applications that provide detailed explanations of the Corporate Shared Services provided by EUI, their associated costs, and the allocation methods used to determine the charges for those services to each EUI subsidiary. The AUC has scrutinized the scope of the Corporate Shared Services, EUI's cost allocation methodology, and the resulting charges. With only a few exceptions over the years, the AUC has approved the recovery of Corporate Shared Services charges as applied-for in the forecast revenue requirements of EPCOR's AUC regulated entities. Every year, EUI undertakes a rigorous cost allocation process to ensure that the charges for Corporate Shared Services to its subsidiaries are reasonable.

159. Table 4.7-1 provides a summary of EWS' transactions with its EPCOR affiliates, including EUI, and EPCOR Energy Services Inc. (EEA).

Table 4.7-1
Financial Schedules 18-1 and 18-2
Forecast Affiliate Transactions
($ millions)

	Affiliate and Service	A 2024F	B 2025F	C 2026F	D 2027F
1	EPCOR Utilities Inc. (EUI)				
2	Corporate Shared Service Costs	26.3	26.8	27.4	27.9
3	Interest on Intercompany Loans	57.5	67.2	73.1	80.3
4	Interest on Short-Term Debt	5.1	2.4	2.4	2.6
5	EUI Total	88.9	96.4	102.8	110.8
6	EPCOR Water Services Inc. (EWS)				
7	EWS Shared Services	31.4	31.8	32.6	33.2
8	Integrate Operations	27.9	28.5	29.0	29.5
9	Meter Reading Services Provided by Water Services	3.9	3.0	3.2	3.2
10	Water Purchases Provided by Water Services	0.5	0.5	0.5	0.5
11	EWS Total	63.7	63.8	65.3	65.9
12	EPCOR Energy Alberta LP (EEA)				
13	Billing and Collection Services Provided by EEA	3.8	3.9	3.9	4.0
14	EEA Total	3.8	3.9	3.9	4.0

4.8 Customer Count and Volume Forecast Methodology

160. EWS' revenue projections for the 2025-2027 PBR term are based on its forecast of water consumption and customer counts from 2024 to 2027. Wastewater Treatment's rate structure includes both monthly charges per cubic meter of metered water consumption (referred to as "variable" or "consumption" charge) and a fixed monthly service charge per customer (referred to as "fixed" charge). Similarly, Wastewater Collection's sanitary rate structure includes both monthly variable charges per cubic meter of metered water consumption and a fixed monthly service charge per customer. On the other hand, Wastewater Collection's stormwater rate structure includes a stormwater utility charge per square meter, adjusted for a development intensity factor and a runoff coefficient based on the zoning of the premises.

161. Assumptions regarding customer growth and consumption per customer are described in the subsequent Sections.

4.8.1 Customer Count Forecasting Process

162. EWS prepares its customer growth forecasts separately for its residential, multi-residential and commercial customer classes. The Wastewater Treatment and Collection operations provide services to the same customer base and therefore share the same assumptions and methodologies for customer count forecasting. Assumptions regarding customer growth and consumption per customer are further described below.

163. Residential Customer Count Forecast – The residential customer category accounts for 52% of total consumption and 93% of total customer accounts.

164. For the 2025-2027 PBR term, the customer growth rate assumptions are based on a review of historical growth trends, third-party forecasts of Edmonton population growth and judgment. EWS projects that its residential customer counts will increase by 1.9% per year for the 2025-2027 PBR term. This forecast increase of 1.9% is based on historical growth experienced over the past 5 years (2019-2023).

165. Multi-Residential Customer Count Forecast – The customer growth rate assumption for the 2025-2027 PBR term for multi-residential customer counts is based on the average historical trend over the past 5 years (2019-2023). Multi-residential customer counts are forecast to increase by 0.4% per year for the 2025-2027 PBR term, which is similar to the historical growth experienced pre-pandemic and higher than the growth forecasted in the 2022-2024 PBR term.

166. Commercial Customer Count Forecast – The customer growth rate assumption for the 2025-2027 PBR term for commercial customer counts is based on the average historical trend over the past 5 years (2019-2023). Commercial customer counts are forecast to increase by 0.8% per year for the 2025-2027 PBR term.

167. Table 4.8.1-1 provides EWS' forecast customer count by class for the 2025 - 2027 period compared to historical trends since 2019.

Table 4.8.1-1
Financial Schedule 21-1
Average Monthly Customer Count
(2019-2027)

		A 2019-2023 Average	B 2025F	C 2026F	D 2027F
1	Residential	277,984	298,834	304,511	310,297
2	% annual avg. growth	1.9%	1.9%	1.9%	1.9%
3	Multi-Residential	3,798	3,863	3,878	3,894
4	% annual avg. growth	0.4%	0.4%	0.4%	0.4%
5	Commercial	17,204	17,743	17,891	18,039
6	% annual avg. growth	0.8%	0.8%	0.8%	0.8%
7	Total Customers	298,987	320,440	326,280	332,230

168. The methodology used for forecasting stormwater customers is fundamentally the same as that used for Wastewater Treatment and Wastewater Collection's sanitary customers, because all Wastewater Treatment and Wastewater Collection's sanitary utility customers are also stormwater utility customers. Stormwater utility customer counts are approximately 0.3% greater than Wastewater Treatment and Wastewater Collection's sanitary utility customers counts, because of customers that are solely provided with stormwater operations and do not receive sanitary collection service or wastewater treatment service from EWS.

169. As part of the stormwater forecast process, EWS determines an average "stormwater equivalent unit" per customer factor for each customer class. A stormwater equivalent unit is the product of (i) the area of the premises, (ii) the development intensity factor and (iii) the runoff coefficient based on the zoning of the premises. The total stormwater equivalent units for all customers within a customer class is divided by the average number of customers for that customer class in order to determine the average stormwater equivalent unit per customer class.

170. Historically, stormwater equivalent units per customer have been relatively stable, with year-over-year changes in the total number of stormwater equivalent units primarily due to new

customers entering the system. The approval of the City's Zoning Bylaw 20001 required that EWS update the runoff coefficients to align with the new zones. As part of its Design Standards Review, EWS undertook an engineering study to determine new runoff coefficients that would reflect the appropriate runoff for a typical premises in each of the new zone categories.

171. Table 4.8.1-2 provides a comparison of the updated runoff coefficients to the previous runoff coefficients. These new runoff coefficients will be applied to all city of Edmonton customers for determining their stormwater charges effective April 1, 2025. Although on average the runoff coefficients have decreased, some customers' stormwater charges will reflect a higher runoff coefficient. Multi-residential and commercial customers can apply to EWS to request an adjustment to their runoff coefficient through EWS' new Intensity Adjustment Program (beginning on April 1, 2025) if they can demonstrate their property's runoff coefficient is materially different from that of a typical customer within the same zone. This new program replaces the current Stormwater Credit Program that was only available to commercial customers[8].

Table 4.8.1-2
Stormwater Runoff Coefficients – New and Original Zones

	A Runoff Coefficient	B Original Zone	C New Zone
1	0.1	AG	
2	0.2	A, RR	A, AG, NA, RR, RVSA
3	0.3	AP, US (schools)	PS, PSN
4	0.4		FD
5	0.5	RF1-4, RMH, IH, MA, AGU	AJ, RS/RSF ≥ 450m^2
6	0.55		DC < 700m^2, PU, RM/RSM ≥ 450m^2, RS/RSF <450m^2, UF
7	0.6		DC ≥ 700m^2, RL, RM/RSM < 450m^2, UI
8	0.65	RSL, RF5, RF6, RA7, RPL	CN, MUN
9	0.75	RA8, US (except schools), PU	BE, CB, CG, IH, IM, MU
10	0.9	RA9, CNC, CSC, CB1, CHY, CO, IB, IM, AGI, DC	
11	0.95	CB2	

172. Table 4.8.1-3 provides EWS' forecast of average monthly stormwater customer counts by class for the 2025-2027 PBR term, together with the monthly stormwater equivalent units per customer and total annual stormwater equivalents.

[8] https://www.epcor.com/products-services/drainage/rates-terms-and-conditions/Pages/utility-credits.aspx

Table 4.8.1-3
Financial Schedule 21-1
Average Monthly Customer Count (Stormwater)
(2019-2027)

		A 2019-2023 Average	B 2025 F	C 2026F	D 2027 F
	Average Monthly Customer Count				
1	Residential	278,168	298,970	304,651	310,439
2	% annual avg. growth	1.9%	1.9%	1.9%	1.9%
3	Multi-Residential	3,798	3,863	3,878	3,894
4	% annual avg. growth	0.4%	0.4%	0.4%	0.4%
5	Commercial	17,911	18,168	18,319	18,471
6	% annual avg. growth	0.8%	0.8%	0.8%	0.8%
7	Total	299,877	321,002	326,848	332,804
	Stormwater Equivalent Units per Customer per Month				
8	Residential	263	247	245	245
9	Multi-Residential	2,009	1,887	1,814	1,814
10	Commercial	3,166	2,949	2,848	2,853
	Annual Stormwater Equivalent Units (000s)				
11	Residential	852,584	887,218	895,550	912,565
12	Multi-Residential	90,629	87,485	84,436	84,775
13	Commercial	645,395	642,895	625,969	632,370
15	Total	1,588,607	1,617,597	1,605,955	1,629,710

4.8.2 Volume Per Customer Forecasting Process

173. Residential Consumption per Customer Forecast - A declining trend of water consumption per residential customer has been observed in Edmonton over the past four decades. The peak consumption per residential customer was recorded in 2002, at 21.4 m3/month. Since then, average consumption per customer has reduced by 36% to 13.8 m3/month in 2023. This declining trend is anticipated to continue.

174. In an effort to increase the precision of its residential consumption forecast, EWS started using a disaggregated geographic-based approach in 2017, which recognizes the differential trends in per customer consumption across different neighborhoods. This approach has shown that the age of a neighborhood tends to correlate with the extent of the installation of water-

efficient fixtures. The forecast accuracy of this methodology has been significant enough to warrant its use for the 2025-2027 PBR term. EWS has forecasted a 1.3% annual decline in residential consumption per customer using this methodology, as shown in Table 4.8.2-1.

Table 4.8.2-1
Average Monthly Consumption per Customer
2024-2027
(m^3 per customer per month)

	A 2024F	B 2025F	C 2026F	D 2027F
1 Residential	13.3	13.1	12.9	12.8
2 % change	-	(1.3%)	(1.3%)	(1.3%)

175. Multi-Residential Consumption per Customer Forecast - Due to the different sizes of multi-residential properties, EWS has determined that the most appropriate approach is to forecast consumption based on historical trending for the entire rate class. Over the past 10 years, the total consumption for this customer class increased by 1.1%. Therefore, EWS is forecasting an increase of 1.1% annually for the 2025 – 2027 term. Total consumption for the multi-residential customer class is provided in Table 4.8.3-1.

176. Commercial Consumption per Customer Forecast - Similar to the multi-residential customer class, EWS has forecasted its commercial customer class based on the historical trending for the entire rate class. Over the past 10 years, total commercial consumption has decreased by 0.4% annually. As a result, EWS is forecasting a decline of 0.4% annually for the 2025 – 2027 term. Total consumption for the commercial customer class is provided in Table 4.8.3-1.

4.8.3 Consumption Volume Forecast

177. EWS' consumption volume forecast for the PBR term is shown in Table 4.8.3-1. Consumption for the PBR term is expected to increase moderately as forecast customer growth fully offsets the trend of declining consumption per customer.

Table 4.8.3-1
Total Volume by Customer Class
2024-2027
(ML)

		A 2024F	B 2025F	C 2026F	D 2027F
1	Residential	46,716	46,977	47,241	47,506
2	Multi-Residential	19,228	19,438	19,649	19,863
	Commercial				
3	0 m3 – 10,000 m3	19,473	19,392	19,312	19,231
4	10,000.1 m3 – 100,000.0 m3	3,107	3,094	3,081	3,068
5	Over 100,000 m^3	922	918	914	911
6	Subtotal Commercial	23,502	23,404	23,307	23,210
7	Total Consumption	89,446	89,819	90,197	90,580
8	% Change		0.4%	0.4%	0.4%

5.0 REVENUE REQUIREMENT SUMMARY

178. EWS has determined its revenue requirement forecast based on its projection of the costs to provide wastewater treatment and wastewater collection services, including a fair return on its investment. Table 5.0-1 provides a detailed breakdown of the cost components of EWS' revenue requirement, along with approved amounts for 2024 (2024D) and the latest forecasted amounts for 2024 (2024F) for comparison.

Table 5.0-1
Financial Schedule 3-1
Revenue Requirement
2024-2027
($ millions)

	Cost Component	A 2024D	B 2024F	C 2025F	D 2026F	E 2027F
1	Wastewater Treatment					
2	Operations and Maintenance Costs	66.5	73.8	78.1	79.7	81.1
3	Franchise Fees and Property Taxes	10.8	11.6	11.7	12.0	12.5
4	Depreciation and Amortization	26.4	28.2	30.3	32.3	34.0
5	Return on Rate Base Financed by Debt	13.6	13.4	14.9	16.1	18.0
6	Return on Rate Base Financed by Equity	23.2	21.5	26.1	28.2	30.2
7	Revenue Requirement before Revenue Offsets	140.5	148.5	161.1	168.2	175.7
8	Less: Revenue Offsets	(7.3)	(8.8)	(8.9)	(9.1)	(9.3)
9	Wastewater Treatment Revenue Requirement	133.2	139.7	152.2	159.1	166.4
10	Variance	-	6.5	12.5	6.9	7.3
	Wastewater Collection					
	Sanitary Utility					
11	Operations and Maintenance Costs	49.1	53.5	52.0	53.1	54.1
12	Franchise Fees and Property Taxes	12.1	13.8	12.8	12.5	12.6
13	Depreciation and Amortization	21.4	22.5	24.5	26.2	28.3
14	Return on Rate Base Financed by Debt	20.3	24.1	26.8	28.7	31.7
15	Return on Rate Base Financed by Equity	34.5	35.6	43.1	50.2	58.6
16	Revenue Requirement before Revenue Offsets	137.3	149.5	159.1	170.7	185.3
17	Less: Revenue Offsets	(4.6)	(3.6)	(3.6)	(3.7)	(3.5)
18	Sanitary Utility Revenue Requirement	132.7	145.9	155.4	167.0	181.8
	Stormwater Utility					
19	Operations and Maintenance Costs	58.9	58.9	53.6	52.1	53.3
20	Franchise Fees and Property Taxes	1.0	1.0	0.7	0.7	0.7
21	Depreciation and Amortization	29.7	29.7	25.7	28.4	31.2
22	Return on Rate Base Financed by Debt	20.3	20.3	23.1	25.6	28.4
23	Return on Rate Base Financed by Equity	34.9	34.9	33.9	41.2	49.8
24	Revenue Requirement before Revenue Offsets	144.7	144.7	137.0	148.0	163.5
25	Less: Revenue Offsets	(0.7)	(0.7)	(0.7)	(0.7)	(0.7)
26	Stormwater Utility Revenue Requirement	143.9	143.9	136.4	147.4	162.8
27	Wastewater Collection Revenue Requirement	276.7	282.3	302.8	329.8	362.8
28	Variance		5.6	20.5	27.0	33.0

179. As explained in Section 3.0, wastewater treatment processes at the Gold Bar WWTP ensure that treated wastewater released to the North Saskatchewan River meets or exceeds all environmental requirements from Alberta Environment and Protected Areas. Digested sludge (biosolids) from the Gold Bar WWTP is sent to Wastewater Treatment's Clover Bar Biosolids Basins, where Wastewater Treatment also provides biosolids management and disposal services for sludge delivered by the ARROW Utilities. As such, the total revenue requirement for regulated wastewater treatment operations is based on the operating and capital cost components associated with supporting both its Gold Bar WWTP and Clover Bar Biosolids Basins facilities, less any revenue offsets related to the provision of biosolids management services, byproduct sales and other miscellaneous revenue.

180. EWS' wastewater collection infrastructure system supports the operations of its regulated sanitary utility and stormwater utility operations. As such, EWS determines its total revenue requirements based on the operating and capital cost components associated with supporting the entire wastewater collection infrastructure system. EWS then allocates the revenue requirement components (operating costs, depreciation, and return on rate base) to the sanitary and stormwater utilities according to the cost allocation methodologies described in Section 20.

181. Section 4.0 of this Application discusses the methodology and assumptions employed by EWS to determine the forecast revenue requirement. The rates for the 2025-2027 PBR term are established based on the forecast revenue requirement for each operation shown in Table 5.0-1. The individual components of the Wastewater Treatment revenue requirement are explained further in Sections 6.0 through 11.0, while the components of Wastewater Collection revenue requirement are explained in Sections 14.0 through 19.0 of this Application.

6.0 WASTEWATER TREATMENT OPERATING COSTS

182. This Section describes the total regulated operating costs for EWS' Wastewater Treatment operations for the 2025-2027 forecast period. The approved operating costs for 2024, as well as the latest forecast for 2024, are included for comparison. To enhance comparability, the approved amounts for 2024 have been restated to conform to the new functional organizational structure. Although the approved amounts for individual functions or cost components may differ, the total approved costs for 2024 remain unchanged. Operating costs are presented using two different perspectives: (i) by cost category, detailed in section 6.1 and (ii) by operational function, detailed in Section 6.2.

183. Section 6.1 provides a breakdown of the total regulated operating costs, grouped by the various cost categories. This Section also provides an explanation of each cost category's proportion and the unique cost drivers that are responsible for the annual costs.

184. Wastewater Treatment's operating costs are grouped into the following cost categories:

- Staff Costs and Employee Benefits;
- Contractors and Consultants;
- Other Raw Materials and Operating Charges;
- Other Administrative Expenses;
- Power, Other Utilities and Chemicals;

- Integrated Operations;
- Customer Billing and Metering;
- EWS Shared Services; and
- Corporate Shared Services.

185. Section 6.2 further categorizes and explains the operating costs based on the following operational functions:

- Core Operations;
- Integrated Operations;
- Billing, Meters and Customer Service;
- EWS Shared Services; and
- Corporate Shared Services.

186. Each core operational function is further broken down into responsibility centres where the management of costs takes place, overseen at the senior manager level or higher. Although the wastewater treatment system is managed through several responsibility centres, certain responsibility centres have been grouped together based on the operational function for the purpose of this Section.

187. Section 6.2 provides a description of each responsibility centre within each operational function and explains significant year-over-year variances exceeding $0.5 million. Forecast costs by operational function are provided for 2025-2027, along with a comparison of the approved amounts for 2024 and EWS' latest forecast for 2024. For additional information on actual operating costs for wastewater treatment operations between 2020 and 2022, please refer to the Annual PBR Progress Reports provided in Appendix E to the Application.

6.1 Operating Costs by Cost Category

188. Table 6.1-1 provides a summary of Wastewater Treatment's total regulated operating costs by cost category forecast for 2025-2027. The 2024 forecast and decision amounts are provided for comparison.

Table 6.1-1
Financial Schedule 5-2
Operating Costs by Cost Category
2024-2027
($ millions)

	Cost Category	A 2024D	B 2024F	C 2025F	D 2026F	E 2027F
	Core Operations					
1	Staff Costs and Employee Benefits	10.0	10.7	11.7	12.0	12.2
2	Contractors and Consultants	17.3	19.6	19.9	20.3	20.7
3	Other Raw Materials and Operating Charges	3.6	4.4	4.5	4.6	4.7
4	Other Administrative Expenses	0.4	0.4	0.4	0.4	0.4
5	Core Operations Sub-Total	39.7	41.9	45.8	46.7	47.6
6	Power, Other Utilities and Chemicals	8.4	6.8	9.3	9.5	9.6
7	Integrated Operations	10.1	11.6	11.8	12.0	12.2
8	Customer Billing and Metering	5.9	5.1	4.9	5.0	5.1
9	EWS Shared Services	5.3	9.2	9.3	9.5	9.7
10	Corporate Shared Services	5.4	6.1	6.2	6.4	6.5
11	Operations and Maintenance Costs	66.5	73.8	78.1	79.7	81.1

6.1.1 Core Operations

189. Core operations costs are comprised of staff and employee benefits costs, contractors and consultants, raw materials, other operating charges and administrative costs to operate and maintain the wastewater treatment system on an ongoing basis. These costs are further detailed below:

Staff Costs and Employee Benefits

190. Staff costs and employee benefits reflect wages, salaries and benefits including incentive compensation and overtime for employees. These costs represent approximately 15% of Wastewater Treatment's total regulated operating costs over the 2025 to 2027 period. The salaries and benefits amounts are reported net of salary recoveries for the employee time spent on capital projects, as well as capitalized overhead. Time spent for work on capital projects is directly charged to the capital project. Capital overhead encompasses indirect costs for several support functions, including but not limited to supervision and management oversight, project management and governance, accounting, supply chain, and health and safety resources. Capitalized overhead recoveries vary from year to year based on the amount of capital expenditures and the direct labour charged to capital projects.

191. Wastewater Treatment has two broad categories of employees: unionized and non-unionized. Unionized employees make up approximately 90% of the total Wastewater Treatment workforce while non-unionized employees make up the remaining 10%. For both unionized and non-unionized employees, the compensation structure includes a base level of compensation, including benefits, and an incentive component which is paid when performance targets are met. Salaries and wages for union staff are determined based on negotiated collective bargaining agreements with International Brotherhood of Electrical Workers Local 1007, Civic Service Union 52 and Canadian Union of Public Employees Local 30. Salaries for non-union staff are determined based on job-related skills, experience and market competitiveness.

192. Year over year changes to salaries and benefits (net of labour recoveries) are primarily influenced by annual salary and wage escalations and the changes in the number of employees depending on workload. Salaries and benefits are also influenced by overtime requirements related to fluctuations in operational activities resulting from factors such as timing of maintenance activities and maintaining a minimum operational staffing level. Occasionally, salaries and benefits are also influenced by organizational realignment.

Contractors and Consultants

193. Contractor and consultant costs represent approximately 25% of Wastewater Treatment's regulated operating costs over the 2025-2027 period. The majority of these costs are related to the contracted disposal of biosolids through the Clover Bar Biosolids Resource Recovery Facility (CBRRF). EWS only engages external contractors and consultants when it is most cost-effective or when in-house resources are unavailable or lack the necessary expertise.

Raw Materials, Operating Charges and Other Charges

194. Raw materials, operating charges and other administrative expenses account for approximately 7% of Wastewater Treatment's total regulated operating costs over the 2025 to 2027 period. These costs are comprised of materials and supplies, insurance, vehicles, hardware and software, telecommunication charges and other miscellaneous items. Materials and supplies costs vary depending on the level of maintenance work required at the Gold Bar Wastewater Treatment Plant and the CBRRF.

6.1.2 Power, Utilities and Chemicals

195. Power, other utilities and chemicals represent approximately 12% of EWS' Wastewater Treatment operating costs over the 2025-2027 PBR term. This category consists of power

(electricity), natural gas, water and chemical costs with power comprising 79% of the total costs within this category.

196. The total power costs are formed by three components: cost of energy, cost of delivery and from 2024 forward, cost for renewable attributes (RA). EWS procures its power contracts through a competitive process. The current long-term power contract is set to expire at the end of 2024 and EWS intends to enter into a new contract with a load following price structure in which the supplier bears hourly volume risk. The electricity delivery charges are independent of the service provider and EWS has minimal control over its growth. Delivery charges have increased at a greater rate than energy charges through the term of the current PBR and are projected at their historical rate of growth. The amount charged is based on the energy used, therefore operating in an energy efficient manner will reduce the delivery charge.

197. To determine the price forecast for the 2025-2027 PBR term, EWS forecasts power prices for 2024 based on indicative pricing from potential suppliers from its competitive procurement process and inflation is added to determine the 2025-2027 power prices. Forecast power consumption is assumed to remain similar to 2024 levels.

198. Chemicals comprise approximately 2% of EWS' total regulated Wastewater Treatment operating costs over the 2025-2027 PBR term. The cost of chemicals used in the wastewater treatment process can fluctuate year over year depending on the strength of influent sewage and the impact of combined sewer flows and solids directed to the Gold Bar Wastewater Treatment Plant (WWTP) during wet weather. In addition, approximately 39% of the forecast chemical costs are directly related to the treatment of supernatant at the CBRRF.

6.1.3 Integrated Operations

199. The integration of Water and Drainage operations in 2023 resulted in the creation of centralized functional areas to facilitate enhanced decision making, service delivery and resource management across the entire water cycle. Integrated Operations includes Regulatory and Business Planning, One Water Planning, Engineering, Quality Assurance and Environment, Project Management, Controls and Automation, Customer Service, Development and Infill, and Facilities functions. Integrated Operations costs represent approximately 15% of EWS' total regulated Wastewater Treatment operating costs over the 2025-2027 PBR term. Most of the costs within Integrated Operations are related to centralized staff and other costs for providing the various services to the regulated Water, Wastewater Treatment and Wastewater Collection Operations.

Appendix J provides additional information regarding the services provided and the cost allocation methodology for Integrated Operations.

6.1.4 Customer Billing and Metering

200. Customer billing and metering services charges represent approximately 6% of Wastewater Treatment's total regulated operating costs over the 2025 to 2027 period. These costs are comprised of billing services provided to Wastewater Treatment by its affiliate EPCOR Energy Alberta Inc. (EEA), as well as bad debt expense and meter reading costs.

201. EEA billing services include customer service management, call centre, billing, collections and information services. EEA charges Wastewater Treatment for these services based on the number of site counts served. The unit price for the sites served is approved by the Alberta Utilities Commission (AUC) through EEA's rate filings.

6.1.5 EWS Shared Services

202. EWS Shared Services are comprised of allocated charges to Wastewater Treatment for shared services provided by EWS and represent 12% of Wastewater Treatment total regulated operating costs over the 2025 to 2027 period. EWS Shared Services includes Information Services, Executive Administration, Controller, Communications and Public Engagement, Health, Safety, and Environment, Technical Training, Human Resources, Supply Chain Management, and Incentive Compensation.

6.1.6 Corporate Shared Services

203. Corporate Shared Services represent approximately 8% of total regulated Wastewater Treatment operating costs and are comprised of costs associated with corporate shared services provided to EWS' regulated operations by its parent company, EUI.

6.2 Operating Costs by Function

204. Table 6.2-1 provides an overview of EWS' total regulated Wastewater Treatment operating costs by operational functions for 2025-2027. For comparison, the approved and forecasted amounts for 2024 are also included.

Table 6.2-1
Financial Schedule 5-1
Operating Costs by Function
2024-2027
($ millions)

	Operational Function	A 2024D	B 2024F	C 2025F	D 2026F	E 2027F
1	Core Operations	39.7	41.9	45.8	46.7	47.6
2	Integrated Operations	10.1	11.6	11.8	12.0	12.2
3	Billing, Meters and Customer Service	5.9	5.1	4.9	5.0	5.1
4	EWS Shared Services	5.3	9.2	9.3	9.5	9.7
5	Corporate Shared Services	5.4	6.1	6.2	6.4	6.5
6	Operations and Maintenance Costs	66.5	73.8	78.1	79.7	81.1

205. For purposes of explaining the regulated operating costs and the year-over-year variances, operating costs have been grouped into the operational functions shown in Table 6.2-1, consistent with the organizational structure in which Wastewater Treatment operates. Each operational function is subsequently broken down by responsibility centre (where applicable) and their costs are described in the following Sections. Explanations for significant year-over-year variances exceeding $0.5 million are also provided.

6.2.1 Core Operations

206. Wastewater Treatment core operations is organized into the following five functional groups, along with capital overhead encompassing indirect costs for several support functions:

- Power, Other Utilities and Chemicals;
- Wastewater Treatment Plant Operations;
- Biosolids Management;
- Monitoring and Compliance; and
- Maintenance;

207. Table 6.2.1-1 provides an overview of Wastewater Treatment Core operating costs by function for 2024-2027.

Table 6.2.1-1
Financial Schedule 6-1
Wastewater Treatment Core Operating Costs
2024-2027
($ millions)

		A 2024D	B 2024F	C 2025F	D 2026F	E 2027F
1	Power, Other Utilities and Chemicals	8.4	6.8	9.3	9.5	9.6
2	Gold Bar WWTP Operations	6.5	7.9	8.0	8.2	8.3
3	Biosolids Management	15.9	17.7	18.0	18.3	18.7
4	Monitoring and Compliance	1.8	1.6	1.6	1.7	1.7
5	Maintenance	10.6	10.9	11.1	11.3	11.5
6	Capital Overhead	(3.4)	(3.0)	(2.2)	(2.2)	(2.3)
7	Total	39.7	41.9	45.8	46.7	47.6

6.2.1.1 Power, Other Utilities and Chemicals

208. Power, Other Utilities and Chemicals includes all power, chemical, natural gas and water costs required to operate and maintain Wastewater Treatment operations:

- Power costs are one of the single largest operating costs incurred by EWS in the treatment of wastewater. The majority of power costs are incurred in the operation of the secondary treatment process where removal of as much as possible of the wastewater's remaining dissolved organic pollutants takes place that were not removed in the primary treatment process, as well as nutrient removal. Actual power consumption is generally consistent year over year.
- Chemical costs used in the wastewater treatment process vary annually primarily due to the volume of wastewater flows and the solids loading associated with the flows, and due to chemical price fluctuations as determined by market and foreign exchange rates. Approximately 27% of the forecast chemical costs are directly related to the treatment of liquid (Clover Bar Supernatant Returns) from the CBRRF through the Ostara nutrient recovery facility ("Ostara facility"). This facility removes phosphorus and ammonia from the Clover Bar Supernatant Returns. Supernatant is the liquid that separates from the biosolids as digested sludge settles by gravity while stored in the basins at Clover Bar. The treatment process removes the phosphorus and ammonia from the supernatant and converts them to an eco-friendly, slow-release fertilizer. The treated supernatant is then returned to the wastewater collection system. This fertilizer is then sold back to Ostara Nutrient Recovery Technologies Inc.

- The major treatment agents used at the Gold Bar WWTP for the treatment of wastewater are alum, polymer, sodium hypochlorite (bleach) and sodium hydroxide (caustic soda). These chemicals are used for sludge thickening, chemical flocculation/coagulation, and odour control. Chemical treatment is used to supplement the predominantly biological wastewater treatment processes at Gold Bar WWTP.
- Other utilities costs include natural gas costs which are associated with maintaining heat for the wastewater treatment facilities including all buildings, and potable water which is used in the operations and maintenance of facilities and for drinking water on the Wastewater Treatment site.

209. Table 6.2.1.1-1 provides an overview of Wastewater Treatment's Power, Utilities and Chemical costs forecast for 2024-2027.

Table 6.2.1.1-1
Financial Schedule 6-1
Power, Other Utilities and Chemicals Costs
2024-2027
($ millions)

	Category	A 2024D	B 2024F	C 2025F	D 2026F	E 2027F
1	Power	5.9	4.8	7.3	7.4	7.6
2	Water	0.5	0.5	0.5	0.5	0.5
3	Natural Gas	0.5	0.3	0.3	0.3	0.3
4	Chemicals	1.5	1.2	1.2	1.3	1.3
5	Total	8.4	6.8	9.3	9.5	9.6
6	Variance		(1.6)	2.5	0.2	0.2

2024 Decision to 2024 Forecast

210. The $1.6 million decrease in Power, Other Utilities and Chemicals costs from 2024 Decision to 2024 Forecast is primarily due to lower forecast power rates, resulting in lower anticipated power costs of $1.1 million; a $0.3 million decrease in chemical costs primarily due to efficiencies achieved in process and dosing optimization and a $0.2 million decrease in natural gas costs due to lower rates.

2024 Forecast to 2027 Forecast

211. For the 2024 to 2027 forecast period, year over year cost increases are based on the inflation factor with the exception of 2025, where power costs are expected to be higher by $2.5

million. The existing power contract is set to expire in 2024 and a new power contract is anticipated to cost more due to higher electricity rates.

6.2.1.2 Wastewater Treatment Plant Operations

212. Wastewater Treatment Plant Operations is primarily responsible for the treatment of sanitary and combined sewer wastewater obtained directly from Wastewater Collection's sanitary and combined sewer systems that discharge to the Gold Bar WWTP. Gold Bar WWTP carries out the treatment function utilizing internal resources comprised of operators and process/production engineers to monitor the flows of wastewater, adjust biological and chemical rates, monitor and adjust pressures, flows and settling tank levels in the treatment system. As well, Wastewater Treatment Operations is responsible for integrating new treatment facilities into the overall wastewater treatment process to optimize wastewater system operations and ensure regulatory requirements are met.

213. The operating costs for Wastewater Treatment are primarily comprised of staff costs and employee benefits while contractor costs are primarily related to the disposal of inorganic waste from Gold Bar WWTP. Staff costs and employee benefits are for Gold Bar WWTP operators and process engineers to operate and monitor wastewater treatment at Gold Bar WWTP as well as the Ostara nutrient recovery facility at the Clover Bar site.

214. Table 6.2.1.2-1 provides an overview of the Wastewater Treatment Plant Operations forecast costs for 2024-2027.

Table 6.2.1.2-1
Financial Schedule 7-1
Wastewater Treatment Plant Operation Costs
2024-2027
($ millions)

		A 2024D	B 2024F	C 2025F	D 2026F	E 2027F
1	Gold Bar WWTP Operations	6.5	7.9	8.0	8.2	8.3
2	Variance		1.4	0.1	0.2	0.1

2024 Decision to 2024 Forecast

215. The $1.4 million increase in Gold Bar WWTP forecast operating costs is primarily due to a $0.8 million increase in insurance costs.

2024 Forecast to 2027 Forecast

216. For the 2024 to 2027 forecast period, year over year costs increases are based on the inflation factor.

6.2.1.3 Biosolids Management Program

217. The operating costs for Biosolids Management are primarily comprised of staff costs and employee benefits, contractor costs and power. Staff costs and employee benefits are for operators and engineers to manage the biosolids program at the Clover Bar Biosolids Resource Recovery Facility. Contractor costs are related to the disposal of biosolids, while power costs are primarily incurred for the operation of the dewatering facility.

218. Table 6.2.1.3-1 provides an overview of the Biosolids Management forecast costs for 2024-2027.

Table 6.2.1.3-1
Financial Schedule 6-1
Biosolids Management Costs
2024-2027
($ millions)

		A 2024D	B 2024F	C 2025F	D 2026F	E 2027F
1	Biosolids Management	15.9	17.7	18.0	18.3	18.7
2	Variance		1.8	0.3	0.4	0.3

2024 Decision to 2024 Forecast

219. The $1.8 million increase from 2024 Decision to 2024 Forecast is primarily due to a $2.5 million increase in Biosolids Managements costs, attributed to utilizing a third-party mobile dewatering facility as a temporarily solution while cost-effective long-term solutions for dewatering are being evaluated, including the long-term feasibility of utilizing a third-party mobile dewatering facility. This $2.5 million increase is partially offset by lower forecast power costs of $0.9 million as power costs are included in the third-party mobile dewatering contract.

2024 Forecast to 2027 Forecast

220. For the 2024 to 2027 forecast period, year over year costs increases are based on the inflation factor.

6.2.1.4 Monitoring and Compliance

221. The monitoring and compliance function supports regulatory compliance in the operation of the source control and overstrength surcharge programs. Table 6.2.1.4-1 provides an overview of the Monitoring and Compliance forecast costs for 2024-2027.

Table 6.2.1.4-1
Financial Schedule 6-1
Wastewater Treatment Monitoring and Compliance Costs
2024-2027
($ millions)

	A 2024D	B 2024F	C 2025F	D 2026F	E 2027F
1 Monitoring and Compliance	1.8	1.6	1.6	1.7	1.7
2 Variance		(0.1)	0.0	0.0	0.0

222. No variance explanation is included as the year-over-year variances are below the $0.5 million explanation threshold and deemed insignificant.

6.2.1.5 Maintenance

223. Maintenance is responsible for the maintenance and repairs at the Gold Bar WWTP and CBRRF. The Maintenance group carries out these functions primarily using internal resources comprised of mechanical and electrical/instrumentation trades people. Within Maintenance, a utility crew is comprised of labourers who are primarily responsible for cleaning process equipment (tanks, vessels and channels) and they supplement the labour needed for the annual major maintenance program, including inspections, and mechanical equipment repair and refurbishment.

224. The operating costs for Maintenance include staff costs and employee benefits, materials and supplies, vehicle and equipment costs and contractors. Costs for this area vary yearly due to changes in the required level of maintenance and repair work and with yearly changes in contractor, equipment and materials costs. Table 6.2.1.5-1 provides an overview of the Maintenance forecast costs for 2024-2027.

Table 6.2.1.5-1
Financial Schedule 6-1
Wastewater Treatment Maintenance Costs
2024-2027
($ millions)

	A 2024D	B 2024F	C 2025F	D 2026F	E 2027F
1 Maintenance	10.6	10.9	11.1	11.3	11.5
2 Variance		0.3	0.2	0.2	0.2

225. No variance explanation is included as the year-over-year variances are below the $0.5 million explanation threshold and deemed insignificant.

6.2.1.6 Capital Overhead

226. Capitalized overhead encompasses indirect costs for several support functions, including but not limited to supervision and management oversight, project management and governance, accounting, supply chain, and health and safety resources.

227. The Capitalized Overhead forecast for 2024-2027 are summarized in Table 6.2.1.6-1.

Table 6.2.1.6-1
Financial Schedule 6-1
Wastewater Treatment Capital Overhead Costs
2024-2027
($ millions)

	A 2024D	B 2024F	C 2025F	D 2026F	E 2027F
1 Capitalized Overhead	(3.4)	(3.0)	(2.2)	(2.2)	(2.3)
2 Variance		0.4	0.8	0.0	(0.1)

2024 Decision to 2024 Forecast

228. No variance explanation is included as the year-over-year variances are below the $0.5 million explanation threshold and deemed insignificant.

2024 Forecast to 2027 Forecast

229. For the 2024 to 2027 forecast period, year over year cost increases are based on the inflation factor, except for 2025 due to the implementation of an updated capital overhead methodology in 2025, as described in Section 4.6, resulting in lower capitalized overhead costs for Wastewater Treatment.

6.2.2 Integrated Operations

230. Integrated Operations are comprised of allocated charges to Wastewater Treatment for services provided by EWS. The services provided and the allocation methods used to determine the Integrated Operations charges to Wastewater Treatment are described in Appendix J. Integrated Operations includes Regulatory and Business Planning, Quality Assurance and Environment, One Water Planning, Engineering, Project Management, Controls and Automation, Customer Service, and Development and Infill.

231. Table 6.2.2-1 provides an overview of Wastewater Treatment Integrated Operations operating costs for 2024-2027.

Table 6.2.2-1
Financial Schedule 7-1
Integrated Operations Costs
2024-2027
($ millions)

	Function	A 2024D	B 2024F	C 2025F	D 2026F	E 2027F
1	Regulatory and Business Planning	0.5	0.4	0.4	0.4	0.4
2	Quality Assurance and Environment	4.5	3.8	3.8	3.9	4.0
3	One Water Planning	-	0.9	0.9	1.0	1.0
4	Engineering	2.4	3.7	3.8	3.9	4.0
5	Project Management	0.9	0.4	0.4	0.4	0.4
6	Controls and Automation	1.8	1.6	1.6	1.7	1.7
7	Customer Service	-	0.4	0.4	0.4	0.4
8	Development and Infill	-	0.3	0.3	0.3	0.4
9	Total	10.1	11.6	11.8	12.0	12.2
10	Variance		1.5	0.2	0.2	0.2

2024 Decision to 2024 Forecast

232. The $1.5 million increase in forecast Integrated Operations costs is primarily due to an increase in the percentage of allocated Integrated Operations costs to Wastewater Treatment from 22% to 24% as a result of a change in the cost allocation methodology. In addition, allocated Integrated Operations costs are higher due to an overall increase of $3.0 million in the overall EWS Integrated Operations costs from $45.6 million in the 2024 Decision to $48.6 million in the 2024 Forecast. See Section 2.3 of Appendix J for additional information regarding the change in allocation methodology.

2024 Forecast to 2027 Forecast

233. For the 2024 to 2027 forecast period, year over year cost increases are based on the inflation factor.

6.2.3 Customer Billing and Metering

234. Customer billing and meter reading services is comprised of the following two functional groups: customer billing services and meter reading services. Customer Billing Services costs are comprised of services provided by EEA and regulated by the AUC. Meter Reading Services costs are comprised of Wastewater Treatment's allocation of water meter operations and meter reading services provided by EWS.

235. Table 6.2.3-1 provides an overview of Wastewater Treatment's Customer Billing and Metering operating costs forecast for 2024-2027.

Table 6.2.3-1
Financial Schedule 8-1
Customer Billing and Metering Costs
2024-2027
($ millions)

	Function	A 2024D	B 2024F	C 2025F	D 2026F	E 2027F
1	Customer Billing Services	3.5	3.8	3.9	3.9	4.0
2	Meter Services	2.4	1.3	1.0	1.0	1.1
3	Total	5.9	5.1	4.9	5.0	5.1
4	Variance		(0.8)	(0.2)	0.1	0.1

2024 Decision to 2024 Forecast

236. The $0.8 million decrease in Customer Billing and Meter Services is primarily due to lower meter reading costs; partially offset by higher deployment costs related to the AMI project and higher customer billing service costs due to higher customer counts.

2024 Forecast to 2027 Forecast

237. For the 2024 to 2027 forecast period, year over year cost increases are primarily based on the inflation factor. Meter Services costs in 2025 are forecasted to be lower due to lower

anticipated meter reading costs as the Automated Metering Infrastructure (AMI) project is implemented.

6.2.4 EWS Shared Services

238. EWS Shared Services are comprised of allocated charges to Wastewater Treatment for shared services provided by EWS. The services provided and the allocation methods used to determine the shared service charges to Wastewater Treatment are described in Appendix J. EWS Shared Services includes Information Services, Executive Administration, Controller, Communications and Public Engagement, Health, Safety and Environment, Technical Training, Human Resources, Supply Chain Management, and Incentive Compensation.

239. Table 6.2.4-1 provides an overview of Wastewater Treatment's EWS Shared Services operating costs by for 2024-2027.

Table 6.2.4-1
Financial Schedule 9-1
EWS Shared Services Costs
2024-2027
($ millions)

	Category	A 2024D	B 2024F	C 2025F	D 2026F	E 2027F
1	Information Services	0.8	1.5	1.5	1.5	1.6
2	SVP	0.3	1.2	1.2	1.2	1.3
3	Controller	0.8	0.7	0.7	0.7	0.7
4	Communications and Public Engagement	0.3	0.5	0.5	0.5	0.5
5	Health, Safety and Environment	0.5	0.7	0.7	0.7	0.7
6	Technical Training	0.4	0.5	0.5	0.5	0.5
7	Human Resources	0.1	0.2	0.2	0.2	0.2
8	Supply Chain Management	0.8	1.5	1.5	1.5	1.6
9	Incentive and Other Compensation	1.3	2.4	2.5	2.5	2.6
10	EWS Shared Services	5.3	9.2	9.3	9.5	9.7
11	Variance		3.9	0.1	0.2	0.2

2024 Decision to 2024 Forecast

240. The $3.9 million increase in the allocated Shared Service costs reflects the impact of a higher overall Shared Services costs of $3.9 million and an increase in the percentage of allocated costs to Wastewater Treatment from 11% to 18% due to a change in the allocation methodology.

See Section 3.3 of Appendix J for additional information regarding the change in allocation methodology.

241. The $3.9 million increase in the overall Shared Services costs is primarily due to a $1.3 million increase in Information Services costs due to higher application and infrastructure costs; a $0.7 million increase in insurance costs; $0.7 million increase due to higher rent costs; and a $1.1 million increase in Supply Chain Management operating costs primarily due to higher staff costs of $0.5 million and higher materials costs of $0.6 million.

2024 Forecast to 2027 Forecast

242. For the 2024 to 2027 forecast period, year over year cost increases are based on the inflation factor.

6.2.5 Corporate Shared Services

243. Corporate Shared Services are comprised of allocated charges to Wastewater Treatment for corporate services provided by EUI. The services provided and the allocation methods used to determine the Corporate Shared Services charges to Wastewater Treatment are described in Appendix I.

244. Table 6.2.5-1 provides an overview of Wastewater Treatment's Corporate Shared Services costs forecast for 2024-2027.

Table 6.2.5-1
Financial Schedule 10-1
Corporate Shared Services Costs
2024-2027
($ millions)

	Description	A 2024D	B 2024F	C 2025F	D 2026F	E 2027F
1	Board	0.1	0.1	0.1	0.1	0.1
2	Executive	0.2	0.2	0.2	0.2	0.2
3	Corporate Finance	0.2	0.3	0.3	0.3	0.3
4	Treasury	0.2	0.1	0.1	0.1	0.1
5	Internal Audit and Risk Management	0.2	0.1	0.1	0.1	0.1
6	Human Resources	0.6	0.9	0.9	0.9	0.9
7	Information Services	0.6	1.1	1.1	1.1	1.1
8	Supply Chain Management	0.5	0.6	0.6	0.6	0.7
9	Communications and Public Engagement	0.4	0.5	0.5	0.5	0.5
10	Legal Services	0.1	0.2	0.2	0.2	0.2
11	Health, Safety & Environment	0.1	0.1	0.1	0.1	0.1
12	At-Risk Compensation	0.4	0.4	0.4	0.4	0.4
13	Sub-total	3.6	4.5	4.6	4.7	4.8
14	Asset Usage Fees	1.9	1.7	1.7	1.8	1.8
15	Corporate Shared Services Costs	5.5	6.2	6.3	6.4	6.6
16	Less: Business Development Disallowances	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)
17	Corporate Shared Services Costs	5.4	6.1	6.2	6.4	6.5
18	Variance	-	0.7	0.1	0.1	0.1

2024 Decision to 2024 Forecast

245. The $0.7 million increase in forecast costs is primarily due to higher corporate information services costs related to initiatives such as Service Management, Service Desk Transition and the Corporate website, and a slightly higher human resources costs; partially offset by lower asset usage fees.

2024 Forecast to 2027 Forecast

246. For the 2024 to 2027 forecast period, year over year cost increases are based on the inflation factor.

6.3 Franchise Fee and Property Taxes

247. In accordance with the Franchise Fee Agreement, Wastewater Treatment pays the City of Edmonton a franchise fee for the exclusive rights to provide drainage services within the City boundaries, based on 8.0% of total Sanitary revenue, less the municipal portion of property taxes.

248. Property taxes include property and business taxes assessed by, and payable to the City of Edmonton with respect to the various properties owned by Wastewater Treatment as well as an allocation of property taxes for shared use properties with Water.

249. The Franchise Fees and Property Taxes costs forecast for 2024-2027 are summarized in Table 6.3-1.

Table 6.3-1
Financial Schedule 11-1
Franchise Fee and Property Taxes
2024-2027
($ millions)

	Category	A 2024D	B 2024F	C 2025F	D 2026F	E 2027F
1	Franchise Fee	10.0	10.6	10.8	11.1	11.5
2	Property Taxes	0.7	0.9	0.9	1.0	1.0
3	Total	10.8	11.6	11.7	12.0	12.5
4	Variance		0.8	0.2	0.3	0.5

2024 Decision to 2024 Forecast

250. The $0.8 million increase in Franchise Fees and Property Taxes is primarily due to forecast increases in wastewater treatment revenues and higher than forecast property taxes.

2024 Forecast to 2027 Forecast

251. For the 2024-2027 forecast period, year over year increases in Franchise Fees are due to forecast increases in Sanitary Utility revenues and year over year increases in Property Taxes are based on the inflation factor.

7.0 WASTEWATER TREATMENT CAPITAL EXPENDITURES

252. The capital expenditures for EWS' Wastewater Treatment operations includes a range of capital projects and programs for supporting ongoing operations to ensure reliability, safety, efficiency, customer growth, and regulatory compliance. Section 7.1 compares approved capital expenditures for the 2022-2024 PBR term with EWS' most recent projections for the same period, while Section 7.2 presents EWS' capital plan for the 2025-2027 PBR term. The capital expenditures presented are net of contributions within these Sections.

253. EWS develops its PBR capital plan using input from various sources, assessments, and expert resources. This provides a balanced perspective of its capital requirements. Section 4.2.3 outlines EWS' capital plan development process. Projects and programs within the capital plan are evaluated based on scope, cost, and risk, using a risk-based approach to prioritize capital. During the execution of the capital plan, actual capital expenditures may deviate from the approved amounts due to project advancement or delays caused by aging infrastructure, to accommodate growth, or to meet City requirements. These deviations are communicated annually to EWS' regulator (Edmonton City Council) through the Annual PBR Progress Reports. Appendix E includes copies of the progress reports for the years 2020-2022.

7.1 2022 – 2024 PBR Term Capital Expenditures

254. Table 7.1-1 provides a comparison of EWS' most recent spend projection on projects and programs from the 2022-2024 PBR term to the approved amounts. The projects and programs for the 2022-2024 PBR term were categorized as follows: (i) Regulatory; (ii) Growth/Customer Requirements; (iii) Health Safety and Environment; (iv) Reliability/Life-cycle Improvements; and (v) Performance/Efficiency Improvements.

Table 7.1-1
Financial Schedule 15.5-2
2022-2024 Capital Expenditures by Category
($ millions)

	Regulatory Category	A 2022-2024 Approved	B 2022-2024 Actual/ Forecast	C Variance
	Regulatory			
1	Odour Control Improvements Project	5.6	7.7	2.1
2	EWMC Groundwater Transfer	-	3.8	3.8
3	Projects < $5 million	4.5	4.0	(0.5)
4	Sub-total: Regulatory	10.1	15.5	5.4
	Growth/Customer Requirements			
5	Projects < $5 million	4.5	4.1	(0.4)
6	Sub-total: Growth/Customer Requirements	4.5	4.1	(0.4)
	Health, Safety and Environment			
7	Maintenance Hygiene Improvements	-	6.2	6.2
8	Projects < $5 million	0.8	1.8	1.0
9	Sub-total: Health, Safety and Environment	0.8	8.0	7.2
	Reliability/Life Cycle Replacements			
10	Digester 4 Upgrades	13.4	18.3	4.9
11	Utility Rack West	-	9.5	9.5
12	Square 1 Biogas System Upgrade	-	12.1	12.1
13	Gold Bar Primary Effluent Channel Upgrades	17.0	7.6	(9.4)
14	600V Electrical Building Project (EB-2)	11.8	1.3	(10.5)
15	Aux Control Room Electrical Upgrade Project (EB-1)	11.2	4.2	(7.0)
16	Clover Bar Biosolids Dewatering Facility	38.4	0.7	(37.7)
17	EPT Scrubber Upgrades	-	15.7	15.7
18	Expand Flare Capacity Project	8.0	3.2	(4.8)
19	Projects < $5 million	36.3	55.3	19.0
20	Sub-total: Reliability/Life Cycle Replacements	136.1	128.0	(8.1)
	Performance Efficiency and Improvements			
21	Secondary Aeration Blower Upgrades Project	8.0	9.6	1.6
22	Laboratory Facility Consolidation Project	5.9	5.3	(0.6)
23	Projects < $5 million	6.3	8.8	2.5
24	Sub-total: Performance Efficiency and Improvements	20.2	23.7	3.5
25	Total Capital Expenditures Net of Contributions	171.7	179.3	7.6

255. For the 2022-2024 PBR term, EWS anticipates investing $179.3 million for ensuring the safety, reliability and efficiency of its wastewater treatment operations, which is slightly higher than the approved PBR plan by $7.6 million or 4.4%. Explanations for significant variances

between the approved capital expenditures and EWS' current projection, primarily driving this slight increase, include:

7.1.1 Regulatory:

- Odour Control Improvements: $2.1 million greater than the 2022-2024 PBR forecast due to increased scope to include more odour generating locations than previously anticipated, such as the inclusion of Primary Clarifiers 5-8.
- Edmonton Waste Management Centre (EWMC) Ground Water Transfer: $3.8 million greater than the 2022-2024 PBR forecast. This project was initiated to support the City of Edmonton in addressing groundwater release management in response to regulatory requirements imposed on the City's waste management operations. EWS expects the project to be completed in 2025.

7.1.2 Health, Safety and Environment:

- Maintenance Hygiene Improvements: $6.2 million greater than the 2022-2024 PBR forecast. The maintenance hygiene improvements project was originally scheduled for completion by the end of 2021. However, following extensive stakeholder consultation in relation to the Gold Bar Integrated Resource Plan (IRP) and this project, significant scope adjustments were made, resulting in project delays and cost increases related to supply chain. This additional cost is managed through reprioritization of projects and programs approved for the 2022-2024 PBR.

7.1.3 Reliability and Life Cycle Replacements:

- Digester 4 Upgrades: $4.9 million greater than the 2022-2024 PBR forecast. Leak issues encountered during the completion of the Digester 3 upgrade project prevented this project from commencing work as originally planned. Completing the Digester 3 upgrade project before commencing the Digester 4 upgrade provided better operational capacity and reliability with Digester 3 returning to service. The increased cost of $4.9 million for the Digester 4 upgrade project is primarily due to higher commodity prices and inflation.
- Utility Rack West: $9.5 million greater than the 2022-2024 PBR forecast. The Utility Rack West project was not originally planned for the 2022-2024 PBR term; however, this project was advanced to facilitate the efficient implementation of the Aux Control Room Electrical Upgrade Project (EB-1) and the 600V Electrical Building Project (EB-

2), by leveraging pipe racks to support the re-routing of electrical cables to the new electrical buildings.

- Square 1 Biogas System Upgrade: $12.1 million greater than the 2022-2024 PBR forecast. This project was partially deferred from the 2017-2021 PBR term to the 2022-2024 PBR term due to a revision in the engineering solution, which involves relocating new gas mixing compressors to a separate enclosure. In addition, the project costs are expected to be higher than initially projected due to increased construction and process skid supply costs.
- Gold Bar Primary Effluent Channel Upgrades: $9.4 million lower than the 2022-2024 PBR forecast. Given the complexities and risks associated with the project, additional design and engineering work has been extended, delaying project completion into the next PBR term. This project is expected to go into service by 2026.
- Aux Control Room Electrical Upgrade (EB-1) and 600V Electrical Building (EB-2): These two projects are expected to be $17.6 million lower than the 2022-2024 PBR forecast. Through the design development process, the duration of these projects has been extended to enable better planning and to effectively manage the complexities associated with commissioning and transferring electrical loads. The primary objective is to minimize operational disruptions. As a result, some of the work has been rescheduled to the next PBR term.
- Clover Bar Biosolids Dewatering Facility: $37.7 million lower than the 2022-2024 PBR forecast. The dewatering facility project has been deferred due to the project cost estimate being higher than the originally forecast cost. EWS is conducting a comprehensive review and assessment of cost-effective alternatives, including the long-term feasibility of utilizing a third-party mobile dewatering facility, which is serving as a temporary solution while the current facility is shut down. As a result, the project will be reassessed in the future.
- Enhanced Primary Treatment (EPT) Scrubber Upgrades: $15.7 million greater than the 2022-2024 PBR forecast. The EPT Scrubber Upgrades project was originally part of the Site HVAC Rehabilitation project to be completed in 2021 at a total cost of $9.5M. During the project's design development, the EPT Scrubber Upgrades project was identified and set up as a standalone project. The project was subsequently delayed and is currently being commissioned. The increased cost is primarily due to a combination of project scope and design refinements, and a general increase in costs related to market conditions.

- Expand Flare Capacity: $4.8 million lower than the 2022-2024 PBR forecast. Implementation of this project has been deferred to the next PBR to address other critical projects approved in the 2022-2024 PBR.
- Reliability and Life Cycle Replacement Projects < $5 million: $19.0 million greater than the 2022-2024 PBR forecast. Projects and programs within this category are comprised of various smaller initiatives that are individually less than $5 million. The major factors for the higher forecasted capital expenditures are related to a number of smaller mechanical and Heating, Ventilation and Air Conditioning (HVAC) reliability projects such as the Digester to East end Pipe Rack, Utility Water Distribution Header, Maintenance Shop Ventilation, Loop 2 and Loop 5 rehab. Some of these projects were advanced to address failures, while the scope for certain projects was refined, leading to higher requirements and cost increases. In addition, higher market rates than anticipated for components and services have led to higher capital expenditures.

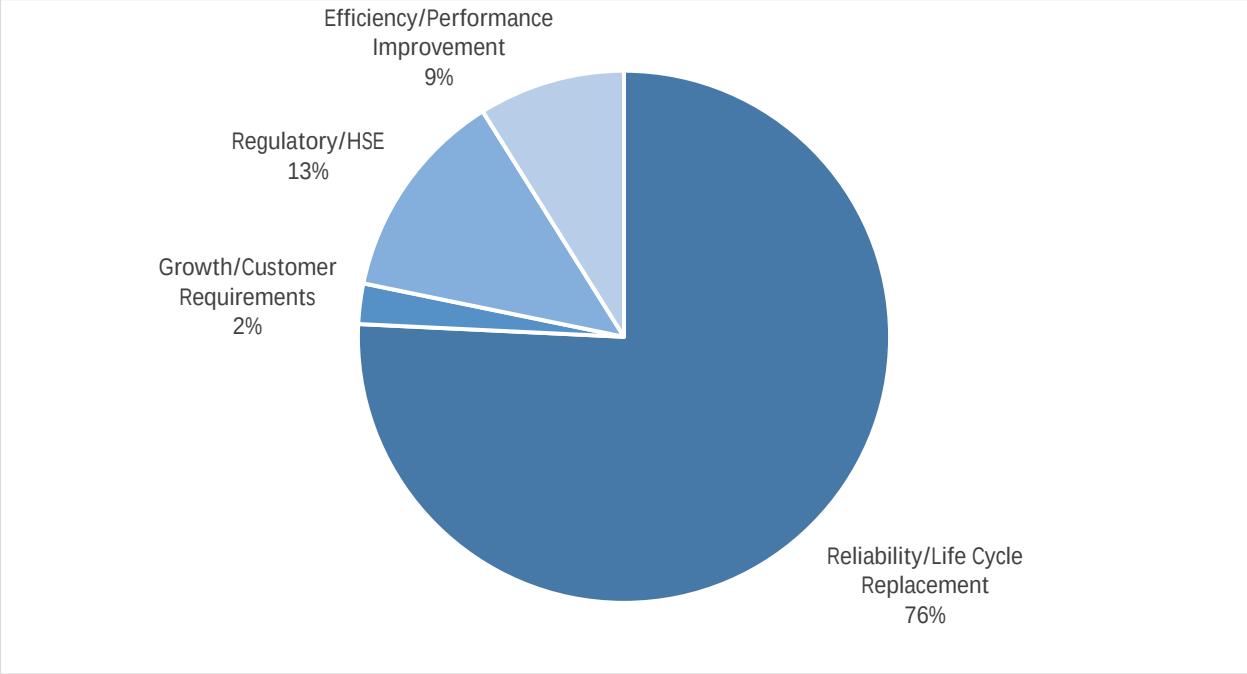
7.2 2025 – 2027 PBR Term Capital Expenditures

256. EWS developed its 2025-2027 capital plan using the methodologies described in Section 4.2.3. Planned capital investment for Wastewater Treatment, net of contributions, is expected to be $199.8 million for the 2025-2027 PBR term, utilizing the risk-based investment approach followed across EWS operations, with a specific emphasis on optimizing investment timing.

257. Starting with the 2025-2027 PBR term, classification of projects and programs for Wastewater Treatment will be standardized to align with the investment categories used across EWS. As a result, projects and programs are classified under the following investment categories: Regulatory/Health, Safety and Environment (HSE), Growth/Customer Requirements, Reliability/Life Cycle Replacement, and Efficiency/Performance Improvements.

258. During the 2025-2027 PBR term, EWS is placing considerable emphasis on the execution of projects and programs within the Reliability/Life Cycle Replacement category. As shown in Figure 7.2-1, investment in the Reliability/Life Cycle Replacement category represents 76% of planned investment over the 2025-2027 PBR term.

Figure 7.2-1
2025 – 2027 Capital Expenditure Breakdown by Category
Net of Contributions



259. Table 7.2-1 shows the forecast capital expenditures net of contributions, by category for the 2025-2027 PBR term, compared to the most recent forecast for the 2022-2024 period. The 2025-2027 capital plan prioritizes investment on projects and programs within the Reliability/Life Cycle Replacement category, with a higher level of investment in comparison to the 2022-2024 PBR term. This increased level of investment is aimed at ensuring the sustained reliability of critical assets at the Gold Bar Wastewater Treatment Plant. These planned investments are informed by information gathered from various sources, as described in Section 4.2.3, including a risk-based prioritization of investment needs.

Table 7.2-1
Financial Schedule 15-5-2
2025 – 2027 Forecast Capital Expenditures by Category
($ millions)

	Regulatory Category	A 2022-2024 Actual/ Forecast	B 2025-2027 PBR Plan	C Variance
	Regulatory/Health, Safety and Environment (HSE)			
1	Gold Bar Wastewater Treatment Plant Odour Control Improvements	7.7	13.6	5.9
2	Clover Bar EWMC Groundwater Transfer	3.8	8.1	4.2
3	Maintenance Hygiene Improvements	6.2	-	(6.2)
4	Projects < $5 million	5.8	4.1	(1.7)
5	Sub-total: Regulatory & Health, Safety and Environment	23.5	25.7	2.2
	Growth/Customer Requirements			
6	Projects < $5 million	4.1	4.9	0.8
7	Sub-total: Growth/Customer Requirements	4.1	4.9	0.8
	Reliability/Life Cycle Replacement			
8	Digester Improvements	18.7	14.0	(4.7)
9	Electrical Buildings and Utility Rack	15.2	41.6	26.4
10	UV Disinfection System Upgrades	0.2	13.5	13.3
11	Square 1 Biogas System Upgrade	12.1	-	(12.1)
12	Primary Effluent (PE) Channel Upgrades	7.7	14.8	7.0
13	Plant Pipe Rehabilitation and Upgrade	1.3	9.2	8.0
14	EPT Scrubber Upgrades	15.7	-	(15.7)
15	Sludge and Supernatant Pipeline Rehabilitation	3.5	6.4	2.9
16	Expand Flare Capacity at Gold Bar Wastewater Treatment Plant	3.2	7.7	4.5
17	Projects < $5 million	50.5	44.1	(6.3)
18	Sub-total: Reliability/Life Cycle Replacement	128.0	151.3	23.3
	Efficiency/Performance Improvements			
19	Secondary Aeration Blower Upgrades Project	9.6	1.6	(8.0)
20	Laboratory Facility Consolidation Project	5.3	-	(5.3)
21	Projects < $5 million	8.8	16.2	7.4
22	Sub-total: Efficiency/Performance Improvements	23.7	17.8	(5.9)
23	Total Capital Expenditures	179.3	199.8	20.4

260. The following Sections describe each investment category and summarize the projects and programs included in each category. Business cases for individual projects and programs with capital expenditures net of contributions totaling $5.0 million or more for the 2025-2027 PBR term are included in Appendix F.

7.2.1 Regulatory/Health, Safety and Environment (HSE)

261. The Regulatory/Health, Safety and Environment category includes projects and programs specifically necessary to address current and upcoming regulatory requirements from bodies such as the Alberta Environment and Protected Areas (AEPA) or as identified by EWS to address the health, safety and environmental considerations of employees and the public. Forecast capital expenditures of $25.7 million for the 2025-2027 PBR term relate to the Gold Bar Wastewater Treatment Plant Odour Control Improvements Program ($13.6 million), the Clover Bar Edmonton Waste Management Centre (EWMC) Groundwater Transfer Project ($8.1 million), and various smaller projects and programs under the $5 million threshold.

262. Gold Bar Wastewater Treatment Plant Odour Control Improvements Program ($13.6 million) – This program is required to address the sources of highest odour emissions at the Gold Bar Wastewater Treatment Plant based on an odour assessment completed in 2019 and ongoing testing for odour emitting sources. A business case is included in Appendix F.

263. Clover Bar EWMC Groundwater Transfer Project ($8.1 million) – This project is expected to cost a total of $12.0 million, of which, $8.1 million is expected to be incurred during the 2025-2027 PBR term. The primary objective of this initiative is to add piping capacity required for sufficient redundancy to consistently accommodate additional EWMC flows of groundwater and leachate, especially during any substantial outage of the existing process. A business case is included in Appendix F.

7.2.2 Growth/Customer Requirements

264. The Growth/Customer Requirements category includes projects and programs essential for accommodating the increasing demand due to the city's growth and for meeting stipulated requirements within the franchise agreement between EWS and the City of Edmonton. The forecasted capital expenditures for this category amount to $4.9 million for the 2025-2027 PBR term. This category includes the $4.9 million Secondary InDENSE™ upgrade project required to maintain wastewater treatment capacity and enable the postponement of the more costly implementation of Membrane Biological Reactors (MBR), which would otherwise be needed in at least one train by 2027, for ensuring compliance with regulated discharge limits.

7.2.3 Reliability/Life Cycle Replacement

265. The Reliability/Life Cycle Replacement category includes programs and projects specifically identified to rehabilitate or replace existing assets at the end of their useful lives, to

improve redundancy and manage risks. Forecast capital expenditures for the Reliability/Life Cycle Replacement category are $151.3 million for the 2025-2027 PBR term. EWS remains committed to prioritizing the reliability of its critical assets at the Gold Bar Wastewater Treatment Plant. Major projects are detailed below and make up 71% ($107.2 million) of the expenditures in this category. The remaining 29% ($44.1 million) is invested in various smaller projects and programs under the $5 million threshold.

266. Digester Improvements Program ($14.0 million) – This program is to carry out comprehensive rehabilitation and upgrades of Digester 6 and /or cleaning and rehabilitation of Digesters 7 and 8, including the replacement of components that have reached the end of their operational life or experiencing failure. A business case is included in Appendix F.

267. Electrical Buildings and Utility Rack Program ($41.6 million) – This program is forecasted to cost a total of $62.3 million, with $41.6 million in the 2025-2027 PBR term. This program allows for completion of the ongoing electrical projects (Aux Control Room Electrical Upgrade Project (EB-1) and the 600V Electrical Building Project (EB-2)) and the Utility Rack West which supports electrical cabling from process areas to the new electrical buildings. The initiatives undertaken during the 2022-2024 PBR were primarily focused on developing design and construction of a segment of the end-of-life electrical equipment's requiring replacement, and design of the Utility Rack West needs. During the 2025-2027 PBR term, EWS will focus on advancing the construction of the initial segment as well as initiating the design and construction of additional necessary end-of-life replacements. The duration of these projects has been intentionally extended to enable better planning and to effectively manage the complexities associated with commissioning and transferring electrical loads, with the primary objective to minimize operational disruptions. As a result, these projects are anticipated to extend into subsequent PBR periods. A business case is included in Appendix F.

268. UV Disinfection System Upgrades Project ($13.5 million) – This project is required to replace end-of-life Ultraviolet (UV) system currently operational at the Gold Bar Wastewater Treatment Plant, which aims to ensure dependable disinfection treatment, thereby enabling the facility to continue meeting its Approval to Operate requirements. A business case for these projects is included in Appendix F.

269. Primary Effluent (PE) Channel Upgrades Project ($14.8 million) – The total forecast for this program is estimated to be $51.3 million and is expected to extend into future PBR periods. The primary aim of this program is to upgrade the degraded concrete in the Primary Effluent channel

system, as well as improve the isolation and operational flexibility of the system. A business case is included in Appendix F.

270. Plant Pipe Rehabilitation and Upgrade Program ($9.2 million) – This program is intended to replace and upgrade critical process and utility pipes. The 2025-2027 PBR term will focus this effort on repair of deficiencies on sludge lines within the facility in addition to upgrades of the potable water piping on site. A business case is included in Appendix F.

271. Sludge and Supernatant Pipeline Rehabilitation Program ($6.4 million) – This program supports major inspections, cleaning, repairs, rehabilitation, and upgrades for the pipeline assets and supporting infrastructure between the Gold Bar Wastewater Treatment Plant and the Clover Bar Biosolids Resource Recovery Facility. A business case is included in Appendix F.

272. Expand Flare Capacity at Gold Bar Wastewater Treatment Plant Project ($7.7 million) – The total forecast cost of $11.0 million, of which, $7.7 million is expected to be spent during the 2025-2027 PBR term. This initiative involves the construction of a new building to accommodate a new flare and associated equipment at the Gold Bar Wastewater Treatment Plant. The primary objective of this project is to provide the Gold Bar Wastewater Treatment Plant with redundancy capability to safely process all potential biogases produced in the wastewater treatment process, thereby averting environmental release in the event of a flare system failure. A business case is included in Appendix F.

7.2.4 Efficiency/Performance Improvement

273. This category includes projects aimed at achieving operational efficiency and/or implementing improvements to reduce future costs. The projected capital expenditures for the Efficiency/Performance Improvement category amount to $17.8 million for the 2025-2027 PBR term. All projects and programs under this category are under the $5 million threshold, hence, no business cases are included.

8.0 DEPRECIATION AND AMORTIZATION

8.1 Depreciation

274. EWS' methodology and assumptions for determining depreciation and amortization of its capital assets are provided in Section 4.4 of the Application. EWS' forecast depreciation expense and amortization of contributions for the 2025-2027 period are provided in Table 8.1-1. The 2024 approved and EWS' most recent forecast amounts are provided for comparison.

Table 8.1-1
Financial Schedule 11-1
Net Depreciation Expense
2024-2027
($ millions)

		A 2024D	B 2024F	C 2025F	D 2026F	E 2027F
1	EWS Depreciation Expense	27.4	29.1	31.2	33.2	34.9
2	Less: Amortization of Contributions	(0.9)	(0.9)	(0.9)	(0.9)	(0.9)
3	Net EWS Depreciation Expense	26.4	28.2	30.3	32.3	34.0
4	Variance	-	1.8	2.1	2.0	1.7

2024 Decision to 2024 Forecast

275. The $1.8 million increase in net depreciation expense between the 2024 decision and 2024 forecast is primarily due to higher than anticipated capital additions, which is predominantly driven by increased capital investment on health, safety, and environmental projects, as well as other projects. In addition, approximately $0.7 million of this increase is associated with capitalization of decommissioning costs for the existing dewatering assets, which were not included in the 2024 approved amounts.

2024 Forecast to 2027 Forecast

276. The $2.1 million increase in net depreciation expense between 2024 forecast and 2025 forecast is due to:

- A $1.4 million increase due to a full year of depreciation on 2024 capital additions;
- A $1.2 million increase in 2025 due to new capital additions, along with higher depreciation on assets due to revised service lives as per the Depreciation Study; partially offset by
- A $0.5 million decrease resulting from assets becoming fully depreciated.

277. The year-over-year increase in net depreciation expense during the 2025-2027 PBR term is primarily due to the addition of new assets projected to be in service each year, based on the forecast capital expenditures outlined in Section 7.2. The annual increases also include higher depreciation on assets due to revised service lives recommended by the Depreciation Study. The Depreciation Study is included in Appendix M. Over the 2025-2027 PBR term, the net depreciation expense impact of the revised service lives and depreciation rates ranges from $0.11 million in 2025 to $0.89 million in 2027.

9.0 RATE BASE

278. Rate base is defined as the capital employed by the utility in providing services to its customers. In other words, rate base is the amount of property or assets deemed to be "used and useful" in providing utility services to customers by the utility's regulator. Rate base is calculated as the mid-year value of plant in service, net of accumulated depreciation and contributions, plus an allowance for working capital. Rate base is used to calculate the utility's authorized return in accordance with the regulatory framework governing the utility. The components of Wastewater Treatment rate base are further summarized below.

9.1 Wastewater Treatment Rate Base

279. Table 9.1-1 provides the forecast rate base, net of contributions for the Wastewater Treatment operations for 2025-2027. The 2024 approved and 2024 forecast amounts are also provided for comparison.

Table 9.1-1
Financial Schedule 15-1 to 15-3
EWS Wastewater Treatment Rate Base
2024-2027
($ millions)

		A 2024D	B 2024F	C 2025F	D 2026F	E 2027F
1	Opening Property, Plant and Equipment	830.4	834.1	907.4	962.9	1,067.8
2	Additions	131.1	73.3	55.5	105.0	36.7
3	Retirements	-	-	-	-	-
4	Closing Property, Plant and Equipment	961.4	907.4	962.9	1,067.8	1,104.5
5	Mid-Year Property, Plant and Equipment	895.9	870.8	935.2	1,015.4	1,086.2
6	Open Accumulated Depreciation	267.2	259.2	288.3	319.5	352.8
7	Depreciation Expense	27.4	29.1	31.2	33.2	34.9
8	Retirements	-	-	-	-	-
9	Closing Accumulated Depreciation	294.5	288.3	319.5	352.8	387.7
10	Mid-Year Accumulated Depreciation	280.8	273.8	303.9	336.1	370.2
11	Mid-Year Net Property	615.1	597.0	631.2	679.2	716.0
12	Add: Working Capital	4.1	(21.2)	(9.0)	(10.3)	(1.1)
13	Gross Mid-Year Rate Base	619.2	575.8	622.1	669.0	714.9
14	Mid-Year Net Contributions	(18.4)	(18.4)	(17.5)	(16.6)	(16.7)
15	EWS Mid-Year Rate Base	600.8	557.4	604.7	652.4	698.1

280. The annual increases to EWS' rate base over the 2025 to 2027 period reflect capital additions shown in row 2 of Table 9.1-1 less depreciation expense plus the change in working capital. Details of the changes to the rate base components are provided in Financial Schedules 15-1 to 16-1.

9.2 Working Capital

281. The working capital component of the rate base is an allowance for the working capital needed to finance the lag between the time when EWS provides a service and the time it is compensated for providing the service (referred to as the "revenue lead"), and the timing differences between when expenses are incurred and the time when payment is made for the expense (referred to as an "expense lag").

282. EWS has undertaken a lead-lag study to support its working capital allowance, see Appendix L. In this study, lags are derived from analyzing each revenue and expenses stream and are broken down into their individual components to determine the total lag more precisely. An overall operating expense lag is then calculated on a weighted average basis and netted against the appropriate revenues. Net lags are also calculated on individual capital expenses including debt interest, retained earnings and depreciation. The working capital ratio (net lag/365) is then applied against the corresponding expense amount to determine the portion of necessary working capital related to each component, see Financial Schedule 16-1.

10.0 RETURN ON RATE BASE

283. EWS' cost of capital is comprised of its capital structure or the proportion of debt and equity financing deemed necessary to support its operations, EWS' cost of debt and cost of equity or return on equity (ROE). The following Sections describe EWS' deemed capital structure, Wastewater Treatment's weighted average cost of debt, EWS' recommended ROE to earn a fair return on its invested capital and provides a calculation of the forecast return on rate base for EWS' Wastewater Treatment operations for the 2025-2027 PBR term.

10.1 Capital Structure

284. EWS is applying for a deemed capital structure of 60% debt and 40% equity for the 2025-2027 PBR term. This approach is consistent with EWS' proposed method of updating its ROE as well as its historical capital structure. EWS' proposed methodology for updating its ROE is described in Section 4.3.1.

10.2 Cost of Debt

285. EWS reflects new debt issuances from its parent company, EUI, through deemed inter-company loans. Like other regulated utilities of EUI, EWS calculates the cost of new long-term debt based on the stand-alone principle. Based on the stand-alone principle and the cost of debt methodology described in Section 4.3.2, EWS proposes to fix its forecast cost of new long-term debt issuances at 4.65% for the entire duration of the 2025-2027 PBR term while the cost of short-term debt issuances is proposed at 5.85%.

286. Wastewater Treatment's weighted average cost of debt presented in Table 10.2-1 reflects the weighted average cost of long-term debt issued in prior years, the forecast cost of new debt issuances at 4.65% and a small component of short-term debt at 5.85% (short-term debt represents approximately 6% of Wastewater Treatment's mid-year debt capital). The increase in the forecast cost of debt is attributable to the Bank of Canada's quantitative measures introduced since 2022 to regulate inflation.

Table 10.2-1
Financial Schedule 17-2
Wastewater Treatment Weighted Average Cost of Debt
2024-2027

		A 2024D	B 2024F	C 2025F	D 2026F	E 2027F
1	Weighted Average Cost of Debt	3.77%	4.00%	4.12%	4.11%	4.29%

10.3 Rate of Return on Equity

287. The rate of return approved by EWS' regulator, Edmonton City Council, must meet the fair return standard, which states that the utility must be allowed to earn a fair return which is (i) sufficient to ensure its financial integrity; (ii) adequate to attract capital at reasonable terms; and (iii) commensurate with returns on investments in enterprises having corresponding risks. Based on the fair return standard, EWS recommends the return on equity and cost of capital as illustrated in Table 10.3-1 be approved for Wastewater Treatment for the 2025-2027 PBR term:

Table 10.3-1
Recommended Cost of Capital for
Wastewater Treatment 2025-2027 PBR Term

	Category	A Proportion	B Rate	C Weighted Rate
1	Long-Term Debt	60%	4.65%	2.79%
2	Equity	40%	10.80%	4.32%
3	Total	100%		7.11%

288. The proposed rate of return on common equity of 10.80% is based on EWS' methodology for determining its return on equity described in Section 4.3.1.

10.4 Return on Rate Base Calculation

289. Table 10.4-1 shows the forecast return on rate base for the years 2025-2027 based on the weighted average cost of debt and return on equity methodology described in Section 10.2 and 10.3, respectively. The 2024 approved and 2024 forecast amounts are shown for comparison.

Table 10.4-1
Financial Schedule 14-1
Return on Rate Base
2024-2027
($ millions)

		A 2024D	B 2024F	C 2025F	D 2026F	E 2027F
1	Mid-Year Rate Base, net	600.8	557.4	604.7	652.4	698.1
	Mid-Year Capital Structure					
2	Debt Capital	60.00%	60.00%	60.00%	60.00%	60.00%
3	Common Stock Equity	40.00%	40.00%	40.00%	40.00%	40.00%
	Cost Rates					
4	Debt Capital	3.77%	4.00%	4.12%	4.11%	4.29%
5	Common Stock Equity	9.64%	9.64%	10.80%	10.80%	10.80%
6	Weighted Average Cost of Capital (WACC)	6.12%	6.26%	6.79%	6.79%	6.90%
	Return on Rate Base					
7	Debt Capital	13.6	13.4	14.9	16.1	18.0
8	Common Stock Equity	23.2	21.5	26.1	28.2	30.2
9	Total Return	36.8	34.9	41.1	44.3	48.2

290. The increases in the forecast return on rate base between 2024 and 2027 are attributable to the following factors:

- A net increase in the value of mid-year rate base i.e., the capital employed by the utility in providing service to its customers as discussed in Section 7;
- An increase in the cost of debt discussed in Section 10.2; and
- An increase in the cost of equity discussed in Section 10.3.

11.0 WASTEWATER TREATMENT REVENUE OFFSETS (NON-RATE REVENUES)

291. Table 11.0-1 provides a detailed forecast of the revenue offsets, which represent non-rate revenues, for Wastewater Treatment Services for the period of 2025-2027. For comparison purposes, the approved amount for 2024 and the forecast amount for 2024 have been included in the table. Revenue Offsets are comprised of revenues obtained from various service charges and fees, penalties, and miscellaneous revenues. These offsets are subtracted from expenses to ascertain the revenue requirement for regulated wastewater treatment operations. In accordance with EWS' methodology for forecasting operating cost, the 2025 revenue offsets have been projected based on the best estimate of 2025 amounts, escalated by the inflation factor.

Table 11.0-1
Financial Schedule 13-1
Revenue Offsets
2024-2027
($ millions)

		A 2024D	B 2024F	C 2025F	D 2026F	E 2027F
1	Biosolids	4.8	6.0	6.1	6.3	6.4
2	SWAP	0.7	1.1	1.1	1.1	1.1
3	Phosphate sales	0.5	0.4	0.4	0.4	0.4
4	Late Payment Charges	0.3	0.2	0.2	0.2	0.2
5	Miscellaneous revenue	1.0	1.1	1.1	1.1	1.1
6	Total	7.3	8.8	8.9	9.1	9.3

292. Below is a description of the revenue offset categories:

293. Biosolids revenues are generated from the management and disposal of biosolids at EWS' Clover Bar Biosolids Resource Recovery Facility, delivered by ARROW Utilities (previously known as the Alberta Capital Region Wastewater Commission). These revenues are determined in accordance with a Biosolids Management Agreement between EWS and ARROW Utilities.

294. Under a separate agreement between EWS and ARROW Utilities referred to as SWAP, a portion of the Capital Region's wastewater flows are directed to the Gold Bar Wastewater Treatment Plant, given the proximity of a portion of its customer service area to the Gold Bar Wastewater Treatment Plant. In turn, a portion of Edmonton's wastewater flows are sent to the ARROW Utilities treatment plant, given the proximity of certain Edmonton service areas to the ARROW Utilities treatment plant. EWS invoices ARROW Utilities for the net exchange of

wastewater volumes and collects revenues to compensate for the wastewater treatment service applicable to these wastewater flows.

295. Phosphate sales reflect the sale of fertilizer produced by the Ostara nutrient recovery facility located at the Clover Bar Biosolids Resource Recovery Facility, pursuant to an agreement between EWS Wastewater Treatment and Ostara Nutrient Recovery Technologies Inc.

296. Late payment penalty revenues are charges applied to customer invoices for amounts unpaid beyond the prescribed customer payment terms.

297. Miscellaneous revenues are generated from Suburban and Laboratory revenue as described below.

298. Suburban revenues are Wastewater Treatment's share of the amounts charged by Wastewater Collection to customers outside of Edmonton for the collection and treatment of their wastewater. A portion of this collected revenue is transferred to Wastewater Treatment.

299. Laboratory revenue from the provision of laboratory testing and analysis services is provided mainly to the City of Edmonton as well as third party customers and various incidental services.

12.0 WASTEWATER TREATMENT COST OF SERVICE

12.1 Cost of Service Methodology Review

300. A fundamental principle of rate-making is that the wastewater treatment rate structure should recover the costs associated with providing service to the customers using the wastewater treatment system. This recovery must be conducted in a manner that is both fair and equitable to ensure that rates for each customer class reflect their demands on the system. The objective is to prevent one customer class from subsidizing or being subsidized by another customer class.

301. In the fall of 2023, EWS engaged the services of HDR Engineering, Inc. (HDR) to provide technical assistance in developing a wastewater treatment cost of service analysis. The primary objective of this analysis was to support EWS' established practice of setting cost-based rates. This entailed:

- Developing a wastewater treatment cost of service analysis that aligns with the generally accepted wastewater rate-setting methodologies and principles established by the Water Environment Federation (WEF) and outlined in the Manual of Practice No. 27, Financing and Charges for Wastewater Systems;
- Developing a cost of service methodology that ensures an equitable distribution of the cost of providing wastewater treatment to various customer classes of service;
- Reviewing the current wastewater treatment rate structure and presenting alternative options for future consideration; and
- Providing EWS with a cost of service model that can be employed to evaluate the distribution of future wastewater treatment costs and rate impacts.

12.2 Revenue Requirement

302. The determination of the revenue requirement for Wastewater Treatment is based on a utility basis. The annual revenue requirement represents the overall financial needs of the Utility which is determined by aggregating the operations and maintenance expenses, depreciation and amortization, and a fair return on investment from a test period.

303. In the cost of service analysis conducted by HDR, the 2024 forecast revenue requirement was developed using the same accounting policies and cost forecasting methodologies outlined in Section 4 of this Application. This information was provided to HDR before the forecast for this Application was completed. However, due to differences in certain assumptions around cost escalation, customer growth, and consumption per customer arising subsequent to the provision

of this information to HDR, the 2024 test year revenue requirement analyzed by HDR is $1.9 million more than the 2024 forecast revenue requirement in Section 5. EWS has reviewed the differences in the analysis and has concluded that they would not have any significant impact on the conclusions reached in HDR's report titled "2023 Wastewater Treatment Cost of Service Study" (referred to as the "HDR Cost of Service Study," Appendix K-2).

12.3 General Cost of Service Procedures

304. HDR began the Cost of Service Study by using the 2024 test year revenue requirement as its foundation. The first step was to group customer classes with similar usage patterns and facility requirements. During the study, HDR considered various alternative customer classes, but ultimately concluded that EWS' current customer classes were reasonable and consistent with industry practices. These include:

- Residential Wastewater Treatment Service - EWS provides wastewater treatment services to domestic single-family customers and multi-residential customers located in the city of Edmonton who are serviced by or connected to the Wastewater Collection sewerage system;
- Commercial Wastewater Treatment Service - EWS provides wastewater treatment services to commercial, industrial and institutional customers located in the city of Edmonton who are serviced by or connected to the Wastewater Collection sewerage system; and
- Surchargeable Matter – EWS' wastewater treatment services provided to commercial, industrial, and institutional customers include additional monitoring, sampling and testing of wastewater that may contain one or more constituents considered to be harmful to the environment. Overstrength Surcharges are levied on each kilogram of surchargeable matter per cubic metre of wastewater exceeding prescribed concentrations.

305. The next step of the study involved conducting a cost of service analysis to determine the costs associated with serving each customer class. The cost of service analysis employed a three-step approach to distribute the revenue requirement in a manner that is both equitable and proportional. These steps included:

- Step 1 – Functionalization: This step involved classifying expenses and asset data into major operating components and functions in wastewater treatment operations. The cost data had already been predominantly functionalized through Wastewater Treatment's accounting and asset records.

- Step 2 – Allocation: This step determined the reason for incurring expenses or the type of need that was being met. In the cost of service analysis, plant assets and revenues were assigned to four cost components:
    1) Volume Related Costs: These costs tend to vary with the total quantity or volumes of wastewater treated;
    2) Strength-Related Costs: These costs vary with the process/cost associated with treating different contaminants and their concentration in the effluent. Higher strength discharges require additional treatment to meet discharge requirements, which generally equates to increased treatment costs;
    3) Customer-Related Costs: These costs tend to vary with the number of customers served and typically include the costs of billing, collections, and accounting; and
    4) Revenue-Related Costs: These costs vary with the amount of revenue received by the utility. An example of a revenue related cost would be a utility tax, or franchise fee, which is based on gross utility revenue.

- Step 3 – Distribution: This step involved distributing the costs to each customer class using the following distribution factors:
    1) Volume Distribution Factor: Volume-related costs were distributed based on the estimated class contributions to wastewater flows, using estimates based on recent historical flows at the treatment plant;
    2) Strength-Distribution Factor: Strength-related costs were allocated to the different wastewater constituents. The allocated costs were then distributed to each class of service based on flow contributions and the assumed strength level for residential, multi-residential and commercial customer classes, and the actual strength levels for overstrength customers;
    3) Customer Distribution Factor: Customer costs were distributed to the various customer classes of service based on their respective number of customer accounts; and
    4) Revenue-Related Distribution Factor: The revenue related distribution factor was developed from the projected rate revenues for 2024 for each customer class of service.

12.4 Summary of the Cost of Service Results

306. EWS thoroughly reviewed HDR's Cost of Service Study (Appendix K-2) and is confident that the report provides a solid foundation for the development of fair and equitable cost-based rates. HDR's comprehensive study and analysis compared the distributed expenses for each

customer class of service with the current revenues received from each customer class of service. This comparison provides an accurate measurement of the over or under collection of revenue by customer class if the cost of service results were implemented. A summary of the detailed cost responsibility developed for each class of service for 2024 is summarized below in Table 12.4-1.

Table 12.4-1
Appendix K-2, Table 3-5
Summary of the EPCOR 2024 Cost of Service Results
($ millions)

		A Present Revenue	B Allocated Costs	C $ Difference	D % Difference
1	Single Family	83.8	81.8	2.0	-2.5%
2	Multi-Residential	24.4	24.4	-	0.0%
3	Commercial	28.7	30.0	(1.3)	4.4%
4	Overstrength	5.9	6.3	(0.4)	6.9%
5	Total	142.8	142.4	0.4	-0.3%

307. HDR typically conducts a cost of service review for each class of service to ascertain whether it falls within a "reasonable range" of their cost of service. In this context, "reasonable" denotes a range within +/- 5% of the overall required adjustment. Given Wastewater Treatment's -0.3% overall adjustment in this analysis, a class of service would be considered within a "reasonable range" if it is within the range of -5.0% to +5.0%. With the exception of the overstrength customer class of service, all other classes of service fall within a reasonable range of their cost of service. The overstrength customer class of service is marginally outside the reasonable range. It is worth noting that the cost of service analysis is dynamic, and the results can change over time as customer usage patterns and costs change. HDR has recommended that EWS continue to examine this more closely over an extended period of time before making any interclass adjustments. Therefore, EWS is not proposing any adjustments for the 2025-2027 PBR term.

13.0 WASTEWATER TREATMENT PBR RATES

13.1 PBR Rate Structure by Customer Class

308. Wastewater treatment services are provided pursuant to a franchise agreement with the City of Edmonton and are regulated by City Council under a performance-based regulation framework. Wastewater treatment services customers are grouped into the same categories as water services customers, so a residential water services customer would also qualify as a residential wastewater treatment services customer, a multi-residential water services customer would also qualify as a multi-residential wastewater treatment services customer and a commercial water customer would also qualify as a commercial wastewater treatment services customer. The rate structure for these customer classes is described below.

13.1.1 Residential

309. Residential customers are charged a monthly service connection fee, plus a variable charge for wastewater treatment based on their water consumption. Wastewater treatment charges are based on a flat rate structure with a single wastewater treatment rate applied to each cubic meter of water consumed. EWS believes that this rate structure is appropriate and is proposing no changes for the 2025-2027 PBR term.

13.1.2 Multi-Residential

310. Multi-Residential customers are charged the same monthly services connection fee and variable charge for wastewater treatment as residential customers. Therefore, the multi-residential customer class simply provides for consistency in customer classification with Water Services and Wastewater Services. EWS believes that this rate structure is appropriate and is proposing no changes for the 2025-2027 PBR term.

13.1.3 Commercial

311. Commercial customers are charged the same monthly connection fee as residential and multi-residential customers and commercial customers in the first consumption block, but unlike consumption charges for residential and multi-residential customers, the commercial customer class uses a declining rate structure with three consumption blocks. The first block is for customers consuming less than 10,000 m^3 of water per year (over 95% of commercial customers), the second is for those customers with 10,000.1 to 100,000 m^3 of water consumption per year

and the third block is for those consuming over 100,000 m^3 per year. EWS is proposing no changes to this rate structure for the 2025-2027 PBR term.

13.1.4 Overstrength Surcharges

312. EWS wastewater treatment services provided to commercial customers include additional monitoring, sampling, and testing of wastewater potentially containing one or more constituents, such as oil and grease, phosphorus, and other compounds considered to be harmful to the environment. Customers who release wastewater into the sewer system that contains these compounds are billed overstrength surcharges for each kilogram of sur-chargeable matter per cubic meter of wastewater in excess of prescribed concentrations. EWS is proposing no changes to this rate structure for the 2025-2027 PBR term.

13.2 2025-2027 Wastewater Treatment Rates and Special Rate Adjustments

313. Under EWS' PBR framework, annual rate increases are limited to the PBR inflation adjustment plus any special rate adjustments. For the 2025-2027 PBR term, EWS is seeking approval for the following two special rate adjustments:

- Special Rate Adjustment to Refund Consumption Deferral Account; and
- Special Rate Adjustment for Re-Basing.

13.2.1 Special Rate Adjustment to Refund Consumption Deferral Account

314. For the current Wastewater Treatment and Drainage Services PBR term (2022-2024) and for the Water Services PBR term (2022-2026), City Council directed EWS to accumulate consumption deferral account balances, and subsequently collect or refund the accumulated consumption deferral account balances over the future PBR terms through a special rate adjustment.

315. Historically, EWS never proposed the inclusion of deferral accounts for revenue or consumption forecasts as part of its PBR framework for setting rates. This approach has resulted in EWS historically bearing the entire revenue risk arising from fluctuations in water consumption, which has benefited ratepayers by ensuring that EWS' rates remained relatively stable and predictable over the long term, as it was unaffected by consumption changes.

316. In contrast, with a consumption deferral account, rates in future PBR terms are adjusted for any revenue shortfall or surplus recorded in the previous PBR terms arising from differences between the approved PBR forecast and actual consumption. These future rate adjustments are

in addition to the routine rate adjustments necessary to recover the revenue requirement for the future PBR term, resulting in volatile rates over the long term.

317. However, the COVID-19 pandemic posed a challenge in accurately forecasting consumption for the 2022-2024 and 2022-2026 PBR Applications, which was developed in mid-2020. To address this unique circumstance, a consumption deferral account was proposed and introduced for the current 2022-2024 and 2022-2026 PBR terms.

318. The primary objective of introducing the consumption deferral account was to mitigate consumption related revenue variances. It is important to recognize that this measure was not intended to establish a precedent, given the risk of long-term rate volatility for customers.

319. With the uncertainties related to extraordinary events such as the COVID-19 pandemic now reduced, EWS is confident that the ongoing variations in consumption are now part of its standard course of business. Therefore, it is reasonable for EWS to continue managing and mitigating its consumption risk without a deferral account, as it did before 2022.

320. The accumulated consumption deferral account balances during the 2022-2024 PBR term shown in Table 13.2.1-1 reflect a positive balance. This positive balance is attributed to actual consumption levels exceeding the forecasted volumes for the 2022-2024 PBR term, which was primarily influenced by the forecasting uncertainties associated with the COVID-19 pandemic.

321. Although the current accumulated deferral account balances are positive, suggesting an expected refund that would benefit ratepayers over the 2025-2027 PBR term, a significant negative deferral account balance stemming from lower actual consumption could also occur in the future.

322. A negative deferral account balance would require additional rate adjustments (or additional charges on customer bills) to recover such balances, which could result in a rate shock for customers when the balances are significant. These additional rate adjustments when combined with routine rate increases necessary to recover the revenue requirement for the ongoing delivery of safe and reliable utility services has the potential to cause rate shock or in the worst-case could lead to rates becoming unaffordable.

323. As part of the 2025-2027 PBR engagement process, EWS surveyed residential and commercial customers on their preference for stable and predictable bills over mechanisms such as the deferral accounts that create the potential for a positive or negative future bill adjustment (true-ups). An overwhelming majority of survey respondents strongly prefer that seasonal

revenue variations are managed by the Utility to ensure that customer bills remain stable and predictable. These customers do not appear to be in favour of bearing weather-related risks on their utility bills.

324. Consumption deferral accounts are proposed to be discontinued starting with this Application for the reasons outlined above, in alignment with the recommendations provided in the "Review of Consumption Deferral Accounts" report to Utility Committee on May 6, 2024.

325. Special rate adjustments to refund the consumption deferral account balances are required in 2025, 2026, and 2027 in accordance with previous City Council direction because the accumulated consumption deferral account balances from the current 2022-2024 PBR term for Wastewater Treatment reflects a positive balance. The special rate adjustment for consumption deferral refund will be applied to Wastewater Treatment's variable monthly charges during the 2025-2027 PBR term, effective April 1, 2025.

326. Table 13.2.1-1 summarizes the accumulated consumption deferral account balances from the 2022-2024 PBR term and the subsequent refund of accumulated balances during the 2025-2027 PBR term. The consumption deferral amount is calculated by multiplying the rate in effect for a given period by the difference in consumption (difference between the PBR forecast and the actual consumption) for the same period. The accumulated deferral account balances and refunds include carrying costs (interest charges) based on EWS' weighted average cost of capital (WACC). The average customer bill impacts of the special rate adjustments are summarized in Section 13.3.

Table 13.2.1-1
Financial Schedule 20-2
Wastewater Treatment Consumption Deferral Account
2024-2027
($ millions)

		A 2024F	B 2025F	C 2026F	D 2027F
1	Beginning Balance	16.3	26.2	19.8	10.3
2	Current Year Consumption Deferral	24.9	-	-	-
3	Carrying Costs	1.3	1.8	1.3	0.7
5	Consumption Deferral Refund	-	(8.2)	(10.8)	(11.0)
6	Ending Balance	26.2	19.8	10.3	-

13.2.2 Special Rate Adjustment for Rebasing

327. Under EWS' PBR framework, annual rate increases are limited to the PBR inflation adjustment plus any special rate adjustments. Rebasing refers to the rate adjustment required to fully recover the forecast revenue requirement for the 2025-2027 PBR term, which is prepared on a bottom-up basis utilizing the methodologies and key assumptions described in Section 4.0. Without the special rate adjustments for rebasing, annual rate increases would be limited to the PBR inflation adjustment, resulting in a revenue shortfall of $11.9 million for Wastewater Treatment, as shown in Table 13.2.2-1. As a result, special rate adjustments for rebasing are required over the 2025-2027 PBR term to fund the ongoing operations and planned capital investments. The total revenue shortfall to be recovered through the rebasing adjustment amounts to $11.9 million and is shown in Table 13.2.2-1.

Table 13.2.2-1
Financial Schedule 19-1
Revenue Shortfall Calculation
2025-2027
($ millions)

		A 2025F-2027F
1	Revenue Collected at Prior Year's Rates	450.3
2	PBR Inflation Impact on Revenue	15.6
3	Revenue Collected at PBR Rates	465.9
4	Total Revenue Requirement	477.8
5	Revenue Shortfall to be recovered through Rebasing Adjustment	(11.9)

13.3 Summary of Wastewater Treatment Bill Impacts

328. Over the 2025-2027 PBR term, wastewater treatment rate increases include PBR inflation and the two special rate adjustments outlined in Section 13.2. The utility bill impacts for the average residential, multi-residential and the commercial customer are shown in Tables 13.3-1 to 13.3-3. The average monthly bills consider the anticipated reduction in consumption over the PBR term, reflecting the water conservation efforts within the community and the adoption of efficient fixtures and appliances. As a result, the presentation of bill impacts aims to depict the bill experience of an average customer.

329. Average residential and multi-residential customers are expected to experience a modest bill increase of 1.0% and 2.1% respectively, after taking into consideration the consumption deferral refund over the 2025-2027 period. Average bills for commercial customers are expected

to experience a reduction of 2.9% over the same period, largely driven by the significant deferral account balance and resulting refund.

Table 13.3-1
Wastewater Treatment Services – Average Residential Bill Impact
2025-2027

	Wastewater – Average Residential	A 2024F	B 2025F	C 2026F	D 2027F	E Total / Average
1	Monthly Consumption per Customer - m^3	13.3	13.1	12.9	12.8	
2	Impact of Consumption		-1.09%	-1.11%	-0.56%	
3	Normal Operations (i-x)		1.77%	2.01%	1.78%	
4	Special Rate Adjustment - Rebasing		1.49%	1.49%	1.50%	
5	Annual Rate Increase		2.17%	2.39%	2.72%	
	Average Bill Impact:					
6	Average Monthly Bill - $	24.16	24.69	25.28	25.96	
7	Change in Bill (before consumption deferral) - $		0.52	0.59	0.69	1.80
8	Change in Bill (before consumption deferral) - %		2.17%	2.39%	2.72%	2.43%
9	Special Rate Adjustment – Refund Consumption Deferral		(1.02)	(1.03)	(1.04)	
10	Average Monthly Bill (net of consumption deferral) - $	24.16	23.66	24.25	24.93	
11	Bill Impact (net of consumption deferral) - $		(0.50)	0.59	0.68	0.76
12	Average Bill Impact (net of consumption deferral) - %		-2.06%	2.48%	2.79%	1.04%

Table 13.3-2
Wastewater Treatment Services – Average Multi-Residential Bill Impact
2025-2027

	Wastewater - Average Mult-Residential	A 2024F	B 2025F	C 2026F	D 2027F	E Total / Average
1	Monthly Consumption per Customer - m^3	416.5	419.3	422.2	425.1	
2	Impact of Consumption		0.67%	0.68%	0.68%	
3	Normal Operations (i-x)		1.80%	2.04%	1.80%	
4	Special Rate Adjustment- Rebasing		1.52%	1.52%	1.52%	
5	Annual Rate Increase		4.00%	4.25%	4.00%	
	Average Bill Impact:					
6	Average Monthly Bill - $	557.39	579.66	604.27	628.43	
7	Change in Bill (before consumption deferral) - $		22.27	24.61	24.16	71.04
8	Change in Bill (before consumption deferral) - %		4.00%	4.25%	4.00%	4.08%
9	Special Rate Adjustment – Refund Consumption Deferral		(32.73)	(33.62)	(34.46)	
10	Average Monthly Bill (net of consumption deferral) - $	557.39	546.93	570.65	593.97	
11	Bill Impact (net of consumption deferral) - $		(10.46)	23.71	23.33	36.58
12	Average Bill Impact (net of consumption deferral) - %		-1.88%	4.34%	4.09%	2.14%

Table 13.3-3
Wastewater Treatment Services – Average Commercial Bill Impact
2025-2027

	Wastewater - Average Commercial	A 2024F	B 2025F	C 2026F	D 2027F	E Total / Average
1	Monthly Consumption per Customer - m^3	111.3	109.92	108.56	107.22	
2	Impact of Consumption		-1.18%	-1.18%	-1.18%	
3	Normal Operations (i-x)		1.77%	2.01%	1.77%	
4	Special Rate Adjustment- Rebasing		1.49%	1.49%	1.49%	
5	Annual Rate Increase		2.08%	2.32%	2.08%	
	Average Bill Impact:					
6	Average Monthly Bill - $	153.77	156.97	160.60	163.94	
7	Change in Bill (before consumption deferral) - $		3.19	3.64	3.34	10.17
8	Change in Bill (before consumption deferral) - %		2.08%	2.32%	2.08%	2.16%
9	Special Rate Adjustment – Refund Consumption Deferral		(22.66)	(22.83)	(22.95)	
10	Average Monthly Bill (net of consumption deferral) - $	153.77	134.31	137.77	140.99	
11	Bill Impact (net of consumption deferral) - $		(19.46)	3.46	3.22	(12.78)
12	Average Bill Impact (net of consumption deferral) - %		-12.66%	2.58%	2.34%	-2.85%

14.0 WASTEWATER COLLECTION OPERATING COSTS

330. This Section describes the total regulated operating costs for EWS' Wastewater Collection operations for the 2025-2027 forecast period. The approved operating costs for 2024, as well as the latest forecast for 2024, are included for comparison. To enhance comparability, the approved amounts for 2024 have been restated to conform to the new functional organizational structure. Although the approved amounts for individual functions or cost components may differ, the total approved costs for 2024 remain unchanged. Operating costs are presented using two different perspectives: (i) by cost category, detailed in Section 14.1 and (ii) by operational function, detailed in Section 14.2.

331. Section 14.1 provides a breakdown of the total regulated operating costs, grouped by the various cost categories. This Section also provides an explanation of each cost category's proportion and the unique cost drivers that are responsible for the annual costs.

332. Wastewater Collection's operating costs are grouped into the following cost categories:

- Staff Costs and Employee Benefits;

- Contractors and Consultants;
- Other Raw Materials and Operating Charges;
- Other Administrative Expenses;
- Integrated Operations;
- Customer Billing and Metering;
- EWS Shared Services; and
- Corporate Shared Services.

333. Section 14.2 further categorizes and explains the operating costs based on the following operational functions:

- Core Operations;
- Integrated Operations;
- Billing, Meters and Customer Service;
- EWS Shared Services; and
- Corporate Shared Services.

334. Each core operational function is further broken down into responsibility centres where the management of costs takes place, overseen at the senior manager level or higher. Although the wastewater collection system is managed through several responsibility centres, certain responsibility centres have been grouped together based on the operational function for the purpose of this Section.

335. Section 14.2 provides a description of each responsibility centre within each operational function and explains significant year-over-year variances exceeding $0.5 million. Forecast costs by operational function are provided for 2025-2027, along with a comparison of the approved amounts for 2024 and EWS' latest forecast for 2024. For additional information on actual operating costs for wastewater collection operations between 2020 and 2022, please refer to the Annual PBR Progress Reports provided in Appendix E to the Application.

14.1 Operating Costs by Cost Category

336. Table 14.1-1 provides a summary of Wastewater Collection's total regulated operating costs by cost category for 2024-2027. Wastewater Collection operating costs are allocated between the Sanitary and Stormwater Utilities in accordance with the cost allocation methodologies described in Section 20.

Table 14.1-1
Financial Schedule 5-2
Operating Costs by Cost Category
2024-2027
($ millions)

	Cost Category	A 2024D	B 2024F	C 2025F	D 2026F	E 2027F
1	Core Operations					
2	Staff Costs and Employee Benefits	35.8	29.9	25.7	26.3	26.7
3	Contractors and Consultants	6.1	8.4	8.6	8.8	8.9
4	Other Raw Materials and Operating Charges	(0.8)	1.2	1.5	1.5	1.5
5	Other Administrative Expenses	2.4	1.1	1.4	1.4	1.4
6	Core Operations Sub-Total	43.6	40.8	37.1	38.0	38.6
7	Integrated Operations	16.6	16.3	16.7	17.0	17.3
8	Customer Billing and Metering	7.5	8.0	7.5	7.7	7.8
9	EWS Shared Services	23.3	22.2	22.6	23.1	23.5
10	Corporate Shared Services	17.0	19.9	20.2	20.7	21.0
11	Total	107.9	107.1	104.1	106.4	108.4
12	Assigned to:					
13	Sanitary Utility	49.1	53.5	52.0	53.1	54.1
14	Stormwater Utility	58.9	53.6	52.1	53.3	54.3
15	Total	107.9	107.1	104.1	106.4	108.4

14.1.1 Core Operations

337. Core operations costs are comprised of staff and employee benefits costs, contractors and consultants, raw materials, other operating charges and administrative costs to operate and maintain the wastewater collection system on an ongoing basis. These costs are further detailed below:

Staff Costs and Employee Benefits

338. Staff costs and employee benefits reflect wages, salaries and benefits including incentive compensation and overtime for employees. These costs represent approximately 25% of Wastewater Collection's total regulated operating costs over the 2025 to 2027 period. The staff costs and employee benefits are reported net of salary recoveries for the employee time spent on capital projects, as well as capitalized overhead. Time spent for work on capital projects is directly charged to the capital project. Capital overhead encompasses indirect costs for several support functions, including but not limited to supervision and management oversight, project management and governance, accounting, supply chain, and health and safety resources.

Capitalized overhead recoveries vary year over year based on the amount of capital expenditures and the direct labour charged to capital projects.

339. Wastewater Collection has two broad categories of employees: unionized and non-unionized. Unionized employees make up approximately 80% of the total Wastewater Collection workforce while non-unionized employees make up the remaining 20%. For both unionized and non-unionized employees, the compensation structure includes a base level of compensation, including benefits, and an incentive component which is paid when performance targets are met. Salaries and wages for union staff are determined based on negotiated collective bargaining agreements with International Brotherhood of Electrical Workers Local 1007, Civic Service Union 52 and Canadian Union of Public Employees Local 30. Salaries for non-union staff are determined based on job-related skills, experience and market competitiveness.

340. Year over year changes in salaries and benefits (net of labour recoveries) are primarily influenced by annual salary and wage escalations and the changes in staffing levels to accommodate workload. Salaries and benefits are also influenced by overtime requirements related to fluctuations in operational activities resulting from factors such as flooding and emergency repairs. Occasionally, salaries and benefits are also influenced by organizational realignment.

Contractors and Consultants

341. Contractor and consultant charges represent approximately 8% of Wastewater Collection's total regulated operating costs over the 2025 to 2027 period. Contractor and consultant charges include hydrovac services, paving services, utility locating costs, barricading services, and contracted services for specialized skills not available within EWS or when workload exceeds the capacity of internal resources.

Raw Materials, Operating Charges and Other Charges

342. Raw materials, operating charges and other administrative expenses account for approximately 3% of Wastewater Collection's total regulated operating costs over the 2025 to 2027 period. These costs are comprised of materials and supplies, insurance, vehicles, hardware and software, telecommunication charges and other miscellaneous items. Materials and supplies costs vary depending on the level of maintenance work required.

14.1.2 Integrated Operations

343. The integration of Water and Drainage operations in 2023 resulted in the creation of centralized functional areas to facilitate enhanced decision making, service delivery and resource management across the entire water cycle. Integrated Operations includes Regulatory and Business Planning, One Water Planning, Engineering, Quality Assurance and Environment, Project Management, Controls and Automation, Customer Service, Development and Infill, and Facilities functions. Integrated Operations costs represent approximately 16% of Wastewater Collection's regulated operating costs over the 2025-2027 PBR term. Most of the costs within Integrated Operations are related to centralized staff and other costs for providing the various services to the regulated Water, Wastewater Treatment and Wastewater Collection Operations. Appendix J provides additional information regarding the services provided and the cost allocation methodology for Integrated Operations.

14.1.3 Customer Billing and Metering

344. Customer billing and metering service charges represent approximately 7% of Wastewater Collection's total regulated operating costs over the 2025 to 2027 period. These costs are comprised of billing services provided by EPCOR Energy Alberta Inc. (EEA), as well as bad debt expense and meter reading costs.

345. EEA billing services include customer service management, call centre, billing, collections and information services. EEA charges Wastewater Collection for these services based on the number of site counts served. The unit price for the sites served is approved by the Alberta Utilities Commission (AUC) through EEA's rate filings.

14.1.4 EWS Shared Services

346. EWS Shared Services are comprised of allocated charges to Wastewater Collection for shared services provided by EWS and represent 22% of Wastewater Collection's total regulated operating costs over the 2025 to 2027 period. EWS Shared Services includes Information Services, Executive Administration, Controller, Communications and Public Engagement, Health, Safety, and Environment, Technical Training, Human Resources, Supply Chain Management, and Incentive Compensation.

14.1.5 Corporate Shared Services

347. Corporate Shared Services represent approximately 19% of Wastewater Collection's total regulated operating costs over the 2025 to 2027 period and are comprised of costs associated with corporate shared services provided to Wastewater Collection by EWS' parent company, EUI.

14.2 Operating Costs by Function

348. Table 14.2-1 provides an overview of Wastewater Collection's regulated operating costs by function for 2024-2027. Wastewater Collection operating costs are allocated between the Sanitary and Stormwater utilities in accordance with the cost allocation methodologies described in Section 20.

Table 14.2-1
Financial Schedule 5-1
Operating Costs by Function
2024-2027
($ millions)

	Description	A 2024 Decision	B 2024 Forecast	C 2025 Forecast	D 2026 Forecast	E 2027 Forecast
1	Core Operations	43.6	40.8	37.1	38.0	38.6
2	Integrated Operations	16.6	16.3	16.7	17.0	17.3
3	Customer Billing and Metering	7.5	8.0	7.5	7.7	7.8
4	EWS Shared Services	23.3	22.2	22.6	23.1	23.5
5	Corporate Shared Services	17.0	19.9	20.2	20.7	21.1
6	Total	107.9	107.1	104.1	106.4	108.4
7	Variance	-	(0.8)	(3.0)	2.3	2.0
8	Assigned to:					
9	Sanitary Utility	49.1	53.5	52.0	53.1	54.1
10	Stormwater Utility	58.9	53.6	52.1	53.3	54.3
11	Total	107.9	107.1	104.1	106.4	108.4

349. The following Sections describe the operational functions and provide explanations for significant year-over-year variances exceeding $0.5 million.

14.2.1 Core Operations

350. Core Operations function within Wastewater Collection is comprised of the following five operational areas and capital overhead:

- Operations;
- Operations Support;
- Flow Control Facilities;
- Maintenance; and
- Construction;

14.2.1.1 Operations

351. The Wastewater Collections (WWC) Operations team is organized into Network Operations, Environmental Monitoring and Compliance, Operations Environmental Support and Emergency Response and Flood Proofing. The team is accountable for operating the distributed WWC network, developing and maintaining a comprehensive, system-wide view of how the WWC system is operating, leveraging real-time data analytics. The WWC Operations team informs and makes operational and strategic decisions, leads emergent / emergency response, and monitors regulatory compliance.

352. Responsibilities for the Network Operations group includes trouble call support and investigation activities, field level trouble call investigation and resolution where possible.

353. The Environmental Monitoring and Compliance group inspects Industrial, Commercial, and Institutional (ICI) customers to ensure compliance with the EPCOR Drainage Services Bylaw. These inspections include evaluation of processes and/or sampling of wastewater being discharged by customers to measure system impact and enable cost recovery for cost of treatment through the overstrength surcharge program. This group responds to environmental incidents related to the operation of the storm and sanitary collection systems which plays a key role in protecting public health, EWS assets, and the environment. This also includes management of two wastewater transfer stations, which serve customers and industries that do not have access to the collections and treatment system.

354. The Operations Environmental Support group manages and maintains the environmental management system for WWC Services. This includes the planning and support to meet the requirements of ISO 14001:2015; including development and implementation of internal and

external third-party auditing programs and system maintenance activities. This group also provides support for regulatory and compliance activity including interpretation of legislation, impact assessments, review and author regulatory communication for WWC Services and assist in the coordination of response to significant environmental incidents and work related to the collection systems with environmental sensitivity.

355. The Emergency Response and Flood Prevention group has two major responsibilities; providing public-facing inspections to educate property owners on flood risks and recommend mitigation measures to protect property from flooding and administration of subsidies related to flood prevention for private customers. This group is also responsible for the development and maintenance of the emergency management framework for EWS and WWC, in adherence to EPCOR internal Corporate Standard for emergency management and business resilience.

14.2.1.2 Operations Support

356. The Operations Support team is organized into Program Planning, Program Coordination and System and Industrial Monitoring. The team is accountable for 1-3 Year Operational and Capital Program Planning across all WWC Operations groups. Centralized Technologists oversee the execution of these programs across WWC Operations. The team is also accountable for the development, implementation, and maintenance of WWC Operations' data governance strategy for all systems and applications to enable data usage that drives performance and excellence. The team enables operation, integration and analytics of data from systems and applications used within WWC Operations' working environment (e.g., GIS, Customer Notifications, Work Management System, Environmental Management System, etc.).

357. The System and Industrial Monitoring group is responsible for sanitary, storm and combined sewer water quality and quantity monitoring and data management in support of WWC services.

358. The Program Planning group plans out 1 to 3 years worth of maintenance work for the WWC teams, manages claims for WWC Operations, and collaborates with One Water Planning groups on future projects and plans. Program Planning also provides engineering oversight for lift station and flow control operations and provides technical support for bypass pumping. Drawing review for all WWC related projects is coordinated through this team as well.

359. The Program Coordination group executes operational and capital programs, manages customer call backs that require technical review, and are operational representatives as subject

matter experts on large capital projects. This team also coordinates the majority of any contractor work that needs to be done for WWC Operations. The main operating activities are monitoring, initial inspections and identification of trunks to rehabilitate, pump station treatment and optimization, odour containment, culvert and ditch maintenance, and trunk inspection and cleaning.

14.2.1.3 Flow Control Facilities

360. The WWC Flow Control Facilities (FCF) team is organized into Flow Control Mechanical Maintenance and Flow Control Electrical Maintenance. The team is accountable for the safe operation and maintenance of WWC Operations lift stations, FCF electrical and controls, and associated trunkline inspections and investigations. FCF collaborates with the Program Planning and Coordination team to execute in-scope operational and capital program plans and the Trouble Response team to support response to emergent and emergency situations.

361. The FCF team is responsible for the maintenance and operations of approximately 108 WWC lift stations, 138 mechanical flow control structures, and associated systems. Maintenance activities for lift stations and controls structures includes pump, piping and valve repair and replacements, as well as mechanical, electrical and control system capital upgrades. FCF also provides field staff for lift station and flow control operations, and provides field resources for bypass pumping.

362. The Flow Control Electrical group is responsible for the installation of flow monitors, air monitors, rainfall measurement, auto samplers and coordination of associated contractor work. This group also installs and maintain auto samplers to measure industrial, commercial and institutional facilities' water quality, which discharge over strength wastewater into the sanitary/combined sewer, in order to recover the cost of treatment.

363. The Flow Control Electrical group also conducts electrical maintenance, calibration, repairs, and minor capital upgrades for the lift stations and the associated SCADA system.

364. The Flow Control Mechanical group is responsible for all mechanical maintenance at lift stations, control structures as well as minor capital upgrades. This group is the primary field support for bypass activities when required.

14.2.1.4 Maintenance

365. The Maintenance team is organized into Responsive Maintenance and Repair, Inspections and Investigations, and Preventative Maintenance. The team is accountable for the execution of preventative and responsive maintenance, repair of the wastewater and stormwater gravity collection system (e.g., pipes, manholes, etc.), and inspections and investigations (except trunkline). This area collaborates with the Program Planning and Program Coordination team to execute in-scope operational and capital program plans and with the Trouble Response team to support response to emergent and emergency situations.

366. Responsive Maintenance and Repair consists of preventative maintenance and inspection activities, and customer service trouble call, investigation and response. This group also conducts above ground and surface repair activities including the repair and/or replacement of damaged or end of life assets from the surface and without the need for shoring. This includes catch basin frame and covers, manhole frame and covers, and chamber and vault structures. This group also manages operations of overland storm flows including LID and ditches and swales maintenance;

367. Preventative Maintenance activities include high pressure flushing, hydro-mechanized cleaning activities, and pipeline cleaning activities. Additional preventative maintenance activities include proactive inspections of linear pipeline assets and their appurtenances (manholes, catch basins, etc.), and structural assets (storage tanks, etc.). Work is performed with specialized combination sewer cleaner units, using high pressure flushing and hydro-mechanized cleaning activities. These vehicles are designed to flush sanitary, storm, and combined mainlines, and pump debris from catch basins, manholes, and pump wells.

368. The Inspections and Investigations Maintenance group manages the stormwater management facilities includes shoreline and water body litter control, aquatic weed control and safety signage maintenance. Operation of stormwater management facilities includes storm response and water level monitoring, responding to public inquires and complaints, and activities promoting public safety.

369. The Inspections and Investigations Maintenance group also conducts in pipe inspections utilizing highly specialized camera equipment. This inspection work is done in support of operations to evaluate the current state of pipes, to provide detailed scope for capital projects and in support of emergent/emergency events to confirm the source of a problem. This group also has specialized tools that can be used to remove some specific debris in pipes that the

Preventative Maintenance group is unable to remove. This team is also utilized by EWS to support similar style inspections that were previously contracted out.

14.2.1.5 Construction

370. The Trunk System Construction group is responsible for executing new and rehabilitative deep, trunk sewer construction work. This includes activities such as the construction of new shafts and manholes, as well as the rehabilitation of existing infrastructure using trenchless rehabilitation techniques.

371. The Local System Construction group performs construction activities within the shallow, local sewer network. This group carries out planned as well as high priority and emergency requests to repair wastewater collection infrastructure such as service connections, mainlines, manholes, and catch basins. Local System Construction also installs new water and sewer service connections for customers within the city of Edmonton.

372. The Construction Support group is responsible for the provision of specialized construction equipment and qualified operators to support the work of the Trunk System Construction and Local System Construction groups. This includes equipment such as tandem trucks, boom trucks, cranes, loaders, backhoes and a drilling rig. In addition, Construction Support also includes a shared pool of labourer resources to supplement the internal construction groups and a team that performs survey services. Survey services include layouts, locates, checks and the transfer of survey information on water and sewer projects through as-built recording.

373. Fleet is responsible for repairs and maintenance on trucks, hydrovac trucks, backhoes and other construction related equipment.

14.2.1.6 Capital Overhead

374. Capital overhead encompasses indirect costs for several support functions, including but not limited to supervision and management oversight, project management and governance, accounting, supply chain, and health and safety resources.

14.2.1.7 Core Operations Costs by Function

375. Table 14.2.1.7-1 provides an overview of Wastewater Collection's Core Operations operating costs forecast for 2024-2027.

Table 14.2.1.7-1
Financial Schedule 6-1
Core Operations Costs by Function
2024-2027
($ millions)

	Function	A 2024 Decision	B 2024 Forecast	C 2025 Forecast	D 2026 Forecast	E 2027 Forecast
1	Operations	5.7	6.6	6.7	6.9	7.0
2	Operations Support	3.9	7.8	8.0	8.2	8.3
3	Flow Control	12.2	12.8	13.3	13.5	13.8
4	Maintenance	25.2	16.7	17.2	17.6	17.9
5	Total Operations and Maintenance	46.9	43.9	45.2	46.2	47.0
6	Construction	0.8	2.8	2.8	2.9	2.9
7	Capital Overhead	(4.1)	(5.9)	(10.9)	(11.1)	(11.3)
8	Total	43.6	40.8	37.1	38.0	38.6
9	Variance		(2.8)	(3.6)	0.8	0.7
10	Assigned to:					
11	Sanitary Utility	16.7	20.1	18.5	18.9	19.3
12	Stormwater Utility	26.9	20.7	18.6	19.0	19.4
13	Total	43.6	40.8	37.1	38.0	38.6

376. Explanations for significant variances for 2024-2027 are provided below.

2024 Decision to 2024 Forecast

377. In 2023, a functional reorganization was carried out to streamline operations and improve resource management across the entire water cycle, as described in Section 2.0. This resulted in the consolidation of several decentralized services into functional groups within Integrated Operations. As a result, resources and costs were transferred from several core operational functions to several functions within Integrated Operations. The 2024 approved amounts have been restated in accordance with the new functional organizational structure to ensure comparability. Although the approved amounts for the individual functions may differ, the total 2024 approved operating costs for Wastewater Collection remain unchanged. Comparing the 2024 Decision and 2024 Forecast costs by individual functions within core operations is challenging and less meaningful. Therefore, explanations are provided for the total operations and maintenance costs (line 5 of Table 14.2.1.7-1) between the 2024 Decision and 2024 Forecast.

378. The $3.0 million decrease in the 2024 forecast operations and maintenance costs of $43.9 million (line 5 of Table 14.2.1.7-1) is primarily due to the following:

- Costs for utility locate services, which were previously included within operations and maintenance under 2024 Decision were transferred to Construction (line 6 of Table 14.2.1.7-1) in the 2024 Forecast. This resulted in a $1.6 million reduction in operation and maintenance costs and a corresponding increase in Construction costs;
- A $1.5 million lower forecast operations and maintenance costs primarily due to lower than anticipated costs related to the backwater valve subsidy program, which is being supplemented by a new Stormwater Management Rebate Program proposed in this Application. The new rebate program aims to reduce overland flooding and limit the influx of stormwater into the wastewater collection system during significant storm events. The Stormwater Management Rebate Program provides incentives for private property owners to implement effective stormwater management practices and mitigate the damage caused by sewer back-ups and flooding. See Appendix P for additional details regarding this new program; and
- Lower staff costs of $0.3 million due to the transfer of staff and related costs of $2.5 million from core operations and maintenance functions to Customer Service and Controls and Automation functions within Integrated Operations. The lower staff costs of $2.5 million is partially offset by a $1.8 million lower transfer of staff charges to capital projects.

379. The $2.0 million increase in the 2024 Forecast Construction costs are primarily due to a $1.6 million increase in costs resulting from the transfer of locate services from operations and maintenance, and a $0.4 million increase in various other construction related costs.

380. The increase of $1.8 million in capitalized overhead reflects an updated forecast based on more recent experience of Wastewater Collection. The capital overhead pool for the 2024 decision was based on a high-level approach due to the limited availability of historical information at the time of filing the 2022-2024 PBR application. The 2022-2024 PBR application was prepared during mid-2020, and the operations of Wastewater Collection were transferred from the City to EPCOR at the end of 2017.

2024 Forecast to 2027 Forecast

381. The yearly changes in costs for the 2024 to 2027 forecast period is mainly due to the implementation of an updated capital overhead methodology in 2025, as described in Section 4.6; partially offset by cost increases based on the inflation factor.

14.2.2 Integrated Operations

382. Integrated Operations are comprised of allocated charges to Wastewater Collections for services provided by EWS. The services provided and the allocation methods used to determine the Integrated Operations charges to Wastewater Collections are described in Appendix J. Integrated Operations includes Regulatory and Business Planning, One Water Planning, Engineering, Project Management, Controls and Automation, Customer Service, Development and Infill, and Facilities.

383. Table 14.2.2-1 provides an overview of Wastewater Collection's Integrated Operations operating costs forecast for 2024-2027.

Table 14.2.2-1
Financial Schedule 7-1
Integrated Operations Costs
2024-2027
($ millions)

	Function	A 2024D	B 2024F	C 2025F	D 2026F	E 2027F
1	Regulatory and Business Planning	1.4	1.4	1.5	1.5	1.5
2	One Water Planning	6.9	3.2	3.3	3.4	3.4
3	Engineering	2.3	3.3	3.4	3.5	3.5
4	Project management	2.4	1.8	1.8	1.8	1.9
5	Controls and Automation	-	1.8	1.8	1.9	1.9
6	Customer Service	-	1.0	1.0	1.0	1.0
7	Development and Infill	-	1.1	1.2	1.2	1.2
8	Facilities	3.6	2.7	2.7	2.8	2.9
9	Total	16.6	16.3	16.7	17.0	17.3
10	Variance	-	(0.3)	0.4	0.3	0.3
	Assigned to:					
11	Sanitary Utility	7.3	7.1	7.3	7.4	7.6
12	Stormwater Utility	9.3	9.2	9.4	9.6	9.8
13	Total	16.6	16.3	16.7	17.0	17.3

2024 Decision to 2024 Forecast

384. The $0.3 million decrease in forecast Integrated Operations costs is primarily due to a reduction in the percentage of allocated Integrated Operations costs to Wastewater Collection from 36% to 33% as a result of a change in the cost allocation methodology; partially offset by an increase in 2024 Forecast allocated costs for Wastewater Collection due to an overall increase of $3.0 million in the overall EWS Integrated Operations costs from $45.6 million in the 2024

Decision to $48.6 million in the 2024 Forecast. See Section 2.3 of Appendix J for additional information regarding the change in allocation methodology.

2024 Forecast to 2027 Forecast

385. For the 2024 to 2027 forecast period, year over year cost increases are based on the inflation factor.

14.2.3 Customer Billing and Metering

386. Customer billing and meter reading services is comprised of the following two functional groups: customer billing services and meter reading services. Customer Billing Services costs are comprised of services provided by EEA and regulated by the AUC. Meter Reading Services costs are comprised of Wastewater Collections allocation of water meter operations and meter reading services provided by EWS.

387. Table 14.2.3-1 provides an overview of Wastewater Collection's Customer Billing and Metering operating costs forecast for 2024-2027.

Table 14.2.3.-1
Financial Schedule 8-1
Customer Billing and Metering Costs
2024-2027
($ millions)

	Function	A 2024D	B 2024F	C 2025F	D 2026F	E 2027F
1	Customer Billing Services	5.1	5.4	5.5	5.6	5.7
2	Meter Services	2.4	2.6	2.0	2.1	2.1
3	Total	7.5	8.0	7.5	7.7	7.8
4	Variance		0.5	(0.5)	0.2	0.1
5	Assigned to:					
6	Sanitary Utility	4.9	5.3	4.8	4.9	5.0
7	Stormwater Utility	2.5	2.7	2.7	2.8	2.9
8	Total	7.5	8.0	7.5	7.7	7.8

2024 Decision to 2024 Forecast

388. The $0.5 million increase in Customer Billing and Metering costs reflects higher customer counts and increased charges.

2024 Forecast to 2027 Forecast

389. For the 2024 to 2027 forecast period, year over year cost increases are primarily based on the inflation factor. Meter Services costs in 2025 are forecasted to be lower by $0.6 million due to lower anticipated meter reading costs as the Automated Metering Infrastructure (AMI) project is implemented.

14.2.4 EWS Shared Services

390. EWS Shared Services are comprised of allocated charges to Wastewater Collection for shared services provided by EWS. The services provided and the allocation methods used to determine the shared service charges to Wastewater Collection are described in Appendix J. EWS Shared Services includes Information Services, Executive Administration, Controller, Communications and Public Engagement, Health, Safety, and Environment, Technical Training, Human Resources, Supply Chain Management, and Incentive Compensation.

391. Table 14.2.4-1 provides an overview of Wastewater Collection's EWS Shared Services operating costs forecast for 2024-2027.

Table 14.2.4-1
Financial Schedule 9-1
EWS Shared Services Costs by Function
2024-2027
($ millions)

	Category	A 2024D	B 2024F	C 2025F	D 2026F	E 2027F
1	Information Services	4.0	4.4	4.5	4.6	4.7
2	SVP	3.4	4.1	4.2	4.3	4.4
3	Controller	3.0	1.9	1.9	2.0	2.0
4	Communications and Public Engagement	2.5	1.8	1.8	1.9	1.9
5	Health, Safety and Environment	2.4	2.1	2.1	2.1	2.2
6	Technical Training	1.7	1.4	1.4	1.4	1.5
7	Human Resources	0.8	0.6	0.6	0.6	0.6
8	Supply Chain Management	1.9	1.6	1.6	1.7	1.7
9	Incentive and Other Compensation	3.7	4.3	4.4	4.5	4.6
10	Total	23.3	22.2	22.5	23.1	23.5
11	Variance		(1.2)	0.4	0.5	0.4
	Assigned to:					
12	Sanitary Utility	11.7	11.1	11.3	11.5	11.8
13	Stormwater Utility	11.7	11.1	11.3	11.5	11.8
14	Total	23.3	22.2	22.6	23.1	23.5

2024 Decision to 2024 Forecast

392. The $1.2 million decrease in the allocated Shared Service costs reflects the impact of a higher overall Shared Services costs of $3.9 million and a reduction in the percentage of allocated costs to Wastewater Collections from 50% to 44% due to a change in the allocation methodology. See Section 3.3 of Appendix J for additional information regarding the change in allocation methodology.

393. The $3.9 million increase in the overall Shared Services costs is primarily due to a $1.3 million increase in Information Services costs due to higher application and infrastructure costs; a $0.7 million increase in insurance costs; $0.7 million increase due to higher rent costs; and a $1.1 million increase in Supply Chain Management operating costs primarily due to higher staff costs of $0.5 million and higher materials costs of $0.6 million.

2024 Forecast to 2027 Forecast

394. For the 2024 to 2027 forecast period, year over year cost increases are based on the inflation factor.

14.2.5 Corporate Shared Services

395. Corporate Shared Services are comprised of allocated charges to Wastewater Collection for corporate services provided by EUI. The services provided and the allocation methods used to determine the Corporate Shared Services charges to Wastewater Collection are described in Appendix I.

396. Table 14.2.5-1 provides an overview of Wastewater Collection's Corporate Shared Services operating costs forecast for 2024-2027.

Table 14.2.5-1
Financial Schedule 10-1
Corporate Shared Services Costs by Function
2024-2027
($ millions)

	Description	A 2024 Decision	B 2024 Forecast	C 2025 Forecast	D 2026 Forecast	E 2027 Forecast
1	Board	0.4	0.4	0.4	0.4	0.4
2	Executive	0.8	0.8	0.8	0.8	0.8
3	Corporate Finance	0.9	1.2	1.2	1.3	1.3
4	Treasury	0.7	0.6	0.6	0.6	0.6
5	Internal Audit and Risk Management	0.8	0.6	0.6	0.6	0.6
6	Human Resources	2.4	2.5	2.6	2.7	2.7
7	Information Services	2.3	3.6	3.7	3.8	3.9
8	Supply Chain Management	2.0	2.3	2.3	2.4	2.4
9	Communications and Public Engagement	0.9	1.5	1.5	1.5	1.6
10	Legal Services	0.6	0.6	0.6	0.6	0.6
11	Health, Safety & Environment	0.2	0.4	0.4	0.4	0.4
13	At-Risk Compensation	1.3	1.5	1.5	1.5	1.5
14	Sub-total	13.4	16.0	16.2	16.6	16.8
15	Asset Usage Fees	3.8	4.2	4.3	4.4	4.5
16	Corporate Shared Services Costs	17.2	20.2	20.5	21.0	21.3
17	Less: Business Development Disallowances	(0.3)	(0.3)	(0.3)	(0.3)	(0.3)
19	Corporate Shared Services Costs	17.0	19.9	20.2	20.7	21.1
20	Variance	-	2.9	0.3	0.5	0.4
	Assigned to:					
21	Sanitary Utility	8.0	9.9	10.1	10.3	10.5
22	Stormwater Utility	8.9	9.9	10.1	10.3	10.5
23	Total	17.0	19.9	20.2	20.7	21.1

2024 Decision to 2024 Forecast

397. The $2.9 million increase in forecast costs is primarily due to higher corporate information services costs related to initiatives such as Service Management, Service Desk Transition and the Corporate website; and higher forecast asset usage fees due to higher corporate assets.

2024 Forecast to 2027 Forecast

398. For the 2024 to 2027 forecast period, year over year cost increases are based on the inflation factor.

14.3 Franchise Fees and Property Taxes

399. In accordance with the Franchise Fee Agreement, Wastewater Collection pays the City of Edmonton a franchise fee for the exclusive rights to provide wastewater collection services within the City boundaries, based on 8.0% of total Sanitary revenue, less the municipal portion of property taxes.

400. Property taxes include property and business taxes assessed by, and payable to the City of Edmonton with respect to the various properties owned by Wastewater Collection as well as an allocation of property taxes for shared use properties with Water.

401. The Franchise Fees and Property Taxes costs forecast for 2024-2027 are summarized in Table 14.3-1. Consistent with the Franchise Agreement, franchise fees are allocated solely to the Sanitary Utility. Property Taxes are allocated between the Sanitary and Stormwater Utilities in accordance with the cost allocation methodologies described in Section 20.

Table 14.3-1
Financial Schedule 11-1
Franchise Fees and Property Taxes 2024 - 2027
($ millions)

		A 2024D	B 2024F	C 2025F	D 2026F	E 2027F
1	Franchise fees*	11.4	13.3	12.3	12.0	12.1
2	Property and business taxes	1.6	1.2	1.2	1.3	1.3
3	Total	13.1	14.5	13.5	13.3	13.4
4	Variance		1.4	(1.0)	(0.2)	0.1
	Assigned to:					
5	Sanitary Utility	12.1	13.8	12.8	12.5	12.6
6	Stormwater Utility	1.0	0.7	0.7	0.7	0.8
7	Total	13.1	14.5	13.5	13.3	13.4

**Franchise fees are only applicable to the sanitary utility.*

2024 Decision to 2024 Forecast

402. The $1.4 million increase in Franchise Fees and Property Taxes is primarily due to forecast increases in Sanitary Utility revenues, partially offset by lower than forecast property taxes at EWS' Aurum facility.

2024 Forecast to 2027 Forecast

403. For the 2024-2027 forecast period, year over year changes in Franchise Fees are due to forecast changes in Sanitary Utility revenues. Year over year increases in Property Taxes are based on the inflation factor.

15.0 WASTEWATER COLLECTION CAPITAL EXPENDITURES

404. The capital expenditures for EWS' Wastewater Collection operations (formerly known as Drainage Services) includes a range of capital projects and programs for supporting ongoing operations to ensure reliability, safety, efficiency, customer growth, and regulatory compliance. Section 15.1 compares approved capital expenditures for the 2022-2024 PBR term with EWS' most recent projections for the same period, while Section 15.2 presents EWS' capital plan for the 2025-2027 PBR term. The capital expenditures presented are net of contributions, which includes grant funding of $41.3 million secured by EWS from the federal and provincial government to reduce the overall cost of flood mitigation and climate adaptation for ratepayers. EWS actively seeks additional grant funding opportunities to further reduce these costs for ratepayers.

405. EWS develops its PBR capital plan using input from various sources, assessments, and expert resources. This provides a balanced perspective of its capital requirements. Section 4.2.3 outlines EWS' capital plan development process. Projects and programs within the capital plan are evaluated based on scope, cost, and risk, using a risk-based approach to prioritize capital. During the execution of the capital plan, actual capital expenditures may deviate from the approved amounts due to project advancement or delays caused by aging infrastructure, accommodate growth, or to meet City requirements. These deviations are communicated annually to EWS' regulator (Edmonton City Council) through the Annual PBR Progress Reports. Appendix E includes copies of the progress reports for the years 2020-2022.

15.1 Capital Expenditures 2022-2024 PBR Term

406. Table 15.1-1 provides a comparison of EWS' most recent spend projection on projects and programs from the 2022-2024 PBR term to the approved amounts. The projects and programs for the 2022-2024 PBR term were categorized as follows: (i) Drainage Neighbourhood Renewal Program, (ii) Drainage System Expansion, (iii) Drainage System Rehabilitation, (iv) Flood Mitigation, (v) Real Estate, (vi) Stormwater Integrated Resource Plan (SIRP), (vii) Sanitary Servicing Strategy Fund (SSSF), (viii) Corrosion and Odour Reduction (CORe), and (ix) LRT Relocates.

Table 15.1-1
Financial Schedule 15-5-2
2022-2024 Capital Expenditures by Category
($ millions)

	Category	A 2022-2024 PBR Approved	B 2022-2024 Total Actuals / Forecast	C Variance
	Drainage Neighbourhood Renewal			
1	Drainage Neighbourhood Renewal	76.5	52.8	(23.7)
	Subtotal: Drainage Neighbourhood Renewal	76.5	52.8	(23.7)
	Drainage System Expansion			
2	Private Development Construction Coordination	11.3	12.6	1.3
3	Service Connections	0	6.9	6.9
4	Projects < 10 million	28.6	21.8	(6.8)
	Subtotal: Drainage System Expansion	39.9	41.3	1.4
	Drainage System Rehabilitation			
5	Arterial Roadway Renewal	8.6	10.7	2.0
6	Drill Drop Manholes Program	13.1	22.0	8.9
7	High Priority Replacement Program	52.1	57.8	5.7
8	Local Sewer Rehabilitation	5.8	10.7	4.9
9	Manhole & Catch Basin Renewal Program	8.7	9.3	0.6
10	Outfall Rehabilitation	8.2	18.2	10.0
11	Proactive Service Renewal Program	10.3	8.1	(2.2)
12	Pump Station Rehabilitation Program	15.5	22.8	7.3
13	Small Trunk Rehabilitation Program	18.8	16.1	(2.7)
14	Vehicles & Fleet Program	13.2	14.2	1.0
15	Projects < 10 million	12.1	17.2	5.2
	Subtotal: Drainage System Rehabilitation	166.4	207.2	40.8
	Flood Mitigation			
16	Malcolm Tweddle & Edith Rogers Dry Ponds	32.7	18.9	(13.8)
17	Projects < 10 million	1.6	0.2	(1.4)
	Subtotal: Flood Mitigation	34.3	19.1	(15.2)
	Stormwater Integrated Resource Plan (SIRP)			
18	Outfall Gates	9.6	2.8	(6.7)
19	SIRP Dry Pond Program	60.4	41.7	(18.8)
20	SIRP Low Impact Development (LID)	53.7	55.0	1.3
21	SIRP Proactive Manhole Relining	18.7	15.6	(3.2)
22	SIRP Proactive Pipe Relining	22.9	19.8	(3.1)
23	Smart Ponds Program	0.2	2.1	1.9
24	Projects < 10 million	38.7	41.3	2.5

	Category	A 2022-2024 PBR Approved	B 2022-2024 Total Actuals / Forecast	C Variance
	Subtotal: Stormwater Integrated Resource Plan (SIRP)	204.3	178.2	(26.1)
	LRT Projects			
25	LRT Relocates Program	48.5	58.6	10.1
	Subtotal: LRT Relocate	48.5	58.6	10.1
	SSSF Projects			
26	Projects < 10 million	4.5	3.4	(1.1)
	Subtotal: SSSF Projects	4.5	3.4	(1.1)
	Corrosion and Odour Reduction (CORe)			
27	CORe Access Manhole Program	17.9	22.4	4.5
28	CORe Drop Structure Modifications	22.0	21.4	(0.6)
29	CORe Duggan Tunnel Project	56.3	68.1	11.8
30	Large Trunk Renewal Program	78.6	81.7	3.2
31	Projects < 10 million	5.2	4.5	(0.7)
	Subtotal: Corrosion and Odour Reduction (CORe)	180.0	198.1	18.2
	Real Estate			
32	Projects < 10 million	0.0	25.2	25.2
	Subtotal: Real Estate	0.0	25.2	25.2
	Grand Total	754.3	784.1	29.7

407. For the 2022-2024 PBR term, EWS anticipates investing $784.1 million for ensuring the reliability, safety and efficiency of its wastewater collection infrastructure. This anticipated investment is higher than the approved PBR plan by $29.7 million or 3.9%. This slight increase is driven by the following factors:

- Drainage Neighbourhood Renewal Program: The primary objective of the Drainage Neighbourhood Renewal Program is to renew aging sanitary and stormwater infrastructure in mature neighbourhoods while aligning the renewals with the City of Edmonton's broader neighbourhood renewal initiatives. Capital expenditures for this program is anticipated to be $23.7 million lower during the 2022-2024 PBR term as EWS targets proactive renewals based on risk. While EWS continues to coordinate with the City of Edmonton's roadway renewal programs, relining and open cut renewal is targeted to the highest risk assets. This program leverages a risk-based prioritization of work using data from CCTV inspections, while focusing on minimizing infrastructure failures and impact to customers.

- Drainage System Expansion: This category includes projects and programs designed to build new infrastructure for supporting urban growth and customer needs, including service connections, expansion of facilities, and additional vehicles and equipment to support growth. A significant portion of investment within this category is funded by customer contributions. Expenditures in this category are expected to be slightly higher by $1.4 million primarily driven by an increase in expected service connections over the 2022-2024 PBR term.
- Drainage System Rehabilitation: This category focuses on rehabilitating or replacing assets that are nearing the end of their useful life for ensuring the reliability of the wastewater collection system, minimize the risk of failures, and adhere to acceptable risk levels across the network. This category is expected to exceed planned investment by $40.8 million, which is primarily attributed to the following factors:
    - Increased investment of $25.6 million for several smaller projects to maintain and enhance the wastewater collection system's reliability, such as increased investment on high priority repair program to address backlog of critical repair work; higher capital expenditures on drill drop manhole program by targeting high-risk assets identified through inspections; increased capital expenditures on pump station rehabilitation program for stations requiring more involved modifications than initially anticipated; and higher capital expenditures on local sewer rehabilitation program to address concerns with the local sewer network;
    - Increased investment of $10.0 million under the outfall rehabilitation program. This program targets the rehabilitation of outfall structures, which are critical points where stormwater and wastewater collection systems discharge into natural water bodies. The increased investment is in response to the damage assessments completed following the spring river breakup event in 2021, resulting in the identification of unplanned critical projects for the 2022-2024 PBR term. The river breakup event highlighted the vulnerability of certain outfall structures, prompting a reassessment of risks and prioritization of urgent remediation works to prevent potential failures; and
    - Increased investment of $5.2 million on a diverse array of projects which were each individually less than $10 million such as electrical and mechanical upgrades, sanitary cross-connection removal and storm trunk rehabilitation.
- Flood Mitigation and SIRP Investment: Investment within these combined categories is expected to be $41.3 million lower during the 2022-2024 PBR term due to longer than

anticipated timeframe for completing public consultation and obtaining land approvals for the selection of dry pond locations, necessitating deferral of costs to future PBR periods. Table 15.1-2 lists the major accomplishments of the SIRP investment program across the four themes during the 2022-2024 period.

Table 15.1-2
2022-2024 SIRP Major Accomplishments

SIRP Theme	2022-2024 Accomplishments
SLOW and MOVE	Through partnerships with the City of Edmonton and the development community, EPCOR installed over 400 low impact developments (LIDs). These LIDs soak up rainfall where it lands, freeing up capacity in the sewer network. Significant strides were made in reducing barriers to green stormwater infrastructure including developing design standards and processes to empower these developments. Complimenting these LIDs, construction supporting the Kenilworth and Parkdale dry ponds and associated priority sewer separation began in 2023 and the detailed design progressed on both the Ottewell and Lauderdale dry ponds. An additional three ponds will be initiated throughout 2024. These ponds provide flood mitigation services to these neighbourhoods and surrounding areas, while maintaining and enhancing the recreational opportunities of the spaces. A cost sharing agreement for these ponds was established through a successful application to the federal Disaster Mitigation and Adaptation fund which optimizes the EWS investment in flood mitigation.
SECURE	In 2022 and 2023 EWS saw an increase in the number of home flood prevention inspections with nearly 2,000 additional single family residential customers receiving inspections and learning about flood prevention. Additionally, the program reached 31 multi-residential complexes resulting in an additional 900 inspections. Throughout the two year period, a total of 634 back water valves were subsidized, which greatly reduces the likelihood of basement backups, protecting customers' properties. In the summer of 2023, EPCOR partnered with the Institute for Catastrophic Loss Reduction and TD Insurance to identify and complete home flood proofing demonstration projects in the community of Ottewell providing customers another opportunity to learn about home flood prevention. In 2024, EWS will continue to conduct single family and multi-residential inspections similar to years past, with the goal of exceeding the PBR measure of 750 flood prevention inspections. A flood prevention inspection

	methodology for industrial, commercial, and institutional (ICI) properties is currently under development and EWS will be running a pilot of the ICI inspection program in the later half of the year.
PREDICT	Through the predict theme of SIRP, EWS developed a Smart Pond strategy, which will begin implementation in 2024. This strategy aims to optimize the functioning of the existing wet stormwater management facilities by allowing control of the outflow from the ponds in real time based on monitoring data and weather radar. The initial stages of the program will see optimization of over 100 SWMFs in the City and significantly enhance both the understanding and control of how runoff moves through the system and eventually to the river. In 2022 and 2023, a number of known performance issues with the Real-time Control (RTC) sites were resolved, thereby reducing the amount of Combined Sewer Overflows (CSOs) being released to the NSR.
RESPOND	In 2023 and 2023 EPCOR invested $1.4M in capital to support emergency flood response. This included the purchase of 4 mobile emergency flood response trailers as well as bypass equipment. Additionally, flood response plans were drafted for 42 high risk sub basins requiring additional collaboration with both the City of Edmonton Office of Emergency Management and key customers within the sub basins.

- LRT Relocations: This program involves relocating wastewater collection infrastructure to accommodate the city's LRT expansion in accordance with the Franchise Agreement. The LRT track alignments finalized after the approval of the 2022-2024 PBR revealed the need for more extensive infrastructure relocations than anticipated in EWS' 2022-2024 capital plan, resulting in higher projected cost for this program.
- Corrosion and Odour Reduction (CORe): Investment within this category focuses on proactive measures to mitigate corrosion and odor issues within the city's wastewater collection network. An increase of $18.2 million is projected for this category during the current PBR, which is largely driven by the advancement of significant projects like the Duggan Tunnel to proactively mitigate issues, increased investment for the Large Trunk Renewal Program due to enhanced inspection findings and unanticipated ground conditions for the Access Manhole Program requiring scope and construction methodology changes, resulting in cost increases.
- Real Estate: Investment within this category is linked to the Water/Drainage shared facility construction (now known as the "Aurum Facility"), which was not part of the

2022-2024 capital plan. The project was expected to be completed in 2021; however, construction bid costs were significantly higher than expected, requiring changes to the project's design and scope, resulting in delayed completion of the project and carry over of spending for this project in the 2022-2024 PBR. The Aurum Facility was completed and placed into service at the end of 2022.

408. EWS manages its capital plan in a holistic manner to ensure the long-term reliability and efficiency of its wastewater collection system. This approach affords EWS the ability to proactively prioritize high-risk projects and promptly address emerging needs identified through enhanced inspections or unforeseen natural events. As a result, this approach effectively safeguards public and environmental health, and ensures compliance with regulatory standards.

15.2 Forecast Capital Expenditures 2025-2027 PBR Term

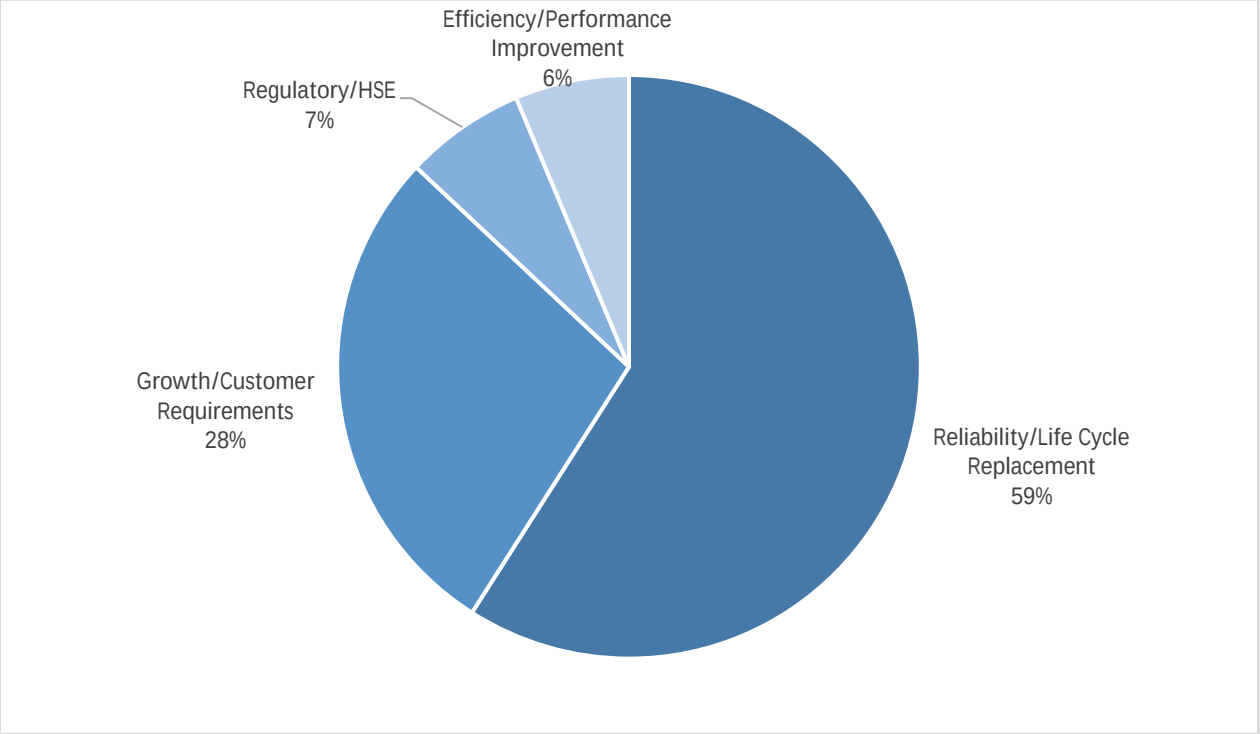
409. EWS developed its 2025-2027 capital plan using the methodologies described in Section 4.2.3. Planned capital investment for Wastewater Collection, net of contributions, is expected to be $687.9 million for the 2025-2027 PBR term, utilizing the risk-based investment approach followed across EWS operations, with a specific emphasis on optimizing investment timing.

410. Starting with the 2025-2027 PBR term, classification of projects and programs for Wastewater Collection will be standardized to align with the investment categories used across EWS' other operating areas of Water and Wastewater Treatment. As a result, projects and programs are classified under the following investment categories: Regulatory/Health, Safety and Environment (HSE), Growth/Customer Requirements, Reliability/Life Cycle Replacements, and Efficiency/Performance Improvements.

411. Projects and programs previously categorized under Neighbourhood Renewal, Drainage System Expansion, and LRT Relocates or SSSF are categorized under the Growth/Customer Requirements. SIRP capital projects and programs are primarily categorized across two investment categories. SIRP investments related to the Slow/Move/Secure/Respond themes are categorized under the Growth/Customer Requirements category, while SIRP investments related to the Predict theme are under the Efficiency/Performance Improvement category. In addition, the previous categories of Drainage System Rehabilitation and CORe are primarily classified as Reliability/Life Cycle Replacements and Regulatory/HSE.

412. During the 2025-2027 PBR term, EWS is placing considerable emphasis on the execution of projects and programs within the Reliability/Life Cycle Replacement and Growth/Customer Requirements categories. As previously mentioned, SIRP investment to address flood mitigation across the Slow/Move/Secure/Respond themes are included in the Growth/Customer Requirements category. As shown in Figure 15.2-1, investments in the Reliability/Life Cycle Replacement and Growth/Customer Requirements categories account for 87% of planned investments over the PBR term, with the remaining 13% allocated to investments in the Regulatory/HSE and the Efficiency/Performance Improvement categories.

Figure 15.2-1
Net Capital Expenditure by Category*
2025-2027



*Capital Expenditures are net of contributions

413. Table 15.2-1 shows the forecast capital expenditures net of contributions, by investment category for the 2025-2027 PBR term, compared to the most recent forecast for the 2022-2024 period. For the 2025-2027 PBR term, planned investments within the Regulatory & HSE category are expected to be lower in comparison to the 2022-2024 period primarily due to the anticipated completion of the CORe Duggan Tunnel Project during the 2025-2027 period. Similarly, investments within Growth/Customer Requirements category are expected to be lower primarily due to the completion of the Aurum facility in 2022 and due to LRT relocates nearing completion

during the 2025-2027 period. Planned investments within the Efficiency/Performance Improvement category are expected to be higher during the 2025-2027 PBR term primarily due to higher investments in Smart Ponds.

Table 15.2-1
Financial Schedule 15-5-1
2025-2027 Forecast Capital Expenditures by Regulatory Category
($ millions)

	Category	A 2022-2024 Actual / Forecast	B 2025-2027 PBR Plan	C Variance
	Regulatory/HSE			
1	Access Maintenance Hole	22.4	21.7	(0.6)
2	CORe Duggan Tunnel Project	68.1	5.7	(62.4)
3	Regulatory/HSE <10 million	15.2	18.5	3.4
	Sub total: Regulatory/HSE	105.6	46.0	(59.6)
	Growth/Customer Requirements			
4	Dry Ponds	60.5	115.4	54.8
5	Private Development Construction Coordination	12.6	16.1	2.5
6	Low Impact Development	55.0	51.3	(3.7)
7	LRT Relocates Program	58.6	2.2	(56.5)
8	Real Estate	25.2	0.0	(25.2)
9	Growth/Customer <10 million	40.7	8.3	(32.5)
	Sub total: Growth/Customer Requirements	252.8	192.2	(60.6)
	Reliability/Life Cycle Replacement			
10	Drill Drop Maintenance Hole Renewal	43.4	29.8	(13.6)
11	Fleet – Vehicles and Mobile Equipment	14.2	26.8	12.6
12	Flow Control Facilities Rehabilitation	22.8	20.3	(2.5)
13	High Priority Renewal (HPR)	66.0	72.2	6.2
14	Inflow and Infiltration Relining	35.3	29.2	(6.2)
15	Large Trunk Rehabilitation	81.7	85.8	4.1
16	Local System Rehabilitation	74.1	60.1	(14.0)
17	Maintenance Hole and Catch Basin Replacement	9.3	11.8	2.4
18	Small Trunk Rehabilitation	16.1	35.8	19.8
19	Outfall Rehabilitation	18.2	9.3	(8.9)
20	Reliability/Life Cycle Replacement <10 million	27.4	25.1	(2.3)
	Sub total: Reliability/Life Cycle Replacement	408.5	406.2	(2.3)
	Efficiency/Performance Improvement			
21	Smart Ponds	2.1	12.2	10.1
22	Efficiency/Performance Improvement <10 million	15.0	31.3	16.2
	Sub total: Efficiency/Performance Improvement	17.1	43.5	26.4
23	Total Capital Expenditures Net of Contributions	784.1	687.9	(96.2)

414. The following Sections describe each PBR investment category and summarizes the projects and programs included in each category. Business cases for individual projects and programs with capital expenditures totaling $10.0 million or more (net of contributions) for the 2025-2027 PBR term are included in Appendix G.

15.2.1 Regulatory/Health, Safety and Environment (HSE)

415. The Regulatory/HSE category includes projects and programs specifically necessary to address current and upcoming regulatory requirements from bodies such as the Alberta Environment and Protected Areas (AEPA) or as identified by EWS to address the health, safety and environmental considerations of employees and the public. Forecast capital expenditures of $46.0 million for the 2025-2027 PBR term relate to the Access Maintenance Hole Program, and the completion of the CORe Duggan Tunnel project and various smaller projects and programs under the $10 million threshold.

416. Access Maintenance Hole Program ($21.7 million) - The primary objective of this program is the construction of access maintenance points to effectively reduce the spacing between access points, which will facilitate safer and more accessible inspection and cleaning processes, thereby supporting the essential maintenance activities of the Wastewater Collection system. This program is part of the CORe strategy. A business case detailing this program is included in Appendix G.

15.2.2 Growth/Customer Requirements

417. The Growth/Customer Requirements category includes projects and programs essential for accommodating the increasing demand due to the city's growth, for meeting stipulated requirements within the franchise agreement between EWS and the City of Edmonton and for investments related to the Slow/Move/Secure/Respond themes of the SIRP strategy. Forecast capital expenditures for the 2025-2027 PBR term amounts to $192.2 million.

418. The Dry Ponds Program, with a net forecasted investment of $115.4 million after contributions, aims to mitigate and reduce flood risk in targeted high-risk communities by slowing the entry of stormwater into the wastewater collection network and alleviating pressure on the collection system. This program is part of the ongoing SIRP strategy under the Slow theme. The increased investment for this program in comparison to previous PBR periods is attributed to its initial ramp-up phase, with expenditures stabilizing and anticipated to continue at a lower rate in the future 2028 and beyond PBR periods. A business case is included in Appendix G.

419. Private Development Construction Coordination Program ($16.1 million) - This program covers the costs to support the planning and construction of new drainage infrastructure by private developers. This program also includes costs associated with the City of Edmonton staff's review of private development applications on behalf of EPCOR. A business case is included in Appendix G.

420. Low Impact Development (LID) Program ($51.3 million) - This program focuses on investing in green infrastructure, which involves incorporating vegetation, engineered soils and natural processes into developed areas to capture, absorb and filter stormwater before it enters the sewer system. This program is part of the ongoing SIRP strategy under the Slow theme. The scope of this program for the 2025 – 2027 PBR is aligned with the City's Building Great Neighbourhoods program. This initiative is expected to continue into future PBRs. A business case is included in Appendix G.

15.2.3 Reliability/Life Cycle Replacement

421. The Reliability/Life Cycle Replacement category includes programs and projects specifically identified to rehabilitate or replace existing assets that are nearing the end of their useful lives, to improve redundancy and manage risks. Forecast capital expenditures for the Reliability/Life Cycle Replacement category are $406.2 million for the 2025-2027 PBR term.

422. Drill Drop Maintenance Hole Renewal Program ($29.8 million) - This program enables the inspection and systematic rehabilitation or replacement of failing drill drop maintenance holes. A business case is included in Appendix G.

423. Fleet - Vehicles and Mobile Equipment Program ($26.8 million) - This program consists of the life cycle replacement for existing essential vehicles and mobile equipment, as well as the purchase of units to support growth in the sanitary and stormwater system as the city continues to grow. A business case is included in Appendix G.

424. Flow Control Facilities Rehabilitation Program ($20.3 million) - This program focuses on the renewal of aging lift stations and other flow controlling facilities in poor or very poor condition. A business case is included in Appendix G.

425. High Priority Renewal Program ($72.2 million) - This program's scope is based on historic levels of asset replacements, with a focus on replacing assets that were found to be failing earlier. A review of the program during the 2022-2024 PBR found that a large portion of the funds were utilized to replace service pipes. As a result, this program has been revised to increase funding

and allocate a dedicated portion of funds towards proactively replacing at-risk service pipes to minimize customer impact from failing service pipes. A business case is included in Appendix G.

426. Inflow and Infiltration Relining Program ($29.2 million) - This program focuses on proactively relining sanitary and combined sewer pipes and manholes in surface ponding areas to reduce inflow and infiltration into the sanitary and combined sewer system with the intent to prevent sewer backups during heavy rain events and provide capacity for growth on the existing pipe networks. This program is part of the ongoing SIRP strategy under the Secure theme. A business case is included in Appendix G.

427. Large Trunk Rehabilitation Program ($85.8 million) - This program aims to address the asset maintenance and upgrade needs of the large trunks over 1,200 mm in diameter, which have been assessed as being in poor or very poor asset condition. This program is part of the CORe strategy and involves regular inspection and upgrades based on assessed risk. A business case is included in Appendix G.

428. Local System Rehabilitation ($60.1 million) - This program enables the rehabilitation or replacement of local pipes (under 600 mm) that are assessed as being in poor or very poor condition or that must be relocated because of other utility work. A business case is included in Appendix G.

429. Maintenance Hole and Catch Basin Replacement Program ($11.8 million) - This program facilitates the replacement of shallow access point infrastructure that are assessed as being in poor or very poor condition. A business case is included in Appendix G.

430. Small Trunk Rehabilitation Program ($35.8 million) - This program addresses the asset maintenance and upgrade needs of the small trunks (600-1199 mm in diameter), which have been assessed as being in poor or very poor asset condition. A business case is included in Appendix G.

15.2.4 Efficiency/Performance Improvement

431. This category includes projects that enhances operational performance and efficiency, thereby reducing future costs. Forecast capital expenditures for the Efficiency/Performance Improvement category are $43.5 million for the 2025-2027 PBR term. This category includes the Smart Ponds Program which is part of the SIRP Strategy, and various smaller projects and programs under the $10 million threshold.

432. Smart Ponds Program ($12.2 million) - This program focuses on investing in advancing the monitoring and control of storm water facilities to optimize storage of stormwater to reduce potential flooding events. This program is part of the ongoing SIRP strategy under the Predict theme. A business case is included in Appendix G.

16.0 DEPRECIATION AND AMORTIZATION

433. EWS' methodology and assumptions for determining depreciation and amortization of its capital assets are provided in Section 4.4 of the Application. EWS' forecast depreciation expense and amortization of contributions for the period 2025 to 2027 is provided in Table 16.0-1. The 2024 approved amounts and 2024 forecasted amounts are provided for comparison. Depreciation expense and amortization of contributions are allocated between the sanitary and stormwater utilities in accordance with the cost allocation methodologies described in Section 20.

Table 16.0-1
Financial Schedule 12-1
Net Depreciation Expense
2024-2027
($ millions)

		A 2024D	B 2024F	C 2025F	D 2026F	E 2027F
1	Sanitary Utility					
2	Gross Depreciation Expense	39.9	39.9	42.5	44.8	47.5
3	Amortization of Contributions	(18.5)	(17.5)	(18.0)	(18.6)	(19.2)
4	Depreciation Expense, net of Amortization	21.4	22.5	24.5	26.2	28.3
	Stormwater Utility					
5	Gross Depreciation Expense	61.7	58.5	62.4	66.5	70.9
6	Amortization of Contributions	(32.0)	(32.8)	(33.9)	(35.3)	(36.7)
7	Depreciation Expense, net of Amortization	29.7	25.7	28.4	31.2	34.2
	Wastewater Collection Combined					
8	Gross Depreciation Expense	101.6	98.4	104.9	111.4	118.3
9	Amortization of Contribution	(50.5)	(50.3)	(52.0)	(53.9)	(55.9)
10	Depreciation Expense, net of Amortization	51.1	48.1	52.9	57.4	62.4
11	Variance	-	(3.0)	4.8	4.5	5.0

434. For the 2024 approved to 2024 forecast, the $3.0 million decrease in net depreciation expense is mainly due to investment in assets with longer lives, partially offset by higher capital expenditures (see Section 15).

435. For the 2024 forecast to 2025 forecast, the $4.8 million increase in net depreciation expense) is mainly due to:

- a $2.7 million increase due to new capital expenditures in 2025;
- a $3.4 million increase due to a full year of depreciation on 2024 capital expenditures; partially offset by

- a $1.3 million decrease as a result of assets becoming fully-depreciated.

436. For the 2025 to 2027 PBR term, the annual increases in net depreciation expense are due to capital additions to rate base over the 2025-2027 period based on the capital expenditure forecast presented in Section 15 and increases in depreciation rates for these additions following the Depreciation Study described in Section 4.4 and provided in Appendix M, offset by reductions due to existing assets becoming fully depreciated. The change in depreciation rates result in an increase in depreciation expense ranging from $0.02 million in 2025 to $0.68 million by 2027 as a result of capital additions over the 3-year period.

17.0 RATE BASE

437. Rate base is defined as the capital employed by the utility in providing services to its customers. In other words, rate base is the amount of property or assets deemed to be "used and useful" in providing utility services to customers by the utility's regulator. Rate base is calculated as the mid-year value of plant in service, net of accumulated depreciation and contributions, plus an allowance for working capital. Rate base is used to calculate the utility's authorized return in accordance with the regulatory framework governing the utility. The components of Wastewater Collection's rate base are further summarized below.

17.1 Wastewater Collection Services Rate Base

438. Table 17.1-1 summarizes EWS' forecast rate base for Wastewater Collection's Sanitary and Stormwater Utilities for 2025-2027, with the 2024 decision and forecast rate bases provided for comparison.

439. The annual increases in EWS' gross rate base from 2024 to 2027 reflect capital additions shown in row 2 of Table 17.1-1 less depreciation expense plus the change in working capital. The mid-year net rate base (row 15 of Table 17.1-1) is calculated as the difference between the gross mid-year rate base and mid-year net contributions. Details of the changes to the rate base components are provided in Financial Schedules 15-1 to 16-3.

440. The portions of the rate base assigned to the sanitary and stormwater utilities are shown in rows 17 and 18 of Table 17.1-1, which are assigned based on the cost of service methodology described in Section 20.

Table 17.1-1
Financial Schedule 15-1
Wastewater Collection Rate Base
2024-2027
($ millions)

	A 2024D	B 2024F	C 2025F	D 2026F	E 2027F
1 Prior year Property, Plant and Equipment	6,495.7	6,481.7	6,921.9	7,221.2	7,683.5
2 Additions	456.3	440.1	299.4	462.3	390.7
3 Retirements	(14.3)	-	-	-	-
4 Current Year Property, Plant and Equipment	6,937.7	6,921.9	7,221.2	7,683.5	8,074.2
5 Mid-Year Property, Plant and Equipment	6,716.7	6,701.8	7,071.6	7,452.4	7,878.9
6 Prior Year Accumulated Depreciation	(1,266.4)	(1,263.7)	(1,362.1)	(1,467.0)	(1,578.3)
7 Depreciation Expense	(101.6)	(98.4)	(104.9)	(111.4)	(118.3)
8 Retirements	14.3	-	-	-	-
9 Current Year Accumulated Depreciation	(1,353.7)	(1,362.1)	(1,467.0)	(1,578.3)	(1,696.7)
10 Mid-Year Accumulated Depreciation	(1,310.1)	(1,312.9)	(1,414.5)	(1,522.6)	(1,637.5)
11 Mid-Year Net Property	5,406.6	5,388.9	5,657.0	5,929.7	6,241.4
12 Add: Working Capital	20.0	(7.6)	(3.9)	(3.6)	4.9
13 Gross Mid-Year Rate Base	5,426.6	5,381.3	5,653.2	5,926.1	6,246.3
14 Mid-Year Net Contributions	(3,293.5)	(3,235.6)	(3,313.2)	(3,402.8)	(3,493.2)
15 Net Mid-Year Rate Base	2,133.1	2,145.7	2,339.9	2,523.3	2,753.0
16 Assigned to:					
17 Sanitary Utility	1,065.1	1,096.3	1,196.5	1,267.0	1,357.4
18 Stormwater Utility	1,068.0	1,049.4	1,143.4	1,256.3	1,395.6
19 Net Mid-Year Rate Base	2,133.1	2,145.7	2,339.9	2,523.3	2,753.0

17.2 Working Capital

441. The working capital component of EWS' rate base (line 12 of Table 17.1-1) represents the working capital needed to finance the lag between the time EWS provides a service and the time it is paid for the service (referred to as a "revenue lead"), and the difference between the time an expense is incurred and subsequently paid (referred to as an "expense lag").

442. EWS' working capital requirements are determined in accordance with a lead-lag study (Appendix L) it undertook for Wastewater Collection. In this study, expenses lags are derived from analysis of each revenue and expenses stream. An overall operating expense lag is then calculated on a weighted average basis and netted against the appropriate revenue lead. Net lags are also calculated for individual capital-related costs, including depreciation expense, interest on long-term debt, retained earnings and dividends. The working capital ratio (net lag/365) is

then applied against the corresponding expense amount to determine the portion of necessary working capital related to each component. The working capital allowance also includes the mid-year balances of materials and supplies inventories, prepaid expenses, and deferral accounts. Details of the working capital components are provided in Financial Schedules 16-1 to 16-3.

18.0 RETURN ON RATE BASE

443. The following Sections describe Wastewater Collection's weighted average cost of debt and provides a calculation of the forecast return on rate base for EWS' Wastewater Collection operations for the 2025-2027 PBR term based on EWS' capital structure described in Section 18.1 and EWS' return on equity methodology described in Section 18.3.

18.1 Capital Structure

444. EWS is applying for a deemed capital structure of 60% debt and 40% equity for the 2025-2027 PBR term. This approach is consistent with EWS' proposed method of updating its ROE as well as its historical capital structure.

445. EWS is seeking approval of the weighted average cost of capital shown in Table 18.1-1 for Wastewater Collection for the 2025-2027 PBR term.

Table 18.1-1
Recommended Cost of Capital for EWS 2025-2027 PBR

	Description	A 2025F	B 2026F	C 2027F
1	Cost Rates			
2	Debt Capital	3.73%	3.77%	3.89%
3	Common Stock Equity	9.00%	9.90%	10.80%
4	Deemed Capital Structure			
5	Debt Capital	60%	60%	60%
6	Common Stock Equity	40%	40%	40%
7	Weighted			
8	Cost of Debt Capital	2.24%	2.26%	2.33%
9	Cost of Common Stock Equity	3.60%	3.96%	4.32%
10	Average Cost of Capital	5.84%	6.22%	6.65%

18.2 Cost of Debt

446. Based on the cost of debt methodology described in Section 4.3.2, EWS proposes to fix its forecast cost of new long-term debt issuances at 4.65% for the entire duration of the 2025-2027 PBR term while the cost of short-term debt issuances is proposed at 5.85%.

447. Wastewater Collection's weighted average cost of debt presented in Table 18.2-1 reflects the weighted average cost of long-term debt issued in prior years, the forecast cost of new debt

issuances at 4.65% and a small component of short-term debt at 5.85% (short-term debt represents approximately 2% of Wastewater Collection's mid-year debt capital). The increase in the forecast cost of debt is attributable to the Bank of Canada's quantitative measures introduced since 2022 to regulate inflation.

Table 18.2-1
Financial Schedule 17-2
EWS Weighted Average Cost of Debt
2024-2027

	A 2024D	B 2024F	C 2025F	D 2026F	E 2027F
1 Weighted Average Cost of Debt	3.17%	3.67%	3.73%	3.77%	3.89%

18.3 Rate of Return on Equity

448. The rate of return approved by EWS' regulator, Edmonton City Council, must meet the fair return standard, which states that the utility must be allowed to earn a fair return which is (i) sufficient to ensure its financial integrity; (ii) adequate to attract capital at reasonable terms; and (iii) commensurate with returns on investments in enterprises having corresponding risks. Based on the fair return standard, EWS recommends the return on equity and cost of capital as illustrated in Table 18.3-1 for Wastewater Collection for the 2025-2027 PBR term.

Table 18.3-1
Recommended Cost of Capital for
Wastewater Collection 2025-2027 PBR Term

Category	A Proportion	B Rate	C Weighted Rate
1 Long-Term Debt	60%	4.65%	2.79%
2 Equity	40%	10.80%	4.32%
3 Total	100%		7.11%

449. The proposed rate of return on common equity of 10.80% is based on EWS' methodology for determining its return on equity described in Section 4.3.1.

450. In an effort to moderate rate increases over the 2025-2027 PBR term, EWS voluntarily proposes to establish the 2025 equity rate of return for Wastewater Collection at 9.00% and gradually "ramp up" by 0.90% each year over the PBR term, so that the fair rate of return of 10.80% is achieved by 2027. The proposed "ramp up" of the ROE is shown in Table 18.3-2 and is reflected in the proposed Wastewater Collection rates shown in Section 21.3. As a result of the

proposed ramp up and a lower return on equity, EWS has reduced costs to ratepayers by $25.6 million over the 2025-2027 PBR term.

Table 18.3-2
Wastewater Collection Return on Equity
2025-2027 PBR Term

	A 2022A	B 2023F	C 2024F	D 2025F	E 2026F	F 2027F
1 Return on Equity	5.79%	6.99%	8.10%	9.00%	9.90%	10.80%

18.4 Return on Rate Base Calculation

451. Table 18.4-1 shows the forecast return on rate base for Wastewater Collection's sanitary and stormwater utilities for the years 2025-2027. The 2024 approved and forecast amounts are shown for comparison.

Table 18.4-1
Financial Schedule 14-1
Return on Rate Base
2024-2027
($ millions)

Description	A 2024D	B 2024F	C 2025F	D 2026F	E 2027F
1 Sanitary Utility					
2 Mid-Year Rate Base	1,065.1	1,096.3	1,196.5	1,267.0	1,357.4
3 Mid-Year Capital Structure					
4 Debt	60.00%	60.00%	60.00%	60.00%	60.00%
5 Equity	40.00%	40.00%	40.00%	40.00%	40.00%
6 Cost Rates					
7 Debt	3.17%	3.67%	3.73%	3.77%	3.89%
8 Equity	8.10%	8.13%	9.00%	9.90%	10.80%
9 Return on Rate Base					
10 Financed by Debt	20.3	24.1	26.8	28.7	31.7
11 Financed by Equity	34.5	35.6	43.1	50.2	58.6
12 Return on Sanitary Utility Rate Base	54.8	59.8	69.8	78.9	90.3
13 Stormwater Utility					
14 Mid-Year Rate Base	1,068.0	1,049.4	1,143.4	1,256.3	1,395.6
15 Mid-Year Capital Structure					
16 Debt	60.00%	60.00%	60.00%	60.00%	60.00%
17 Equity	40.00%	40.00%	40.00%	40.00%	40.00%
18 Cost Rates					
19 Debt	3.17%	3.67%	3.73%	3.77%	3.89%

	Description	A 2024D	B 2024F	C 2025F	D 2026F	E 2027F
20	Equity, excluding SIRP	8.16%	8.08%	9.00%	9.90%	10.80%
21	Return on Rate Base					
22	Financed by Debt	20.3	23.1	25.6	28.4	32.6
23	Financed by Equity	34.9	33.9	41.2	49.8	60.3
24	Return on Stormwater Utility Rate Base	55.2	57.0	66.7	78.2	92.8
25	Combined Return on Rate Base					
26	Financed by Debt	40.6	47.2	52.3	57.1	64.2
27	Financed by Equity	69.3	69.6	84.2	99.9	118.9
28	Return on Combined Rate Base	109.9	116.8	136.6	157.0	183.2

452. The increases in returns on rate base between 2024 and 2027 are attributable to three factors:

- An increase in the forecast cost of debt discussed in Section 18.2;
- An increase in the effective rate of return on equity between 2024 and 2025 related to the Edmonton Economic Recovery Rebate which EWS offered for the 2022-2024 PBR term; and
- An increase in the forecast rate of return on equity for the 2025 to 2027 PBR Term discussed in Section 18.3.

19.0 WASTEWATER COLLECTION REVENUE OFFSETS (NON-RATE REVENUES)

453. Table 19.0-1 provides a detailed forecast of Wastewater Collections' revenue offsets (miscellaneous or non-rate revenue) for the 2025-2027 PBR term, together with the approved and forecast amounts for 2024. Revenue offsets are deducted from other revenue requirement items to determine Wastewater Collection's revenue requirement. Consistent with EWS' operating cost forecast methodology, the 2025 base year forecast of revenue offsets has been escalated to 2026 and 2027 at the weighted inflation factor less the productivity offset.

Table 19.0-1
Financial Schedule 13-1
Revenue Offsets
2024-2027
($ millions)

		A 2024D	B 2024F	C 2025F	D 2026F	E 2027F
1	Compliance and monitoring	3.9	3.0	3.0	3.1	3.2
2	Pipeline maintenance	0.7	0.7	0.7	0.7	0.7
3	Late payment charges	0.6	0.6	0.6	0.6	0.6
4	Other	0.1	-	-	-	-
5	Total	5.3	4.2	4.3	4.4	4.5
	Allocated to:					
6	Sanitary utility	4.6	3.6	3.6	3.7	3.5
7	Stormwater utility	0.7	0.6	0.6	0.7	1.0
8	Total	5.3	4.2	4.3	4.4	4.5

454. Revenue offsets include:

- Compliance and monitoring revenues derived from charges to customers for wastewater delivered to transfer stations; charges for permits to release from third parties; monitoring services provided to commercial customers; and regulatory compliance and monitoring services performed for regional customers with wastewater collection or transmission systems that connect to EWS' sanitary sewer utility.
- Pipeline maintenance revenues for repairs (sewer troubles) on the customer side of the collection system.
- Late payment penalty revenues applied to customer invoices for amounts unpaid beyond the prescribed customer payment terms.
- Other revenues derived from surplus sales and various incidental services.

455. Revenue offsets are allocated between the sanitary and stormwater utilities in accordance with the cost of service methodologies described in Section 20.0.

20.0 WASTEWATER COLLECTION COST OF SERVICE

456. The following Sections present an outline of EWS' cost of service methodology and practices. This includes a summary of the comprehensive cost of service study and analysis conducted by HDR Engineering, Inc. (HDR), as well as how EWS has applied the results of this study to allocate the revenue requirement of Wastewater Collections to the sanitary and stormwater Utilities and to assign cost responsibility to the different customer classes.

20.1 Cost of Service Methodology Review

457. In the fall of 2023, EWS engaged HDR Engineering, Inc. (HDR) to provide technical assistance in developing a sanitary and stormwater cost of service analysis. The primary objective of this analysis was to support EWS' established practice of setting cost-based rates. This entailed:

- Developing a sanitary utility cost of service analysis that aligns with the principles and methodologies articulated in the Water Environment Federation Manual of Practice No. 27, Financing and Charges for Wastewater Systems;
- Developing a stormwater utility cost of service analysis that is consistent with industry best-practices and cost of service principles and methodologies for stormwater utilities;
- Developing sanitary utility and stormwater utility cost of service methodologies that equitably distribute the cost of providing these services to the various customer classes served;
- Reviewing the current sanitary utility and stormwater utility rate structures and providing alternatives for discussion and review by EWS for its future consideration; and
- Providing EWS with a sanitary utility and stormwater utility cost of service model to use and evaluate the distribution of future sanitary utility and stormwater utility costs and rate impacts.

458. HDR's cost of service analysis was based on the forecasted revenue requirement for the 2024 test period, using financial and operational data provided by EWS. Where key assumptions or estimates were required, HDR relied on EWS' understanding of the system and customers and HDR's direct industry experience in similar cost of service studies. Sections 20.1.1 to 20.1.3 summarize the methodology, conclusions and recommendations from HDR's 2023 Sanitary and

Stormwater Wastewater Collection Cost of Service Study (the "HDR Cost of Service Study", Appendix K-1).

20.1.1 Revenue Requirement

459. Wastewater Collections' revenue requirement represents its overall financial needs, including operations and maintenance expenses, depreciation and amortization, and a fair return on capital employed in the provision of utility services.

460. Wastewater Collections provides both sanitary and stormwater utility services. Sanitary utility services are related to the collection and transmission of wastewater to the Gold Bar Wastewater Treatment Plant, and stormwater utility services are related to the management of stormwater runoff. Although the sanitary and stormwater utilities share some facilities and resources and are both operated and accounted for on a combined basis, they provide separate and distinct utility services. Therefore, the first stage of HDR's cost of service analysis is to segregate the test period revenue requirement between the sanitary and stormwater utilities.

20.1.1.1 Functionalization of Net Plant in Service

461. The process of segregating or assigning the test period revenue requirement between the sanitary and stormwater utilities starts with the functionalization and allocation of net plant in service. HDR conducted a detailed analysis of EWS' property, plant and equipment records as of December 31, 2022. These records include the cost, accumulated depreciation, and annual depreciation expense for each individual asset and indicate whether individual assets are used to provide sanitary utility functions, stormwater utility functions, or common functions.

462. Consistent with industry practices, in HDR's analysis, assets exclusively used to provide sanitary utility functions are assigned to the sanitary utility and assets solely used to deliver stormwater utility functions are assigned to the stormwater utility. Common assets, which are approximately 6% of the net plant in service during the test period, are allocated to the sanitary and stormwater utilities in proportion to the net book values of the directly assigned assets. Assignment of contributions, amortization of contributions and accumulated amortization, which are also included in the property, plant and equipment records, follows the assignment of the related assets.

463. Table 20.1.1.1-1 summarizes HDR's functionalization of net plant in service between the sanitary and stormwater utilities.

Table 20.1.1.1-1
Appendix K-1, Tables 3-2 & 4-2
Functionalization of Net Plant in Service
($ millions)

		A	B	C
		Net Plant in Service	Assigned to: Sanitary	Stormwater
	Sanitary			
1	Collection System	1,743.5	1,743.5	-
2	General Plant and Vehicles	1.4	1.4	-
4	Pumping	88.1	88.1	-
5	Storage	61.3	61.3	-
6	Sanitary	1,894.3	1,894.3	-
	Stormwater			
7	Collection System	2,072.4	-	2,072.4
8	General Plant and Vehicles	2.3	-	2.3
9	Pumping	10.7	-	10.7
10	Storage	609.8	-	609.8
11	Stormwater	2,695.3	-	2,695.3
	Common			
12	Collection System	209.1	95.6	113.6
13	General Plant and Vehicles	81.0	30.7	50.3
14	Pumping	2.5	2.3	0.3
15	Storage	1.9	0.2	1.7
16	Common	294.6	128.7	165.9
17	Common Asset Allocation Factor		43.7%	56.3%
18	Total	4,884.1	2,022.9	2,861.1
19	Sanitary / Stormwater Asset Allocation Factor		41.4%	58.6%

20.1.1.2 Functionalization and Assignment of the Revenue Requirement

464. After functionalizing net plant in service, the next step in HDR's analysis is to assign the test period revenue requirement to the sanitary and stormwater utilities.

465. Functionalization and assignment of operating expenses, property taxes and revenues offset begins with review of the functional cost groups described in Section 14.2. These costs are assigned to the sanitary and stormwater utilities, as follows:

- Core Operations: The accounts comprising each core operations function are examined to determine if the costs charged to the account relate to a single utility, in which case the costs are directly assigned to that utility. Costs relating to both utilities

are assigned to the sanitary and stormwater utilities using the asset allocation factors developed in the net plant in service analysis (line 19 of Table 20.1.1.1-1);

- Integrated Operations: Except for regulatory and business planning costs, integrated operations costs (planning, engineering, project management, control and automation, development and infill, and facility operations) are assigned to the Sanitary and Stormwater Utilities using the asset allocation factors developed in the net plant in service analysis (line 19 of Table 20.1.1.1-1). Regulatory and business planning costs, which are similar in nature to EWS' shared services, are apportioned equally between the two utilities;
- Customer Billing and Metering: Since the sanitary and stormwater utilities provide services to the same customers, 50% of billing and customer service costs are assigned to each utility. AMI, meter reading and meter service costs, which relate solely to the sanitary utility, are directly assigned to the sanitary utility;
- EWS Shared Services and Corporate Shared Services: These costs support both utilities and are budgeted and managed at a business unit level. Therefore, these costs are apportioned equally between the sanitary and stormwater utilities;
- Franchise Fees and Property Taxes: Franchise fees are only applicable to the sanitary utility. Therefore, franchise fees are directly assigned to the sanitary utility. Property taxes are assigned to the sanitary and stormwater utilities using the asset allocation factors from Line 19 of Table 20.1.1.1-1; and
- Revenue Offsets: Revenue offsets are assigned to the sanitary and stormwater utilities on the same basis as the related expenses.

466. Assignment of the depreciation and amortization of contributions to the sanitary and stormwater utilities follows the assignment of net plant in service described above in Section 20.1.1.1.

467. Functionalization of net plant in service allows HDR to determine the portions of the Wastewater Collection rate base assigned to the sanitary and stormwater utilities and to calculate sanitary and stormwater returns on rate base.

468. Table 20.1.1.2-1 summarizes the assignment of the 2024 test year revenue requirement to the sanitary and stormwater utilities.

Table 20.1.1.2-1
Appendix K-1, Tables 3-3 & 4-3
Assignment of the 2024 Test Year Wastewater Collection Revenue Requirement
to the Sanitary and Stormwater Utilities
($ millions)

		A	B	C	D	E
		Wastewater	Allocation			
		Collection	Sanitary	Stormwater	Sanitary	Stormwater
1	Operating expenses	124.4	55.6%	44.4%	69.2	55.2
2	Property Taxes	1.3	50.4%	49.6%	0.5	0.8
3	Depreciation, net of amortization	47.2	55.6%	44.4%	20.7	26.5
4	Return on Rate Base - Debt	47.9	38.5%	61.5%	23.3	24.6
5	Return on Rate Base - Equity	69.1	43.9%	56.1%	33.7	35.4
6	Sub-total	289.9	48.6%	51.4%	147.5	142.4
7	Less: Revenue Offsets	(4.3)	48.8%	51.2%	(3.6)	(0.7)
8	Revenue Requirement	285.6	50.8%	49.2%	143.9	141.7

20.1.2 Sanitary Utility Cost of Service Study

469. The primary objective of HDR's sanitary utility cost of service study is to provide EWS with a methodology to determine a fair and equitable way to apportion or collect the revenue requirement across the various customer classes of service. The first step in a cost of service study is to determine the customer classes of service to which costs will be equitably distributed. To establish the classes of service, the utility segregates customers into groups (i.e. classes of service) that have similar usage patterns and facility requirements. Currently, EWS uses the following sanitary customer classes of service: residential, multi-residential and commercial.

470. HDR reviewed the classes of service and concluded that the current sanitary utility customer classes of service are reasonable and follow current industry practices. After establishing classes of service, HDR undertook its comprehensive cost of service analysis using a three-step approach: functionalization, allocation, and distribution.

20.1.2.1 Functionalization of Sanitary Drainage Costs

471. Functionalization involved using EWS' system of accounts to arrange asset (plant/infrastructure) data and expenses (costs) by major operating functions within the utility, including collection, pumping stations, storage and general plant.

20.1.2.2 Allocation of Sanitary Drainage Costs

472. The second analytical task performed in the sanitary utility cost of service analysis is the allocation of the costs. Allocation involves reviewing each cost to determine why the expense is incurred or what type of need (e.g., volume/flow, customer-related) is being met. In this step, HDR categorized costs as follows:

- Volume-Related Costs which tend to vary with the total quantity of wastewater collected and conveyed;
- Capacity/Demand-Related Costs which are related to the capacity requirements of the system, both in terms of the number of customers on the system and the capacity use or maximum flows that customers place on the system;
- Customer-Related Costs which vary with the number of customers served. Customer-related costs typically include the costs of accounting, billing, and collections; and
- Revenue-Related Costs such as franchise fees, vary with the amount of revenue received by the utility.

473. HDR's cost allocations for the sanitary utility follows generally accepted wastewater cost of service principles and methodologies, as discussed and outlined in the Water Environment Federation, Manual of Practice #27, Financing and Charges for Wastewater Systems. These methodologies have been adapted and tailored to reflect EWS' specific and unique facilities, customers, costs, and operations.

20.1.2.3 Distribution to Customer Classes of Service

474. In HDR's analysis, allocated costs are proportionally and equitably distributed to each customer group using distribution factors. The development of the distribution factors is based on generally accepted principles and methodologies and includes:

- Volume Distribution Factor: Volume-related costs are generally distributed based on estimated contributions to wastewater flows. For the 2024 test period, the volume distribution factor is based on forecast wastewater volumes by sanitary drainage customer class of service;
- Capacity/Demand Distribution Factor: HDR based this distribution factor on an equivalent meter analysis, which considers the number of meters by customer class of service and the capacity flow from those meters. This factor was used to equitably allocate and distribute a portion of the sanitary drainage systems collection lines;

- Customer Distribution Factors: The customer distribution factor is based on the actual number of customers in each customer class of service to distribute customer-related costs to customer classes of service. The underlying assumption supporting the use of actual customer counts is that customer costs are directly related to the number of customers and that there are no disproportionate costs; and
- Revenue Related Distribution Factor: The revenue-related distribution factor is based on projected rate revenues for 2024 for each customer class of service.

20.1.2.4 Summary of the Sanitary Drainage Cost of Service Analysis

475. To determine the revenue responsibility for each customer group, HDR aggregated the distributed revenue requirement for each customer class of service and compared the distributed revenue requirement to projected revenues for the 2024 test period. This comparison is summarized in Table 20.1.2.4-1.

Table 20.1.2.4-1
Appendix K-1, Table 3-4
Summary of the Sanitary Utility Cost of Service Analysis
For the 2024 Test Period
($ millions)

		A Present Revenue	B Allocated Costs	C $ Difference	D % Difference
1	Residential	106.6	91.1	15.4	-14.5%
2	Multi-Residential	28.3	23.2	5.1	-17.9%
3	Commercial*	36.5	29.5	7.0	-19.2%
4	Total	171.4	143.9	27.5	-16.1%

*Includes University of Alberta

476. HDR typically conducts a cost of service review for each class of service to ascertain whether it falls within a "reasonable range" of their cost of service. In this context, "reasonable" denotes a range within +/- 5% of the overall required adjustment. The sanitary utility cost of service results for the 2024 test period suggest that adjustments to sanitary rates are required. Accordingly, EWS is proposing adjustments to sanitary rates over the 2025-2027 PBR term so that sanitary revenues are within the reasonable range of their cost of service. These adjustments are reflected in the 2025-2027 Special Rate Adjustments for Rebasing described in Section 21.3.2.

20.1.3 Stormwater Utility Cost of Service

477. Similar to the sanitary utility cost of service study, the objective of HDR's stormwater utility cost of service study is to provide EWS with a methodology to equitably distribute the revenue requirement across the various customer classes of service. The first step in a cost of service study is to determine the customer classes of service to which costs will be equitably distributed. To establish the classes of service, the utility must segregate customers into groups of customers (i.e., classes of service) that have similar stormwater characteristics, parcels and/or facility requirements.

478. EWS uses the following stormwater utility classes of service: residential, multi-residential and commercial. HDR reviewed the classes of service and, following discussions with EWS, concluded that they were reasonable and conform to prevalent industry practices. Once the classes of service were established, HDR undertook its comprehensive cost of service analysis using a three-step approach: functionalization, allocation, and distribution.

20.1.3.1 Functionalization of Stormwater Drainage Costs

479. HDR utilized EWS' system of accounts to organize the data related to assets such as plant and infrastructure, and expenses based on the major operating functions within the utility such as collection, pumping stations, storage and general plant.

20.1.3.2 Allocation of Stormwater Drainage Costs

480. To allocate the costs related to stormwater, HDR examined each cost to determine the reason behind it or the need it caters to, such as volume/flow or customer-related. HDR then categorized the expenses into the following groups:

- Stormwater Equivalent Unit-Related Costs: These costs vary with permeable area (i.e. stormwater equivalent units) and include costs related to stormwater collection, pumping stations, storage and stormwater management. Stormwater equivalent units, which measure the relative contribution to surface water run-off from each square metre of billable area, are calculated for each premises as the product of the area of the premises, its development intensity factor and a runoff coefficient based on zoning;
- Customer-Related Costs: These costs vary with the number of customers served and include the costs of accounting, billing, and collection; and

- Revenue-Related Costs: These include costs such as late payment charges, which vary with the amount of revenue received by the utility.

481. HDR's cost allocations for the stormwater utility follows generally accepted wastewater cost of service principles and methodologies, as discussed and outlined in the Water Environment Federation, Manual of Practice No. 27, Financing and Charges for Wastewater Systems. HDR adapted and tailored these methodologies to reflect EWS' specific and unique facilities, customers, costs, and operations.

20.1.3.3 Development of the Stormwater Drainage Distribution Factors

482. The primary aim of the Stormwater Utility Cost of Service Study conducted by HDR was to ensure equitable allocation of costs to each customer group by adhering to accepted principles and methodologies. The study developed three distribution factors, based on three parameters: Stormwater Equivalent Unit Distribution Factor; Customer Distribution Factors; and Revenue Related Distribution Factor.

- Stormwater Equivalent Unit Distribution Factor: EWS' billing data is used to determine the total number of stormwater equivalent units for each customer class and in aggregate. The stormwater equivalent unit distribution factor is calculated as the ratio of the total number of stormwater equivalent units for each class to the total number of stormwater equivalent units. This factor is then used to distribute stormwater equivalent unit-related costs to customer classes, so that distributed costs are reflective of the relative runoff contribution from each customer class;
- Customer Distribution Factors: The customer distribution factor is based on the actual number of customers in each customer class of service to distribute customer costs to customer classes of service. The underlying assumption supporting the use of actual customer counts is that customer costs are directly related to the number of customers and that there are no disproportionate costs; and
- Revenue Related Distribution Factor: The revenue-related distribution factor is based on projected rate revenues for 2024 for each customer class of service.

20.1.3.4 Summary of the Stormwater Utility Cost of Service Study

483. Similar to the sanitary utility cost of service study, HDR aggregated the distributed revenue requirement for each customer class of service and compared the distributed revenue

requirement to projected revenues for the 2024 test period. This comparison is summarized in Table 20.1.3.4-1.

Table 20.1.3.4-1
Appendix K-1, Table 4-4
Summary of the Stormwater Utility Cost of Service Analysis
For the 2024 Test Period
($ millions)

	A Present Revenue	B Allocated Costs	C $ Difference	D % Difference
1 Residential	63.6	74.7	(11.1)	17.5%
2 Multi-Residential	6.8	8.1	(1.4)	20.1%
3 Commercial	51.4	58.9	(7.5)	14.6%
4 Total	121.7	141.7	(20.0)	16.4%

484. In HDR's analysis, a class of service is considered within a "reasonable range of their cost of service" if it falls within +/- 5% of the overall required adjustment. The stormwater utility cost of service results for the 2024 test period suggests that adjustments to stormwater rates are required. Accordingly, EWS is proposing adjustments to stormwater rates over the 2025-2027 PBR term so that stormwater revenues are within the reasonable range of their cost of service. These adjustments are reflected in the 2025-2027 Special Rate Adjustments for Rebasing described in Section 21.3.2.

20.2 2025-2027 Forecast Cost of Service Results

485. EWS applied the principles and methodologies from HDR's comprehensive cost of service study to assign Wastewater Collections' 2025-2027 forecast revenue requirements to the sanitary and stormwater utilities and to distribute the revenue requirement to the residential, multi-residential and commercial customer classes.

486. EWS then compared its forecast revenues, which incorporate the special rate adjustments for rebasing described in Section 21.3 to the forecast costs of service for each customer class. The resulting revenue surplus or shortfall for the sanitary utility, stormwater utility, and overall wastewater collection is summarized in Table 20.2-1.

Table 20.2-1
Financial Schedule 19-2
Sanitary Utility and Stormwater Utility Cost of Service Summary
($ millions)

		A	B	C	D	E	F	G	H	I
		Sanitary Utility			Stormwater Utility			Wastewater Collection		
		2025F	2026 F	2027 F	2025F	2026 F	2027 F	2025F	2026 F	2027 F
	Revenue									
1	Residential	106.0	106.0	107.0	77.6	88.9	98.0	183.6	194.9	205.0
2	Multi-Residential	29.5	29.4	29.7	7.6	8.4	9.1	37.1	37.8	38.8
3	Commercial	37.7	37.3	37.1	55.9	62.2	67.9	93.6	99.4	105.1
4	Total	173.2	172.7	173.9	141.1	159.5	175.0	314.3	332.2	348.9
	Revenue Requirement									
5	Residential	96.6	103.9	113.3	80.8	90.8	101.4	177.4	194.7	214.7
6	Multi-Residential	26.0	28.1	30.7	8.0	8.6	9.4	34.0	36.6	40.1
7	Commercial	32.9	35.0	37.8	58.6	63.4	70.2	91.4	98.4	108.0
8	Total	155.4	167.0	181.8	147.4	162.8	181.0	302.8	329.8	362.8
	Over (Under) Collected									
9	Residential	9.4	2.0	(6.3)	(3.2)	(1.8)	(3.4)	6.2	0.2	(9.7)
10	Multi-Residential	3.5	1.4	(1.0)	(0.4)	(0.2)	(0.3)	3.1	1.2	(1.3)
11	Commercial	4.9	2.3	(0.6)	(2.7)	(1.3)	(2.3)	2.2	1.0	(2.9)
12	Total	17.8	5.7	(7.9)	(6.3)	(3.3)	(6.0)	11.5	2.4	(13.9)
	Revenue to Cost Ratios									
13	Residential	109.8%	101.9%	94.4%	96.0%	98.0%	96.7%	103.5%	100.1%	95.5%
14	Multi-Residential	113.4%	104.9%	96.8%	95.4%	98.0%	96.7%	109.1%	103.3%	96.8%
15	Commercial	114.8%	106.5%	98.4%	95.5%	98.0%	96.7%	102.4%	101.0%	97.3%
16	Combined	111.4%	103.4%	95.7%	95.7%	98.0%	96.7%	103.8%	100.7%	96.2%

487. Table 20.2-1 shows that revenues at proposed rates for all customer classes fall within a "reasonable range" of their cost of service by the end of the 2025-2027 PBR term. In this context, "reasonable" denotes a range within +/- 5% of the overall cost of providing service. These results represent a substantial improvement over the 2024 Test Year results discussed in Sections 20.1.2 and 20.1.3. The proposed special rate adjustments for rebasing needed to achieve these results are discussed in Section 21.3.2.

488. Further information on the sanitary and stormwater utility revenue requirements are provided in Section 5 of this Application.

21.0 WASTEWATER COLLECTION PBR RATES

489. Wastewater Collection provides sanitary utility and stormwater utility services pursuant to a franchise agreement with the City of Edmonton. These services are regulated by City Council under a performance-based regulation framework.

490. Wastewater Collection's sanitary and stormwater utility customers are assigned to one of three customer classes:

- Residential customer class: This class includes all residential service customers within the city of Edmonton. Residential service means a service provided to a premises used primarily for domestic purposes, where no more than four separate dwelling units are metered by a single water meter and the water service line to the premises is not greater than 50 millimeters in diameter;
- Multi-residential customer class: This class includes all multi-residential service customers within the city of Edmonton. A multi-residential service is defined as a service supplied to premises used primarily for domestic purposes; where more than four separate dwelling units are metered by a single water meter; and
- Commercial customer class: This class includes all commercial service customers within the city of Edmonton. Commercial service means a service provided to a premises not otherwise defined as a residential service or multi-residential service. Premises that are zoned as mixed use are deemed as a commercial service.

491. Customer definitions and classification criteria are consistent between the Sanitary Utility, the Stormwater Utility and Wastewater Treatment. Therefore, a residential sanitary utility customer is also classified as a residential stormwater utility customer and a residential wastewater treatment customer, a multi-residential sanitary utility customer is also classified as a multi-residential stormwater utility customer and a multi-residential wastewater treatment customer, and a commercial sanitary utility customer is also classified as a commercial stormwater utility customer and a commercial wastewater treatment customer.

21.1 PBR Rate Structure – Sanitary Utility

492. EWS' sanitary utility rates are designed to collect the sanitary utility revenue requirement. Sanitary utility rates, which are common to all customer classes, consist of fixed monthly service charges levied on each customer's premises that vary with the size of the premises' water meter and a volumetric charge based on a rate per cubic metre of:

- metered water volume for the premises, or
- if a sewer meter that has been approved by EWS has been installed, the metered sewer discharge volume for the premises, or
- metered water volume for the premises as discounted by the application of a utility credit as approved by EWS.

493. The cost of service study conducted by HDR Engineering Inc. concluded that EWS' current rate design approach for sanitary utility rates is contemporary in approach and design. Accordingly, EWS is not proposing any changes to sanitary utility rate structures in the 2025-2027 PBR term, except for the adjustments needed to rebalance sanitary utility and stormwater utility revenues with revenue requirements.

21.2 PBR Rate Structure – Stormwater Utility

494. EWS' stormwater utility rates are designed to collect the stormwater utility revenue requirement. The current stormwater utility rate design, which is common to all customer classes, consists of a single rate applied to the product of:

a) The area of the property in square metres and, for multiple units sharing a single lot, the proportion of the lot area attributable to each unit;

b) The runoff coefficient, which is an indicator of the permeability of the lot's surface (i.e., grass versus concrete), based on land zoning. The runoff coefficient ranges from 0.20 (e.g., agricultural zone AG) to 0.75 (e.g., commercial business zone CB2). As point of reference, a single-detached residential home (Zone RS/RSF ≥450m²) has a runoff coefficient of 0.50. The runoff coefficients are included in Schedule 1 of the Wastewater Services Bylaw; and

c) The development intensity factor, which reflects how the parcel runoff compares to similar lots in the same zone category. The development intensity factor is set at 1.0, except for those properties where multi-residential and commercial property owners demonstrate that they contribute significantly less stormwater runoff per property area to EWS' wastewater collection system during rainfalls than other similarly-zone properties through the use of retention/detention ponds or other stormwater best practices. Applications for changes to the development intensity factor are made in accordance with the terms and conditions of the Intensity Adjustment Program.

495. EWS updated the runoff coefficients to align with the City's updated Zoning Bylaw 20001, resulting in an overall reduction in the runoff factor for most premises.

496. The cost of service study conducted by HDR Engineering Inc. concluded that EWS' current rate design approach for stormwater utility rates is contemporary in approach and design. Accordingly, EWS is not proposing any changes to stormwater utility rate structures for the 2025-2027 PBR term, except for the adjustments needed to update the runoff coefficients to align with the new zones.

21.3 2025-2027 Wastewater Collection Rates and Special Rate Adjustments

497. Under EWS' PBR framework, annual rate increases are limited to the PBR inflation adjustment plus any special rate adjustments. For the 2025-2027 PBR term, EWS is seeking approval for the following two special rate adjustments:

- Special Rate Adjustment to Refund Consumption Deferral Account; and
- Special Rate Adjustment for Re-Basing.

21.3.1 Special Rate Adjustment to Refund Consumption Deferral Account

498. Special rate adjustments to refund the consumption deferral account balances are required for Wastewater Collection in 2025, 2026, and 2027 because the accumulated consumption deferral account balances from the current 2022-2024 PBR term reflects a positive balance. Consumption deferral accounts are proposed to be discontinued starting with this Application for the reasons outlined in Section 13.2.1. The special rate adjustment to refund the consumption deferral account will be applied to Sanitary Utility variable monthly charges during the 2025-2027 PBR term, effective April 1, 2025.

499. Table 21.3.1-1 summarizes the consumption deferral account balances accumulated over the 2022-2024 PBR term and the refund of these balances during the 2025-2027 PBR term. The accumulated deferral account balances include carrying costs (interest charges) based on EWS' weighted average cost of capital (WACC). The average customer bill impacts of the special rate adjustments are summarized in Section 21.4.

Table 21.3.1-1
Financial Schedule 20-2
Wastewater Collection Consumption Deferral Account
2024-2027
($ millions)

		A 2024F	B 2025F	C 2026F	D 2027F
1	Beginning Balance	17.4	28.2	21.2	11.0
2	Current Year Consumption Deferral	9.4	-	-	-
3	Carrying Costs	1.4	1.7	1.3	0.7
5	Consumption Deferral Refund	-	(8.7)	(11.5)	(11.7)
6	Ending Balance	28.2	21.2	11.0	-

21.3.2 Special Rate Adjustment for Rebasing

500. Under EWS' PBR framework, annual rate increases are limited to the PBR inflation adjustment plus any special rate adjustments. The Special Rate Adjustment for Rebasing refers to the rate adjustment required to fully recover the forecast revenue requirement for the 2025-2027 PBR term, which is prepared on a bottom-up basis utilizing the methodologies and key assumptions described in Section 4.0. Without the special rate adjustments for rebasing, annual rate increases would be limited to the PBR inflation adjustment, resulting in a net revenue shortfall of $78.6 million for Wastewater Collection, as shown in Table 21.3.2-1. As a result, special rate adjustments for rebasing are required over the 2025-2027 PBR term to fund the ongoing operations and planned capital investments.

501. Table 21.3.2-1 also shows that without the rebasing adjustments, rates for the sanitary and stormwater operations would not reflect the cost of providing the services, consistent with HDR's cost of service study results. In other words, sanitary rates would result in a revenue surplus whereas stormwater rates would result in a revenue shortfall.

Table 21.3.2-1
Financial Schedule 19-1
Revenue Requirement Shortfall
2025-2027
($ millions)

		A	B	C
		2025-2027		
		Sanitary Operation	Stormwater Operation	Wastewater Collection
1	Revenue Collected at Prior Year's Rates	545.0	340.4	885.4
2	PBR Inflation Impact on Revenue (i-x)	19.4	12.0	31.4
3	Total Revenue Collected at PBR Rates	564.4	352.4	916.8
4	Forecast Revenue Requirement:	504.2	491.2	995.4
5	Revenue Surplus (Shortfall)	60.2	(138.7)	(78.6)

502. Stormwater rates are derived by dividing the forecast revenue requirement with the total stormwater equivalent units. As outlined in Section 4.8.1, the approval of the City's Zoning Bylaw 20001 required EWS to update the runoff coefficients in order to align with the new zones, which resulted in an overall reduction in the runoff factor for most premises, and the stormwater equivalent units used for determining stormwater rates. A reduction in the runoff coefficients and stormwater equivalent units meant that the derived stormwater rates are now higher to recover the same amount of revenues.

503. The percentage change in stormwater equivalent units vary by customer class. Although the overall reduction is approximately 10%, residential stormwater equivalents declined by less than 4%, whereas commercial stormwater equivalents declined by more than 15%. In other words, higher revenues are required from the residential customers to offset the lower commercial revenues, which would result in significant bill increases. Commercial revenues are expected to be lower due to the higher proportion of reduction in the commercial stormwater equivalent units.

504. The proposed rebasing adjustment minimizes average bill increases over the PBR term by taking a comprehensive approach to rebasing and rebalancing revenues. In addition to recovering the net revenue shortfall of $78.6 million, the proposed rebasing adjustment carefully rebalances revenues for both the sanitary and stormwater utilities so that the forecast revenues for each customer class falls within a "reasonable range" of their cost of service by the end of the 2025-2027 PBR term. The revenue to cost ratios after rebalancing revenues for the sanitary operations, stormwater operations, and overall wastewater collection is summarized in Table 20.2-1 of Section 20.2.

505. EWS' approach to rebasing and rebalancing revenues recognizes that:

- The percentage change in stormwater equivalent units varies by customer class. However, almost all sanitary customers are also stormwater customers, and therefore increases in stormwater charges will be partially or even entirely offset by reduction in sanitary charges;
- The proportions of stormwater and sanitary bills differ by customer class, with the commercial customer class having the highest proportion of stormwater charges and the multi-residential customer class having the lowest; and
- The consumption deferral refund also varies by customer class, with the refund providing a higher reduction to commercial customers in comparison to the residential customers who will experience a smaller reduction.

506. EWS is confident that by applying the special rate adjustments for rebasing in accordance with Table 21.3.2-2 addresses the considerations outlined above, ensuring rates remain fair, equitable and cost-based, while considering affordability and minimizing bill increases.

Table 21.3.2-2
Special Rate Adjustments for Rebasing
2025-2027

		A 2025F	B 2026F	C 2027F
1	Sanitary Fixed and Variable Rates	-7.0%	-2.0%	-2.0%
2	Stormwater Rate	31.2%	6.2%	6.2%

507. EWS analyzed the bill impacts of applying the rebasing adjustment shown in Table 21.3.2-2. For most customers, the increase in stormwater charges will be either partially or entirely offset by a decrease in their sanitary charges; however, EWS estimates that approximately 1,200 customers (0.4% of the stormwater customers), could experience significant bill increases. The impacted customer classes and the primary drivers are outlined below:

- Approximately 300 of these customers are in the heavy industrial (IH) zone. The runoff coefficient for this zone has increased from 0.5 to 0.75 following an engineering analysis demonstrating that the new runoff coefficient provides a more accurate representation of the runoff contribution of properties in this zone.
- Another 500 customers will experience an increase in their runoff coefficient due to zoning changes to reflect the current land use. Most of these properties were zoned as

agricultural (AG) prior to the zoning bylaw change, even though these properties were developed. As a result, the runoff coefficient changes reflect corrections due to current zoning.

- Almost all of the remaining customers experiencing significant bill increases are primarily those with large properties and low water consumption.

508. EWS will engage with all Multi-Residential and Commercial customers who are anticipated to experience significant bill increases to inform them of their bill impacts and the potential options to mitigate their bill increases. These options include:

- Adjustment to their runoff coefficient: Customers can request an adjustment to their runoff coefficient through EWS' Intensity Adjustment Program, if the customer can demonstrate that their property's runoff coefficient is materially different from that of a typical customer within the same zone.

- Stormwater Management Rebate Program: If the property's runoff coefficient is appropriate based on the zone, customers can reduce their runoff coefficient by taking advantage of EWS' new Stormwater Management Rebate Program. Under this program, customers can install Low Impact Development installations on their property to capture stormwater and reduce runoff, which would decrease their runoff coefficient and reduce their stormwater bill.

21.4 Summary of Wastewater Collection Bill Impacts

509. Over the 2025-2027 PBR term, sanitary rate changes include PBR inflation and the two special rate adjustments outlined in Section 21.3 and stormwater rate changes include PBR inflation and the special rate adjustments for rebasing. The sanitary and stormwater bill impacts for the average residential, multi-residential and the commercial customer are shown in Tables 21.4-1 to 21.4-9.

Table 21.4-1
Sanitary Bill Impacts on the Average Residential Customer
($/month)

	Sanitary	A 2025F	B 2026F	C 2027F	D Total / Average
1	Average Monthly Bill before Consumption Deferral Refund	28.99	28.79	28.59	
2	Consumption Deferral Refund	(1.03)	(1.04)	(1.05)	
3	Average Monthly Bill	27.96	27.75	27.55	
4	Change in Average Monthly Bill ($)	(2.88)	(0.21)	(0.20)	(3.30)
	Annual Change due to:				
5	PBR Inflation (i-x)	1.89%	2.23%	1.81%	
6	Special Rate Adjustment for Rebasing	-7.00%	-2.00%	-2.00%	
7	Decline in Consumption	-0.89%	-0.95%	-0.48%	
8	Bill Change before Consumption Deferral Refund	-6.00%	-0.72%	-0.67%	
9	Consumption Deferral Refund	-3.34%	-0.05%	-0.06%	
10	Change in Average Monthly Bill (%)	-9.3%	-0.8%	-0.7%	-3.7%

Table 21.4-2
Stormwater Bill Impacts on the Average Residential Customer
($/month)

	Stormwater	A 2025F	B 2026F	C 2027F	D Total / Average
1	Average Monthly Bill	22.87	24.81	26.81	
2	Change in Average Monthly Bill ($)	5.03	1.94	2.00	8.97
	Annual Change due to:				
3	PBR Inflation (i-x)	1.89%	2.23%	1.81%	
4	Special Rate Adjustment for Rebasing	31.24%	6.24%	6.24%	
5	Change in Stormwater Equivalent Units	-4.92%	0.00%	0.00%	
6	Change in Average Monthly Bill (%)	28.2%	8.5%	8.0%	14.5%

Table 21.4-3
Combined Sanitary and Stormwater Bill Impacts on the Average Residential Customer
($/month)

	Combined Sanitary and Stormwater	A 2025F	B 2026F	C 2027F	D Total / Average
1	Average Monthly Bill before Consumption Deferral Refund	51.87	53.60	55.40	
2	Change ($)	3.18	1.73	1.80	6.72
3	Change (%)	6.5%	3.3%	3.4%	4.4%
4	Average Monthly Bill after Consumption Deferral Refund	50.83	52.56	54.35	

5	Change ($)	2.15	1.72	1.79	5.67
6	Change (%)	4.4%	3.4%	3.4%	3.7%

510. Table 21.4-3 shows that over the 2025-2027 PBR term, the average residential bill change is 3.7% (4.4% before the consumption deferral refund), with the decrease in sanitary charges partially offsetting the increase in stormwater charges. Since the residential customer class has a high degree of homogeneity, the average customer bill changes shown above can be considered representative of the entire customer class. This bill change is much lower than the 6.3% average residential bill change forecast for the 2022-2024 PBR term.

Table 21.4-4
Sanitary Bill Impacts on the Average Multi-Residential Customer
($/month)

	Sanitary	A 2025F	B 2026F	C 2027F	D Total / Average
1	Average Monthly Bill before Consumption Deferral Refund	627.59	633.00	635.76	
2	Consumption Deferral Refund	(46.56)	(47.92)	(49.12)	
3	Average Monthly Bill	581.04	585.08	586.63	
4	Change in Average Monthly Bill ($)	(76.26)	4.04	1.55	(70.66)
	Annual Change due to:				
5	PBR Inflation (i-x)	1.89%	2.23%	1.81%	
6	Special Rate Adjustment for Rebasing	-7.00%	-2.00%	-2.00%	
7	Decline in Consumption	0.59%	0.63%	0.63%	
8	Bill Change before Consumption Deferral Refund	-4.52%	0.86%	0.44%	
9	Consumption Deferral Refund	-7.08%	-0.17%	-0.17%	
10	Change in Average Monthly Bill (%)	-11.6%	0.7%	0.3%	-3.7%

Table 21.4-5
Stormwater Bill Impacts on the Average Multi-Residential Customer
($/month)

	Stormwater	A 2025F	B 2026F	C 2027F	D Total / Average
1	Average monthly bill	169.40	183.75	198.53	
2	Change in Average Monthly Bill ($)	21.64	14.35	14.79	50.77
	Annual Change due to:				
3	PBR Inflation (i-x)	1.89%	2.23%	1.81%	
4	Special Rate Adjustment for Rebasing	31.24%	6.24%	6.24%	
5	Change in Stormwater Equivalent Units	-18.48%	0.00%	0.00%	
6	Change in Average Monthly Bill (%)	14.6%	8.5%	8.0%	10.3%

Table 21.4-6
Combined Sanitary and Stormwater Bill Impacts on the Average Multi-Residential Customer
($/month)

	Combined Sanitary and Stormwater	A 2025F	B 2026F	C 2027F	D Total / Average
1	Average Monthly Bill before Consumption Deferral Refund	797.00	816.75	834.29	
2	Change ($)	(8.07)	19.75	17.54	29.23
3	Change (%)	-1.00%	2.48%	2.15%	1.20%
4	Average Monthly Bill after Consumption Deferral Refund	750.44	768.83	785.17	
5	Change ($)	(54.62)	18.39	16.34	(19.90)
6	Change (%)	-6.8%	2.5%	2.1%	-0.8%

511. Table 21.4-6 shows that over the 2025-2027 PBR term, average multi-residential bills are forecast to decrease at an annual rate of 0.8% (an increase of 1.2% before the consumption deferral). This bill change is much lower than the 8.1% average multi-residential bill change forecast for the 2022-2024 PBR term. Multi-residential customers' bills tend to have a much higher proportion of sanitary charges than those of residential and commercial customers, so the decrease in multi-residential customers' sanitary charges more than offsets the increase in stormwater charges.

Table 21.4-7
Sanitary Bill Impacts on the Average Commercial Customer
($/month)

	Sanitary	A 2025F	B 2026F	C 2027F	D Total / Average
1	Average Monthly Bill before Consumption Deferral Refund	180.67	179.23	177.05	
2	Consumption Deferral Refund	(11.71)	(1.44)	(2.18)	
3	Average Monthly Bill	153.57	151.86	149.54	
4	Change in Average Monthly Bill ($)	(38.81)	(1.71)	(2.33)	(42.85)
	Annual Change due to:				
5	PBR Inflation (i-x)	1.89%	2.23%	1.81%	
6	Special Rate Adjustment for Rebasing	-7.00%	-2.00%	-2.00%	
7	Decline in Consumption	-0.98%	-1.03%	-1.02%	
8	Bill Change before Consumption Deferral Refund	-6.09%	-0.80%	-1.21%	
9	Consumption Deferral Refund	-14.09%	-0.31%	-0.32%	
10	Change in Average Monthly Bill (%)	-20.2%	-1.1%	-1.5%	-8.1%

Table 21.4-8
Stormwater Bill Impacts on the Average Commercial Customer
($/month)

	Stormwater	A 2025F	B 2026F	C 2027F	D Total / Average
1	Average monthly bill	258.04	279.90	302.42	
2	Change in Average Monthly Bill ($)	28.95	21.85	22.53	73.33
	Annual Change due to:				
3	PBR Inflation (i-x)	1.89%	2.23%	1.81%	
4	Special Rate Adjustment for Rebasing	14.65%	8.47%	8.05%	
5	Change in Stormwater Equivalent Units	-3.90%	-2.23%	-1.81%	
6	Change in Average Monthly Bill (%)	12.6%	8.5%	8.1%	9.7%

Table 21.4-9
Combined Sanitary and Stormwater Bill Impacts on the Average Commercial Customer
($/month)

	Combined Sanitary and Stormwater	A 2025F	B 2026F	C 2027F	D Total / Average
1	Average Monthly Bill before Consumption Deferral Refund	438.72	459.12	479.47	
2	Change ($)	17.23	20.40	20.35	57.99
3	Change (%)	4.1%	4.7%	4.4%	4.4%
4	Average Monthly Bill after Consumption Deferral Refund	411.61	431.76	451.96	
5	Change ($)	(9.86)	20.15	20.20	30.48
6	Change (%)	-2.3%	4.9%	4.7%	2.4%

512. Table 21.4-9 shows that over the 2025-2027 PBR term, the average commercial bill increases at an annual rate of 2.4% (4.4% before the consumption deferral refund). This bill change is much lower than the 8.7% average commercial bill change forecast for the 2022-2024 PBR term.

22.0 PERFORMANCE MEASURES

22.1 Overview

513. The following Sections outline the performance measures, rationale for their selection and the expected performance standards for the Wastewater Collection and Wastewater Treatment operations. In addition, historical performance against established standards, along with comparisons to other jurisdictions (where possible) are provided.

22.2 Framework for Performance Measures

514. As part of establishing EWS' initial Water PBR application in 2002, a comprehensive framework was established to define the critical areas of operational performance that EWS must meet to deliver safe and reliable utility services. This framework has been adopted by both Wastewater Collection and Wastewater Treatment.

515. Operational performance measures are established as part of the PBR Application process for all of the operations managed by EWS. To establish overall performance that meets the expectations of EWS' customers and its regulator, performance is determined (and later assessed) for each utility through a set of performance measures. Where possible, such as in the areas of health and safety, common measures are established across all of the operations to

facilitate comparability. While the individual standards are generally unique for each utility, they are managed within a common framework and assessment approach.

516. Performance measures within EWS' PBR framework are established to ensure that a "standard" or optimal level of performance is maintained and if service levels deteriorate below the established standards, financial penalties are imposed on EWS. In other words, the standards ensure that the level of service provided to customers does not degrade over the PBR period.

517. For the 2025-2027 PBR term, the operational performance of Wastewater Collection and Wastewater Treatment will be assessed under the following four categories:

- Water Quality and Environment;
- Customer Service;
- System Reliability and Optimization; and
- Safety.

518. Each of these categories are defined as an index (or "Performance Index") which represents the aggregate performance of multiple performance measures within each category or index. The indices and weightings applicable to each index for the 2025-2027 PBR term are detailed in Table 22.2-1, which remain unchanged from the 2022-2024 PBR term. The weightings are different between Wastewater Collection and Wastewater Treatment Services to reflect the different nature of the operations and stakeholder expectations.

Table 22.2-1
2025-2027 Wastewater Performance Indices and Weightings

	Performance Category	A Wastewater Collection Weighting	B Wastewater Treatment Weighting
1	Water Quality & Environmental Index	35%	45%
2	Customer Service Index	20%	15%
3	System Reliability & Optimization Index	30%	25%
4	Safety Index	15%	15%
5	Total	100%	100%

519. EWS conducted a thorough review of its performance standards to ensure that the proposed performance standards are set appropriately to meet the expectations of its customers and regulator while balancing the need to maintain reasonable rates.

520. EWS also sought stakeholder feedback on their priority of the various performance categories. This feedback helps to ensure that the weightings for each index are aligned with stakeholder expectations. For the 2025-2027 Wastewater PBR Application, EWS is proposing to replace some of its performance measures with new measures and proposing updates to some of the standards for approval by its regulator, City Council. The proposed updates reflect changes that EWS considers are most appropriate for measuring EWS' performance against the expectations of its customers and regulator.

521. EWS investigated the performance measures used by other utilities as well as by the leading water and wastewater associations. These include the American Water Works Association (AWWA), the leading North American drinking water industry association, the Water Environment Federation, the leading wastewater industry association and the Office of Water Services (OFWAT), the financial water and wastewater regulator in the United Kingdom. EWS also reviewed the National Water & Wastewater Benchmarking Initiative.

522. Despite these efforts, it has proven challenging to find broad based industry benchmarks for the majority of the individual performance measures. While some utilities tend to use some of the individual measures similar to EWS, these measures are not directly comparable to EWS measures due to differences in many factors such as treatment plant and distribution system configuration, operating conditions, regulatory requirements, environmental factors, raw water quality, wastewater conditions and weather.

523. For these reasons, EWS' proposed performance standards are generally established by evaluating its own performance trends over a period of time, typically a 10-year historical rolling average if available, or another reasonable basis as applicable. As EWS' performance on most measures have improved over time, this historical rolling average approach generally leads to standards that become increasingly difficult to achieve over time without imposing unreasonable costs onto ratepayers. In some cases, standards are set to maintain current service levels because increasingly stringent performance standards may not be warranted from a customer service or cost/benefit perspective. Where possible, standards have been proposed to align with industry benchmarks or to EPCOR corporate standards such as health and safety.

22.3 Assessment of Performance

524. Each utility's performance is evaluated using a point-based assessment of the four performance indices shown in Table 22.2-1, with 100 base points available. Total points achieved are calculated by aggregating the points achieved for each performance standard. Bonus points

are also awarded by index when actual performance exceeds the standards, with a maximum of 10 bonus points available across all four indices.

525. On an annual basis, actual performance is assessed against the established standard for each performance measure. If EWS does not meet the established performance standards, financial penalties are applied to a maximum of $1.0 million for Wastewater Collection and $0.4 million for Wastewater Treatment. If a penalty is assessed, it is returned to ratepayers in the form of a rate reduction.

526. In accordance with provisions under the Water and Wastewater PBR Bylaws, audits are conducted annually to provide assurance that all measurement and reporting of the performance measurement results are verified. Following the completion of this audit, EWS submits the audited performance results to the City Manager for review and approval as part of the Annual Rate Filing process. EWS also reports the actual performance of its performance measures to Utility Committee through the annual PBR Progress Reports.

22.3.1 EWS' Performance Experience

527. Tables 22.3.1-1 and 22.3.1-2 outline the historical performance results of EWS' Wastewater Collection and Treatment operations since the introduction of PBR performance measures for each operation. EWS' ability to consistently achieve the performance standards reflects its strong commitment to maintaining service quality during each PBR term.

Table 22.3.1-1
Wastewater Collection Actual Performance by PBR Term

	A	B	C	D
	2020-2021		PBR #1 (2022-2024)	
	Year	Points	Year	Points
1	2017	n/a	2022	108.6
2	2018	n/a	2023	108.8
3	2019	n/a	2024	n/a
4	2020	104.4		
5	2021	101.9		
6	PBR Average	103.2	PBR Average	108.7
7	4 Year Average			105.9

Table 22.3.1-2
Wastewater Treatment Actual Performance by PBR Term

	A	B	C	D	E	F
	PBR #1 (2012-2016)		PBR #2 (2017-2021)		PBR #3 (2022-2024)	
	Year	Points	Year	Points	Year	Points
1	2012	109.3	2017	110.0	2022	105.9
2	2013	107.3	2018	110.0	2023	107.1
3	2014	110.0	2019	110.0	2024	n/a
4	2015	110.0	2020	110.0		
5	2016	110.0	2021	110.0		
6	PBR Average	109.3	PBR Average	110.0	PBR Average	106.5
7	10 Year Average					109.3

22.4 Proposed Wastewater Collection Performance Standards

528. The 2025-2027 PBR is the second PBR term for Wastewater Collection operations. For Wastewater Collection's initial PBR (2022-2024), many of the historical key performance indicators from the City of Edmonton were utilized to develop the performance-based standards. Table 22.4-1 details the proposed 2025-2027 WWC performance measures, the accompanying expected standards that are to be achieved and applicable points. The base points "available" are earned by achieving performance that meets the standard.

529. Based on its review of the performance measures, EWS is proposing to replace some of the historical wastewater collection measures retained from when operations were under the City with new measures that provide an increased focus on customer service. EWS considers these new measures to provide a better reflection in areas of service quality that are important to its customers. The new wastewater collection measures include Stormwater Rebate Projects, Stormwater Facility Response Time, Deficient Appurtenances Response Time and Sewer Odour Response Time. Rationale for removing some of the previous performance measures is provided in Section 22.4.6 below.

Table 22.4-1
Wastewater Collection Performance Measures

Index / Measure Name		A	B	C	D	E	F	G
			2020-2021	2022-2024	2025-2027	Points		
		Measure	Standard	Standard	Standard	Base	Bonus	Total
1	Environmental Index					35.0	3.5	38.5
2	Stormwater Flow Monitoring	Storm Drainage Area Monitored	63.0%	63.0%	70.0%	11.67%		

Index / Measure Name		A	B	C	D	E	F	G
			2020-2021	2022-2024	2025-2027	Points		
		Measure	Standard	Standard	Standard	Base	Bonus	Total
3	Reportable Environmental Incidents	# of reportable incidents	50	50	30	11.67%		
4	Stormwater Rebate Projects	# of rebate projects	n/a	n/a	150	11.67%		
5	Customer Service Index					20.0	2.0	22.0
6	Stormwater Facility Response Time	Trouble calls investigated in 4 business days	n/a	n/a	96.0%	5.0		
7	Deficient Appurtenances Response Time	Trouble calls investigated in 24 hours	n/a	n/a	95.0%	5.0		
8	Sewer Odour Response Time	Trouble calls investigated in 8 hours	n/a	n/a	95.0%	5.0		
9	Service Connections – Average Time	% meeting 6 week target	85.0%	85.0%	85.0%	5.0		
10	System Reliability and Optimization Index					30.0	3.0	33.0
11	Service Maintenance Calls	Calls resolved within 24 hours	80.0%	80.0%	90.0%	7.5		
12	Emergency Dig Ups – Service Restored	% restored within 48 hours	98.0%	98.0%	98.0%	7.5		
13	Sewer Odour Hotspots	City wide odour hotspot coverage area	16.7%	15.0/14.5/14.0%	10.0%	7.5		
14	Full Property Flood Inspections	# of inspections completed	750	750	1,000	7.5		
15	Safety Index					15.0	1.5	16.5
16	Near Miss and Hazard Identification Reporting	# of reports	220	220	2,600	5.0		
17	Worksite Inspections and Observations	# completed	919	919	6,000	5.0		
18	All Injury Frequency Rate	events/exposure hours	1.50	1.00	1.15	5.0		
19	Total Points					100.0	10.0	110.0

22.4.1 Environmental Index

530. EWS recognizes that the environment is valued by all stakeholders and requires thoughtful stewardship and accountability by all users to sustain its quality and preserve it for

future generations. Similarly, EPCOR conducts its operations in a responsible and open manner that is environmentally, socially, and economically sustainable.

531. The Environmental Index is comprised of the following three equally weighted factors:

- Stormwater Flow Monitoring;
- Reportable Environmental Incidents; and
- Stormwater Rebate Projects.

22.4.2 Stormwater Flow Monitoring

532. Stormwater flow monitoring measures the percentage of the total number of developed catchment areas where discharges are monitored. Flow measurement at storm sewer outfalls is part of EWS' requirement for load measurement to satisfy Alberta Environment and Protected Areas' approval to operate requirements. It also aids in loading estimations for setting environmental targets in storm sewer systems as well as evaluating flow and volume controls in developed areas and facilitates the development of the Total Loadings Plan and the SIRP. In areas of the City where stormwater flow is not monitored, estimation processes are used. Working towards a higher level of monitoring decreases reliance on estimation and enhances the accuracy of flow model calibration.

533. Stormwater Flow Monitoring is based on the area (hectares) that are monitored as a percentage of the total qualifying area, which is the sum of hydrologically-effective drainage areas serviced by outfalls as per Drainage design standards. Historic performance is presented in Table 22.4.2-1.

Table 22.4.2-1
Stormwater Flow Monitoring

	A	B	C	D
	2017-2021		2022-2024 PBR	
	Year	Rate	Year	Rate
1	2017	n/a	2022	70.0%
2	2018	n/a	2023	70.0%
3	2019	63.0%	2024	n/a
4	2020	65.3%		
5	2021	65.3%		
6	Average	64.6%	Average	70.0%
7	Standard	63.0%	Standard	63.0%
8	5 Year Average			66.7%

534. For the 2025-2027 period, EWS is proposing to set the performance standard for Stormwater Flow Monitoring to 70.0%, which is above the 5-year average of 66.7%. The target is not set at 100% because some catchments have very small contribution areas and some outfalls are in locations which are very costly to monitor. For these situations, EWS uses other more cost effective approaches to understand the flows from these outfalls.

22.4.2.1 Reportable Environmental Incidents

535. EWS is committed to improvement in environmental performance and reducing the number of incidents that are reportable to the provincial or federal regulator. This measure tracks the number of environmental incidents that are both internal and reportable. Internal incidents are environmental incidents involving the operation, construction and design of the sanitary and storm collection system. Since Drainage Services transferred to EPCOR, EWS has been focused on the alignment of reporting, tracking of incidents with other utilities and operational groups within EPCOR, and promoting the reporting of internal incidents within the framework of the ISO 14001:2015 registered Environmental Management Systems (EMS). Reportable incidents include:

- Contraventions of a facility regulatory approval / permit / Code of Practice.
- A contravention of any Federal or Provincial Act, Regulation or Municipal Bylaw or statute.
- A spill or release (including untreated or partially treated wastewater) of material to the environment that is not fully contained.
- A release of chlorinated water (potable or super-chlorinated) directly into a watercourse.

- Releases from the collection system that cause natural area site erosion, sediment transport or habitat destruction.

536. The Reportable Environmental Incidents measure is based on incidents that are reportable based on external (Government) guidelines.

537. In establishing a performance standard for reportable environmental incidents, it has been determined that the number of incidents at any particular utility is highly dependent upon that utility's operational parameters and procedures, maintenance criteria and a wide variety of other factors that are not comparable to EWS operations. Therefore, an external benchmark for this measure has not been determined. It is noted, however, that "Non-conformance, Corrective and Preventative Action" is an element of an ISO 14001:2015 environmental management system and the inclusion of this measure remains part of a comprehensive environmental program.

538. Establishing a standard for the Reportable Environmental Incidents is important to include as the measure assesses environmental responsibility and is generally comparable to the performance measure used with Water Services and Wastewater Treatment. EWS' Wastewater Collection operations has limited historical data to categorize incidents as preventable and non-preventable in comparison to Water Services and Wastewater Treatment. However, EWS has included this measure for Wastewater Collection to ensure that incidents are visible to all stakeholders. Historic performance is presented in Table 22.4.2.1-1.

Table 22.4.2.1-1
Reportable Environmental Incidents

	A	B	C	D
	2017-2021		2022-2024 PBR	
	Year	Rate	Year	Rate
1	2017	n/a	2022	14
2	2018	n/a	2023	15
3	2019	n/a	2024	n/a
4	2020	34		
5	2021	16		
6	Average	25	Average	15
7	Standard	50	Standard	50
8	4 Year Average			20

539. For the 2025-2027 PBR term, EWS is proposing to reduce the performance standard for Reportable Environmental Incident from 50 incidents per year to 30 incidents per year which is above the 4-year average but allows for variability in the collection system's operational or maintenance activities and reflects the limited historical data available.

22.4.2.2 Stormwater Rebate Projects

540. The EWS Stormwater Integrated Resource Planning (SIRP) program is classified under five central themes: Slow, Move, Secure, Predict and Respond. The "Slow" theme is the largest investment category. The focus of this theme is to slow the entry of stormwater into the wastewater collection network to manage runoff at the source and reduce demands on the collection system during storm events.

541. Low Impact Development (LID) is a type of infrastructure that leverages natural processes to hold water where it lands and attenuate peak flows. Opportunities to incorporate LID are explored at varying levels on all property types to ensure flood management is occurring at multiple scales and is practiced by both the utility (public property) and customer (private property).

542. To further encourage on-site stormwater management on all property types, a general stormwater rebate program is proposed and introduced for the 2025-2027 period to encourage customers to participate in the program and pursue projects that reduce flood risk to their property and thereby positively impact the sewer system. Eligible customer types include single family residential, multi-residential and industrial, commercial and institutional customers.

543. The Stormwater Rebate Projects measure will track the participation of customers in the rebate program. Eligible projects will include LID installation (rain gardens, rain barrel/storage tanks, permeable pavement, soak away pits, absorbent landscaping, and soil cells) and the disconnection of downspouts in high priority locations confirmed by EWS. A qualifying project will be considered to be one of the following:

- LID installation
- Downspout disconnection

544. Since this is a new program with no historical information, EWS is proposing a performance standard of 150 stormwater rebate projects per year for the next three years, as shown in Table 22.4.2.2-1, which is considered achievable and in alignment with the initial levels seen in other communities that have implemented a similar program.

Table 22.4.2.2-1
Stormwater Rebate Projects
(2025-2027)

		A 2025F	B 2026F	C 2027F
1	Annual Target	150	150	150
2	Cumulative	150	300	450

22.4.3 Customer Service Index

545. The Customer Service Index is a composite measure of EWS' level of service and the speed of response to customer issues. These measures are important because they represent EWS' direct contact with customers and communicate how well citizens are being served. This index is comprised of four equally weighed factors:

- Stormwater Facility Response Time
- Deficient Appurtenance Response Time
- Sewer Odour Response Time
- Service Connections

22.4.3.1 Stormwater Facility Response Time

546. The Stormwater Facility Response Time (SFRT) measure tracks the time taken by EWS crew to attend a stormwater management facility (SWMF) once a third-party has reported a concern with the SWMF through EWS' dispatch office. Improvements to response times improves customer service through timely investigation of complaints and acceleration of mitigations to address customer concerns. Concerns with a stormwater management facility that may belong to other City departments, other Utilities, or to third parties such as homeowners associations are excluded from this measure.

547. SFRT can be adjusted for emergency situations. Specifically, during a major storm event, notifications received from customers related to flooding or displaced manhole/catch basin covers take precedence over SWMF maintenance requests given the potential danger to the public. Exceptions would include calls that are related to displaced elements within the SWMF parcel. As a result, the response to SWMF maintenance calls during a storm event with a rating of E3 or higher within one or more basins will not contribute to the measure. An E3 rated event is defined as one during which:

- there is ponding near catch basins;

- eavestroughs are starting to overflow; and
- sewers are almost full.

548. The SFRT measure is the percentage of concerns investigated by EWS within 4 business days. Calls received after 4:00pm or on non-business days will be considered to start at 8:00am on the following business day. Tracking of this data at the appropriate level started in 2023. During this period, it was found that EWS was responsive to concerns within 4 business days 99% of the time, representing 217 out of a total of 219 calls.

549. Since there is limited historical data, for the 2025-2027 PBR term, EWS is proposing to set the performance standard for SFRT at 96.0% within 4 business days which it considers to be achievable.

22.4.3.2 Deficient Appurtenance Response Time

550. The Deficient Appurtenances Response Time (DART) measure tracks the time it takes for an EWS crew to attend a site when a third-party has reported a concern with an appurtenance such as a catch basin grate or maintenance hole cover. Improvements to response time improves customer service and safety through more timely investigation of complaints and acceleration of mitigations to address the concern. Due to the variability in effort necessary to resolve a concern and the need to prioritize work based on real-time system status, this performance measure does not include the time required to complete the required maintenance activities.

551. The DART measure can be adjusted for emergency situations. For example, during a major storm event, EWS will focus work to efficiently reduce public risk as quickly as possible but may have to defer response in some areas. As a result, the response to deficient appurtenance maintenance calls during a storm event with a rating of E3 or higher within one or more basins will not contribute to the measure. An E3 rated event is defined as one during which:

- there is ponding near catch basins;
- eaves troughs are starting to overflow; and
- sewers are almost full.

552. The DART measure is the percentage of concerns investigated by EWS within 24 hours. Tracking of this data at the appropriate level started in 2023. During this period, it was found that EWS was responsive to concerns within 24 hours 95% of the time, representing 537 out of a total of 566 calls.

553. For the 2025-2027 PBR term, EWS is proposing to set the performance standard for DART at 95.0% within 24 hours, which is based on the available 2023 data.

22.4.3.3 Sewer Odour Response Time

554. The Sewer Odour Response Time (SORT) measure tracks the time it takes for an EWS crew to attend a site when a third-party has reported a concern with odour from the collection system through the EWS dispatch office. Improvements to response time improves customer service through timely investigation of complaints and acceleration of mitigations to address the concerns. Odour complaints related to the Gold Bar Wastewater Treatment Plant are excluded from this measure.

555. The SORT measure can be adjusted for emergency situations. Specifically, during a major storm event, notifications received from customers related to flooding or displaced manhole/catch basin covers take precedence over odour investigation requests given the potential danger to the public. As a result, the response to sewer odour investigation calls during a storm event with an overall rating of E3 or higher will not contribute to the measure. An E3 rated event is defined as one during which:

- there is ponding near catch basins;
- eavestroughs are starting to overflow; and
- sewers are almost full.

556. The SORT measure is the percentage of concerns investigated by EWS within 8 hours. Tracking of this data at the appropriate level started in 2023. During this period, it was found that EWS was responsive to concerns within 8 hours 73% of the time, representing 233 out of a total of 319 calls. Following this review, process changes were made to maintain and improve performance.

557. For the 2025-2027 PBR term, EWS is proposing to set a higher performance standard for SORT at 95.0% within 8 hours, which reflects the process improvements made in 2023.

22.4.3.4 Service Connections

558. The Service Connections measure tracks the time it takes to complete the installation of a new sanitary, storm and/or water service connection (<50mm). Improvements in Service Connection response increases customer service through improvement to service connection time, better work delivery and improved customer processes. This performance measure does

not include water service connections greater than 100mm as these require a separate trench and have not historically been included in this measure.

559. The service connections measure is the percentage of service connections completed within 6 weeks. This measure has been used for a number of years by EWS. Historical results are detailed in Table 23.6.3.3-1.

Table 23.6.3.3-1
Service Connection Completions

	A	B	C	D	E	F
	Prior Years		2017-2021		2022-2024 PBR	
	Year	Rate	Year	Rate	Year	Rate
1			2017	27.5%	2022	80.4%
2			2018	87.5%	2023	89.1%
3	2014	77.7%	2019	72.4%	2024	n/a
4	2015	86.1%	2020	71.7%		
5	2016	68.2%	2021	69.1%		
6	Average	77.3%	Average	65.7%	Average	84.8%
7	Standard	n/a	Standard	85.0%	Standard	85.0%
8	10 Year Average					73.0%

560. For the 2025-2027 PBR term, EWS is proposing to maintain the standard for Service Connections at 85.0% for connections completed within 6 weeks. This standard is above the 10-year historic average but is aligned with the high levels of performance achieved in recent years which is seen as more representative of planned future performance.

22.4.4 System Reliability and Optimization Index

561. The System Reliability and Optimization Index assesses the overall management of the Wastewater Collection system. The individual measures are also directly aligned with the degree of confidence that customers place in the system. This index is comprised of four equally weighed measures:

- Service Maintenance Calls
- Emergency Dig Ups – Service Restored
- Sewer Odour Hotspots
- Full Property Flood Inspections

22.4.4.1 Service Maintenance Calls

562. Service Maintenance Calls is a measure of the percentage of sewer trouble calls resolved within 24 hours. Sewer trouble occurs when there is an interruption of service as a result of pipe deficiency or blockage within the main service line. Sewer trouble calls are considered resolved when a service maintenance crew has restored service to the customer by means of mechanical obstruction removal or high pressure flushing, or a service maintenance crew has completed their investigation and determined that:

- an emergency open cut repair is required to restore service to the customer;
- the sewer trouble is a result of a private plumbing issue; or
- there is no access to enable resolve - a no access situation is when the main clean out is not available for crews to perform work.

563. The Service Maintenance Calls measure can be adjusted for emergency situations. Specifically, during a major storm event, notifications received from customers related to flooding or displaced manhole/catch basin covers take precedence over sewer trouble call requests given the potential danger to the public. As a result, the response to sewer trouble calls during a storm event with an overall rating of E3 or higher will not contribute to the measure. An E3 rated event is defined as one during which:

- there is ponding near catch basins;
- eavestroughs are starting to overflow; and
- sewers are almost full.

564. Historical results are presented in Table 22.4.4.1-1.

Table 22.4.4.1-1
Service Maintenance Calls

	A	B	C	D
	2017-2021		2022-2024 PBR	
	Year	Rate	Year	Rate
1	2017	n/a	2022	96.8%
2	2018	81.7%	2023	94.4%
3	2019	n/a	2024	n/a
4	2020	97.2%		
5	2021	95.7%		
6	Average	91.5%	Average	95.6%
7	Standard	80.0%	Standard	80.0%
8	4 Year Average			96.0%

565. For the 2025-2027 PBR term, EWS is proposing to increase the standard from 80.0% to 90.0%. While this is below the 4-year average of 96.0%, it allows for unpredictable events.

22.4.4.2 Emergency Dig-Ups – Service Restored

566. The Emergency Dig-Up measure assesses the service restoration performance when a customer's sanitary and/or storm service line ceases to function. When a call is received indicating a service connection no longer functions, a Wastewater Collection operations crew responds and determines whether the service can be repaired from the surface or if it must be excavated to make the necessary repairs to restore the customer's service. If it is a surface repair, the operations crew completes the work. If the issue requires excavation to complete the repair, the issue is transferred to an open cut construction crew to complete the repair as an emergency dig up. This measure provides the percentage of emergency dig ups restored within 48 hours from the time the call is deemed an emergency dig up.

567. This measure has been used for a number of years by EWS to monitor performance on customer service and work delivery processes. When a customer is deemed to require an emergency dig up, they are no longer able to use their sewer and/or storm service without risking damage to their property due to a backup, necessitating a timely restoration. The Emergency Dig-up measure is calculated as the percentage of instances restored within 48 hours.

568. Historical results are presented in Table 22.4.4.2-1.

Table 22.4.4.2-1
Emergency Dig-ups – Service Restored

	A	B	C	D	E	F
	Prior Years		2017-2021		2022-2024 PBR	
	Year	Rate	Year	Rate	Year	Rate
1			2017	98.4%	2022	98.0%
2			2018	100.0%	2023	100.0%
3	2014	100.0%	2019	88.3%	2024	n/a
4	2015	98.7%	2020	95.8%		
5	2016	98.1%	2021	88.9%		
6	Average	98.9%	Average	94.3%	Average	99.0%
7	Standard	n/a	Standard	98.0%	Standard	98.0%
8	10 Year Average					96.6%

569. For the 2025-2027 PBR term, EWS is proposing to maintain the standard at 98.0%. This level of performance takes into account the 10-year average and includes a review of factors that have impacted past results. Specifically, there is considerable variability in the timing and severity of emergency dig-ups which can impact restoration times. On average, there are approximately 50 emergency dig-ups per year and achieving a 98% restoration target would result in 49 out of the 50 emergency dig-ups being restored within 48 hours.

22.4.4.3 Sewer Odour Hot Spots

570. Sewer Odour Hot Spots is a measure of the effectiveness of the Corrosion and Odour Reduction (CORe) Strategy. The sewer odour hot spots measure aligns with the CORe strategy by determining the percentage of city-wide coverage area of sewer odour hotspots. The sewer odour hotspot measure is a percentage of the total area of sewer odour hotspots (in square km) relative to the total area of Edmonton. A sewer odour hotspot area is a defined region where the number of odour reports exceeds a defined threshold of 10 reports per square kilometer. The number of odour reports include reports received from customers or EWS field staff.

571. Performance is calculated using 5 year historical data up to and including the current year's performance. For example, to evaluate the year 2025, odour reports from the years 2021 to 2025 (inclusive) are considered. The performance measure will only consider changes to the sewer odour hot spots identified within the baseline period as they are within the scope of the current CORe strategy.

572. The historical results for Sewer Odour Hot Spots are detailed in Table 22.4.4.3-1.

Table 22.4.4.3-1
Rolling Five-Year Average of Sewer Odour Hot Spot Coverage

	A	B	C	D	E	F
	Prior Years		2017-2021		2022-2024 PBR	
	Year	Rate	Year	Rate	Year	Rate
1			2017	17.4%	2022	7.0%
2			2018	16.7%	2023	4.7%
3	2014	22.1%	2019	8.6%	2024	n/a
4	2015	21.7%	2020	13.5%		
5	2016	19.6%	2021	10.1%		
6	Average	21.1%	Average	13.3%	2022 Std	15.0%
7					2023 Std	14.5%
8	Standard	n/a	Standard	16.7%	2024 Std	14.0%
9	10 Year Average					14.1%

573. For the 2025-2027 PBR term, EWS is proposing to set the performance standard for Sewer Odour Hot Spots at 10.0% of city wide area coverage area to correspond with the on-going implementation of the CORe Strategy. This target is lower than the 10-year average performance and reflects recent odour reporting rates and expected future performance.

22.4.4.4 Full Property Flood Inspections

574. The EWS Stormwater Integrated Resource Planning (SIRP) program is classified under five central themes: Slow, Move, Secure, Predict and Respond. The focus of the "Secure" theme, is on immediate risk reduction to individual properties in higher risk areas through programs such as Enhanced Building Flood Proofing. The SIRP risk assessment previously identified approximately 40,000 properties at high and medium-high risk of basement flooding due to geographical proximity to topographical sag locations in the urban environment. The Enhanced Building Flood Proofing Program is aimed at identifying and implementing flood-proofing measures on the targeted properties, including backwater valve installation.

575. EWS assesses the implementation of the Enhanced Building Flood Proofing program by measuring the number of completed full property flood proofing inspections per year. This includes both residential as well as multi-residential properties. This measure is based on full inspections with the completion of the report of recommended improvements. It does not include partial inspections such as backwater valve installation confirmation and exterior-only

checkups. For residential properties, both a full external as well as full internal inspection are carried out. For multi-residential properties, only full external inspections are carried out. Wastewater Collections is continuing to review these programs to determine if they can be aligned with other programs that require a visit to individual properties to further enhance customer service.

576. Historic results are presented in Table 22.4.4.4-1.

Table 22.4.4.4-1
Full Property Flood Proofing Inspections

	A	B	C	D
	2017-2021 PBR		2022-2024 PBR	
	Year	Rate	Year	Rate
1	2017	n/a	2022	1077
2	2018	273	2023	1677
3	2019	558	2024	n/a
4	2020	574		
5	2021	669		
6	Average	519	Average	1377
7	Standard	750	Standard	750
8	6 Year Average			805

577. For the 2025-2027 PBR term, EWS is proposing an increase in Full Property Flood Proofing Inspections standard from 750 to 1,000. This standard is above the 6-year historic average and is more representative of planned future performance.

22.4.5 Safety Index

578. EPCOR is committed to a safe, healthy workplace and demonstrates this through care and concern for people. EPCOR believes that safety, quality, and productivity are mutually dependent and when diligently managed will provide challenging and satisfying work experiences in a safe and healthy environment. To fulfill this commitment, EPCOR has established a Health, Safety and Environment (HSE) Policy that applies to all staff, including EWS.

EWS Safety Initiatives

579. In alignment with EPCOR's HSE policy, EWS believes that all incidents are preventable and that safety is a shared responsibility. To achieve a workplace free of occupational injury and illness, all EWS employees and contractors have an obligation to take responsibility, intervene in unsafe or non-compliant situations, seek to identify and address safety hazards and

environmental aspects before they can cause harm, and learn from the incidents that occur. EWS' overarching goal is to focus on safety awareness and training for all employees and contractors and to achieve a zero-injury workplace.

580. Key initiatives intended to support and achieve this goal include the following:

- continuous monitoring and analysis of safety incidents;
- cause-centred investigations for serious incidents;
- near miss and hazard identification reporting;
- department specific health and safety plans;
- health and safety summits and seminars;
- safety surveys with accompanying action plans;
- safety recognition programs; and
- safety culture programs.

Performance Measures

581. In 2023, EPCOR completed a comprehensive restructuring of its organizational framework, merging and integrating Water, Wastewater Treatment and Wastewater Collection operations into a unified business unit. For the 2025-2027 PBR term, EWS is proposing common safety measures across Wastewater Treatment and Wastewater Collection operations to drive consistency in approach and comparability of results. Safety measures for Water will be aligned at the end of the current 2022-2026 Water PBR term.

582. The proposed Safety Index is comprised of the following three equally weighted measures:

- Near Miss and Hazard Identification Reporting;
- Worksite Inspections and Observations;
- All Injury Frequency (AIF) Rate.

583. The proposed safety measures include both leading and lagging indicators as a combination provides the broadest assessment of safety programs. The All Injury Frequency Rate, which is a lagging indicator, measures incidents in the form of past accident statistics to assess the overall effectiveness of safety programs. The major drawback to lagging indicators is that they are a poor gauge for assessing prevention programs. Leading indicators such as Near Miss and Hazard Identification Reporting and Worksite Inspections and Observations are

measures intended to prevent future incidents. Leading indicators are focused on future safety performance and continuous improvement. These measures are proactive in nature and report what employees are doing on a regular basis to prevent injuries. Industry safety statistics indicate that increasing performance on leading indicators should have an inverse relationship to lagging indicators. That is, higher levels of injury prevention should lead to a corresponding decrease in actual incidents.

Near Miss and Hazard Identification Reporting

584. A Near Miss event is an unplanned event, unsafe condition or unsafe action that did not result in contact, injury, illness, or damage, but had the potential to do so. The contact, injury, fatality or damage was only prevented by a fortunate break in the chain of events surrounding the event. An "Unsafe Condition" is any condition in the workplace that is likely to cause injury or property damage. An "Unsafe Act" is any performance of a task or other activity that is conducted in a manner that may threaten the health and/or safety of workers.

585. A Hazard Identification identifies risks created both within the workplace as well as those originating outside the workplace that are capable of adversely affecting the health and safety of employees, contractors and other interested parties, property or the environment. The goal is to first identify hazards and then identify control measures to eliminate the hazard. Controls can include engineering or administrative controls, personal protective equipment or any combination of these.

586. The rationale for including Near Miss and Hazard Identification Reporting is that most safety activities are reactive rather than proactive. Unfortunately, many organizations wait for losses to occur before taking steps to correct the underlying problem and prevent a recurrence. Often, events precede actual loss producing incidents but are largely ignored because no contact, injury, damage or loss occurred. By formally identifying near misses or identifying hazards, organizations have been able to develop mitigations and employee awareness programs that have reduced the overall safety incident rates. These are also an indicator of culture. As employees learn to look for unsafe acts/conditions and act on them, they become more aware of unsafe conditions and eventually safety becomes a way of life, on and off the job.

587. EWS has developed a formal Near Miss and Hazard Identification reporting program including an automated reporting process available to all staff. This measure was first introduced in the 2017-2021 PBR term and since there was no historic track record upon which to base the standard, the annual target for each of Water Treatment, Wastewater Treatment and

Wastewater Collection was based on an average of each employee reporting 1.25 near misses annually. The actual performance since that time, as outlined in Table 22.4.5-1, is above that level.

Table 22.4.5-1
Near Miss and Hazard Identification Reporting
2018-2023

Year	EWS
2018	2,159
2019	2,629
2020	2,531
2021	3,305
2022	2,858
2023	2,957
6 year average	2,740

588. For the 2025-2027 PBR term, EWS is proposing to establish the Near Miss and Hazard Identification Reporting standard for all three of its operations at 2,600. While historic results are above this level, EWS has found that the quality of reporting is more important than the number. In this respect, quality refers to the identification of issues and concerns that are actionable and lead to tangible change. Higher level targets can lead to items that are reported to meet a target rather than achieve the expected outcomes. EWS is focused on ensuring that all Near Miss events and Hazard Identifications are aligned with the intended objectives of the measure.

Worksite Inspections and Observations

589. Worksite Inspections and Observations are intended to prevent occupational injury, illness, environmental incident or property damage. Effective worksite inspections assist in maintaining safe working conditions and the removal of any potential hazards that arise in the workplace. EWS' worksite inspection program ensures that comprehensive inspections are conducted throughout the work environment including buildings, structures, grounds, excavations, tools, equipment, machinery, work methods and practices both in the field and office environments. Inspections focus on physically observed actions on worksites. Worksite Observations focus on behaviour-based observations, i.e. how the work is done.

590. While Worksite Inspections and Observations were historically conducted in operating areas by specific individuals or as a group, all employees including office staff are now expected to conduct inspections and / or observations. Participants may include: area worker; area supervisor, specialists (e.g. HSE Advisors, fire system technician, engineer, hygienist, work

methods specialist, etc.), and whenever feasible, include a worker health and safety representative.

591. The following can be taken into consideration when planning to perform a workplace inspection:

- recent incidents;
- recent procedural changes;
- insurance, fire or other agency reports;
- recent workplace inspection reports (trends);
- items of concern brought up at an HSE meeting; and
- recent changes (new equipment or personal protective equipment (PPE)).

592. Information from all work site inspections and observations are entered directly into the EPCOR Event Reporting System (ERS) where any corrective action is then documented, assigned and followed through to completion by the respective area.

593. The historic results for Worksite Inspections and Observations are detailed in Table 22.4.5-2.

Table 22.4.5-2
EWS Worksite Inspections and Observations
2018-2023

Year	EWS
2018	4,611
2019	5,562
2020	5,648
2021	7,421
2022	7,253
2023	9,076
6 year average	6,595

594. For the 2025-2027 PBR term, EWS is proposing to establish the Worksite Inspection and Observations standard for all three of its operations at 6,000. Like Near Miss and Hazard Identification Reporting, EWS has found that the quality of the inspections and observations is more important than the number. In this respect, quality refers to the identification of issues and concerns that are actionable and lead to tangible change. Higher level targets can lead to items that are reported to meet a target rather than achieve the expected outcomes. EWS is focused

on ensuring that all observations and inspections reported are aligned with the intended objectives of the measure.

All Injury Frequency Rate

595. All Injury Frequency Rate has a standardized reporting protocol that is defined within the Canadian Electrical Association's CEA 1-2 Standard for Recording and Measuring Occupational Injury/Illness Experience and Transportation Incidents. Use of this protocol, while ensuring consistent reporting, also enables EWS to compare itself against the other business units within EPCOR, and peer utilities. It is noted that the results are not always specifically comparable given the differences between water/wastewater business and electricity focused businesses. The CEA has noted that their standards are consistent with recognized external standards including:

- U.S. Occupational Safety and Health Administration (OSHA) 29 CFR Part 1904, Occupational Injury and Illness Recording and Reporting Requirements: Final Rule; and
- CSA Z795, Coding of Work Injury or Disease Information.

596. In order to clearly define a lost time or medical aid event, EWS has adopted the guidelines developed by the CEA criteria where incidents are separated into four categories:

- Near Miss – an undesired event that could have resulted in a work-related injury, damage, loss of production, etc. The accident did not occur.
- First Aid – simple care of an injury that was taken care of onsite without the help of a medical professional. In cases where the employee went to see a physician, treatment was something that did not require professional training.
- Medical Aid – medical treatment of an injury that could not be performed by a first-aid trained employee. Examples include stitches, casting of broken bones, ordering prescriptions. The employee is able to return to work for their next shift.
- Lost Time – employee cannot return to work for their next shift due to an injury.

597. All Injury Frequency Rate is also determined based on exposure hours which are defined as the total number of hours that employees are exposed to the work site.

598. The All Injury Frequency Rate is a measure of the frequency of fatalities, disabling injuries and medical aid injuries per unit of exposure. The measure is based on the total number of fatalities (EWS has never had a workplace fatality), medical treatment injuries and lost time

injuries per 200,000 hours of exposure. The historic results for the All Injury Frequency Rate are detailed in Table 22.4.5-3.

Table 22.4.5-3
EWS All Injury Frequency Rate Results
2019-2023

Year	EWS
2019	1.78
2020	1.36
2021	1.87
2022	0.91
2023	1.43
5 year average	1.47

599. The All Injury Frequency Rate varies from year to year depending on the number and nature or occurrences or incidents. EPCOR aims to reduce the rate by promoting safe behaviours in order to minimize the risk of occurrence of severe incidents. For the 2025-2027 PBR term, EWS is proposing to establish the standard for all three of its operations at 1.15. This level represents EPCOR's corporate commitment to health and safety for all employees as a top performing employer.

22.4.6 Performance Measures Removed for the 2025-2027 PBR Term

600. Based on EWS' review of existing performance measures and its experience operating, maintaining and managing the wastewater collection system, the following four performance measures are removed and replaced with measures that are more directly reflective of EWS' customer service performance.

601. Green Hectares – This measure was introduced to increase LID to provide a focus to overcome the initial anticipated barriers to this type of infrastructure (a key aspect of the SIRP strategy). Now that EWS has momentum for installing this infrastructure type (by EPCOR, the City of Edmonton and private sector), calculating green hectares as a PBR measure has less value for the complexity required to calculate and audit as private/City of Edmonton installations are not consistently reported. For this reason, EWS is introducing a new Stormwater Rebate Projects program to shift focus towards building momentum to encourage the LID investments on private properties. The Stormwater Rebate Projects measure will replace the Green Hectares measure to continue the momentum of stormwater management on all private property types including residential, multi-residential, industrial, commercial and institutional customers.

602. Sewer Renewal – This measure assesses the relining and renewal programs historically linked to programs such as the City of Edmonton neighbourhood renewal programs. EWS has moved to the industry leading targeted risk-based approach for infrastructure management to better align capital investment with system risk. While EWS continues to invest in sewer relining and renewal, a more targeted approach ensures the overall system risk is managed by evaluating sewer relining/renewal in neighbourhoods against higher risk assets like trunk infrastructure. As the overall system risk has changed due to historical investment in the local sewer system, this measure is no longer in alignment with current risk-based priorities therefore it has been removed.

603. Infrastructure Condition Rating – This measure assesses the overall condition of sewer assets. Due to the size of the Edmonton wastewater collection network included in the existing asset inventory and the current rate of new asset growth, the overall system condition does not change appreciably over time. Given the limited benefit of calculating and auditing this measure on an annual frequency, it has been removed.

604. Blocked Sewers – This measure measures the number of blocked sewers. Operational experience indicates blockages are geospatially unpredictable and caused by factors outside of the utility's control. High-risk and high-repeat areas are addressed through the implementation of maintenance/flushing and working with customers to implement compliance programs to reduce overstrength constituents that contribute to blockages like Oil/Grease and Total Suspended Solids. Reductions to sewer blockages from maintenance programs tend to be visible years into the future (span outside a PBR timeframe). The Service Maintenance Calls measure which focuses on EWS's customer response is a better measure of direct impacts to the customer.

22.5 Proposed Wastewater Treatment Performance Standards

605. Table 22.5-1 details the proposed 2025-2027 Wastewater Treatment System Performance Measures, the accompanying expected standards that are to be achieved and applicable points. The base points available are earned by achieving performance that meets the standard.

606. Based on EWS' review of existing performance measures and its experience operating, maintaining and managing the wastewater treatment system, EWS has determined that the Biosolids Inventory Reduction measure should be replaced with the Biosolids Management measure. The need for this replacement is explained in Section 22.5.5.

Table 22.5-1
Wastewater Service Quality Measures

		A	B	C	D	E	F	G
			2017-2021	2022-2024	2025-2027	Points		
Index / Measure Name		Measure	Standard	Standard	Standard	Base	Bonus	Total
1	Wastewater Quality and Environmental Index					45.0	4.5	49.5
2	Wastewater Effluent Limit Performance	% of approval limits	28.0%	26.0%	26.0%	22.5		
3	Environmental Incidents	# of Incidents	10	5	5	22.5		
4	Customer Service Index					15.0	1.5	16.5
5	H_2S – 1 Hour Exceedances	Average of exceedances	6.0	4.0	4.0	5.0		
6	H_2S – 24 Hour Exceedances	Average of exceedances	2.0	1.0	1.0	5.0		
7	Scrubber Uptime	% uptime	90.0%	96.0%	96.0%	5.0		
8	System Reliability and Optimization Index					25.0	2.5	27.5
9	Enhanced Primary Treatment	% in use	80.0%	94.0%	97.0%	8.33		
10	Biosolids Management	dry tons utilized	n/a	n/a	25,000	8.33		
11	Energy Efficiency	kWh/ML of effluent	534	508	508	8.33		
12	Safety Index					15.0	1.5	16.5
13	Near Miss and Hazard Identification Reporting	# of reports	220	220	2,600	5.0		
14	Worksite Inspections and Observations	# completed	919	919	6,000	5.0		
15	All Injury Frequency Rate	events/exposure hours	1.50	1.00	1.15	5.0		
16	Total Points					100.0	10.0	110.0

22.5.1 Wastewater Quality and Environmental Index

607. The Wastewater Quality and Environmental Index is intended to assess EWS' impact on the environment through the quality of the wastewater effluent returned to the North Saskatchewan River and the effectiveness of environmental management programs. This index is comprised of two equally weighed measures:

- Wastewater Effluent Limit Performance, and

- Environmental Incidents.

Wastewater Effluent Limit Performance

608. In the 2012-2016 PBR, EWS first introduced Wastewater Effluent Limit Performance (WELP) as its wastewater quality measure and proposes to continue its use for the 2025-2027 term. Wastewater Effluent Limit Performance is intended to demonstrate the overall effectiveness of the wastewater treatment processes. The measure calculates a value that represents the percentage of the approval discharge limit for each of the five parameters measured in the final effluent. Each parameter is given equal weighting in the calculation of the index. The WELP has been established as an internal method to measure and track the quality of final effluent being returned to the North Saskatchewan River. There are five different discharge parameters monitored in the final effluent from Gold Bar as shown in Table 22.5.1-1 and each is included in the WELP.

Table 22.5.1-1
Gold Bar WWTP Approval to Operate Discharge Parameters

	Parameter	A Unit	B Average Monthly Discharge Limit
1	Carbonaceous 5-day Biochemical Oxygen Demand ($CBOD_5$)	mg/L	20
2	Total Suspended Solids (TSS)	mg/L	20
3	Total Phosphorus	mg/L	1.0
4a	Ammonia – Summer (June 1 to November 30)	mg/L	5.0
4b	Ammonia – Winter (December 1 to May 31)	mg/L	10
5	E. coli (measured as the geometric mean)	Cfu/100 mL	126

609. The target value for this measure is based on plant performance relative to Alberta Environment discharge Approval-to-Operate limits, as EWS establishes more stringent internal target for normal operations. WELP targets reflect the percentage of the Approval to Operate limits that will be achieved by the Gold Bar WWTP final effluent concentrations. The annual WELP is established by the following method for each year:

- For each parameter, the monthly mean concentration is calculated[9].
- The target concentration values are then calculated as a percentage of the Approval to Operate discharge limit of each parameter.

[9] Each monthly parameter limit is calculated as an arithmetic mean of each day's final effluent sample analysis for the parameter, except for *E. coli*. *E.coli* monthly discharge limit is based on the geometric mean. This is intended to reflect that microorganism concentrations in wastewater follow a log-normal distribution.

- The overall annual WELP target for the PBR period is calculated by taking the arithmetic mean of the percentage of discharge limit for all parameters.

610. The calculation method recognizes the inter-relationship among parameters. Often, certain parameters are affected in a similar way (e.g. increase in Total Suspended Solids produces increases in Total Phosphorus and E. coli values) while other parameters interact in opposing ways (e.g. reductions in Ammonia could result in increased Total Suspended Solids). Thus, the index allows for some parameters to be over target as long as the parameters over target are compensated by other parameters being sufficiently below target. This requires plant operators to drive to the best possible treatment by balancing the overall quality of the effluent.

611. Testing of the discharge parameters is conducted in-house by EWS. EWS operates a wastewater quality laboratory that is approved by Alberta Environment and Protected Areas and is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation (CALA). The water quality tests included in this index are done on daily composite final effluent samples discharged by Gold Bar WWTP to the North Saskatchewan River, with the exception of E. coli which is a daily grab sample.

612. This measure is intended to describe the performance of the biological process during dry weather operation. Details of calculation for the final effluent water quality data, during such days, are included in the Gold Bar WWTP Operations Plan that is provided to AEPA annually as part of the Approval to Operate.

613. The historic WELP results are detailed in Table 22.5.1-2. The results show excellent performance in meeting regulatory limits and the stricter EWS internal limits.

Table 22.5.1-2
Wastewater Effluent Limit Performance (WELP)

	A	B	C	D	E	F	G	H	I	J
	Prior to PBR				2012-2016 PBR		2017-2021 PBR		2022-2024 PBR	
	Year	%	Year	%	Year	%	Year	%	Year	%
1	2002	n/a	2007	31.0%	2012	22.9%	2017	22.0%	2022	16.7%
2	2003	n/a	2008	25.0%	2013	20.7%	2018	27.2%	2023	19.1%
3	2004	n/a	2009	25.0%	2014	22.9%	2019	25.3%	2024	n/a
4	2005	29.0%	2010	22.0%	2015	23.0%	2020	19.0%		
5	2006	30.0%	2011	28.0%	2016	17.5%	2021	18.2%		
6	Average	29.5%	Average	26.2%	Average	21.4%	Average	22.3%	Average	17.9%
7	Standard	n/a	Standard	n/a	Standard	46.0%	Standard	28.0%	Standard	26.0%
8	10 Year Average									21.1%

614. The WELP Measure may be adjusted to address situations requiring process shutdowns such as:

- Process shutdowns to accommodate capital works on secondary treatment trains and the UV disinfection system;
- Process upsets due to emergent situations where a process shutdown to correct is required (during the time required to complete the corrective actions); or
- Process shutdown to accommodate requests of regulatory agencies.

615. Such events will be documented and will result in the day of the event to not be included in the calculation of the WELP. In addition, at all times during these activities EPCOR will comply with the approval to operate, as amended from time to time.

616. For the 2025-2027 PBR term, EWS is proposing to maintain the WELP standard at 26.0%. This recognizes that continued improvements in plant operations become more difficult to achieve due to factors outside of EWS' control. Specifically, increases in wastewater strength, which are directly proportional to population growth can lead to increasing challenges in maintaining historic WELP performance. There is also significant year to year variability, as seen in past performance data, which is influenced by weather. As a result, EWS is proposing a target above the 10 year average.

Environment Incidents

617. EWS is committed to improvements in environmental performance and to reducing the number of incidents that are reportable to the provincial or federal regulator and that are

considered preventable. The Environmental Incident measure tracks those incidents that are deemed to have been both preventable and reportable.

618. Reportable incidents are determined as per the Guidance Document for Reportable Environment and Public Health Incidents for EPCOR Water Canada Facilities – April 6, 2015. This includes:

- contraventions of a facility regulatory approval/permit/code of practice;
- any contravention of any Federal or Provincial Act, Regulation or Municipal Bylaw or statute;
- a spill or release (including untreated or partially treated wastewater) of material to the environment that is not fully contained;
- a release of chlorinated water (potable or super chlorinated) directly into a watercourse; and
- water main breaks that cause natural area site erosion, sediment transport or habitat destruction.

619. Preventable incidents are those incidents that involve a failure to meet performance limits, or failure to take reasonable measures to prevent an incident. Examples are incidents involving:

- administrative contravention (missed or failed tests, failure to report on time or meet an administrative requirement);
- failure to follow procedure;
- inadequate or no procedure;
- equipment failure;
- lack of training/awareness; and
- lack of appropriate change management.

620. Non-preventable incidents are those incidents where the root cause is not within EWS' control. Examples include:

- incidents caused by extreme weather events;
- incidents caused by 3rd parties (members of the public, organizations not contracted by EWS); or
- incidents where root cause is related to 3rd party's infrastructure.

621. A preventable reportable incident is one that is both reportable and preventable according to the above criteria. It is a government reportable incident that could have been prevented if reasonable diligence had been exercised by EWS. If it can be demonstrated that EWS took all reasonable measures to prevent the incident from occurring, the incident will not be considered preventable. Mitigating circumstances and external factors (i.e. unpredictable equipment failure, unusual weather conditions, the actions of external parties that are not controllable by EWS) will be considered in determining if the incident was preventable.

622. Given the nature and complexity of EWS' operations, some level of reportable incidents that are determined to be preventable do occur and will likely continue to occur. EWS is committed to reducing the frequency of these incidents in the long term. The historical results for preventable recordable environmental incidents are detailed in Table 22.5.1-3.

Table 22.5.1-3
Environmental Incidents

	A	B	C	D	E	F
	2012-2016 PBR		2017-2021 PBR		2022-2024 PBR	
	Year	# of Incidents	Year	# of Incidents	Year	# of Incidents
1	2012	7	2017	3	2022	3
2	2013	8	2018	2	2023	1
3	2014	6	2019	3	2024	n/a
4	2015	4	2020	1		
5	2016	4	2021	1		
6	Average	6	Average	2	Average	2
7	Standard	18	Standard	10	Standard	5
8	10 Year Average					3

623. In establishing a standard for environmental incidents, it has been determined that the number of incidents at any particular utility is highly dependent upon that utility's operational parameters and procedures, complexity of the operation, regulatory approval requirements and other factors. This makes it difficult to compare performance of other utilities to EWS operations. Therefore, an external benchmark for this measure has not been determined. For the 2025-2027 PBR term, EWS is proposing to keep the performance standard for Environmental Incidents at 5 incidents per year. This number of incidents is higher than the 10 year average but allows for some variability by taking into account uncontrollable circumstances and / or events.

22.5.2 Customer Service Index

624. Gold Bar WWTP is an operational site that, by its nature, has little direct interaction with the public. The interaction that does occur is typically with the immediate surrounding community. The majority of these customer service interactions, particularly those initiated by the surrounding community, involve concerns regarding odours. In 2017-2021 PBR, EWS introduced formal odour measures as odours represented the highest impact to customers' perception of satisfaction. EWS is proposing to maintain these measures for the 2025-2027 term. The Customer Service Index is comprised of three equally weighed measures:

- 1-hour H2S Exceedances;
- 24-hour H2S Exceedances; and
- Scrubber Uptime.

1-Hour and 24-Hour H_2S Exceedances

625. The main contributor to the odour generation at Gold Bar WWTP is Hydrogen Sulfide (H_2S) which is produced by biological activity in wastewater (sewage). The long travel time in the collection system to the plant can cause the wastewater to be septic and extremely odorous on arrival at the plant. Keeping odours under control is a challenge for staff at Gold Bar WWTP, as millions of litres of wastewater are treated every day.

626. H_2S has a very low threshold for odour detection. As a result, customers around Gold Bar WWTP occasionally notice the presence of H_2S odours and register a concern through a complaint phone in line. Alberta Ambient Air Quality Objectives (AAAQO) for H_2S are based on the odour threshold and are 10 ppb (parts per billion) for a 1-hour average and 3 ppb for a 24-hour average.

627. EWS is an active member of the Strathcona Industrial Association (SIA), an organization of local major industries dedicated to addressing common concerns like air quality. Membership in the SIA provides EWS with access to the association's network of air quality monitoring (AQM) stations. Two of the stations are located in proximity of Gold Bar WWTP (each is approximately 1 km away):

- SIA Gold Bar Monitoring Station: 105 A Avenue and 47 Street; and
- SIA Beverly Monitoring Station: 114 Avenue and 38 Street.

628. The data from all AQM stations is managed by SIA and is reviewed regularly. In case of an exceedance to Alberta Ambient Air Quality Objectives (AAAQO), AEPA is notified and provided

with seven day letter report. Data from these SIA AQM sites are available directly to the public through both the SIA and EPCOR websites.

629. The average number of exceedances is calculated from the number of hourly average H_2S values above 10 ppb for 1-hour exceedances and the number of daily average values above 3 ppb for 24 hour exceedances. Table 22.5.2-1 provides both the number and average of 1-hour H_2S exceedances to the AAAQO from 2012 to 2023. Table 22.5.2-2 provides the number and average of 24-hour exceedances:

Table 22.5.2-1
1-Hour H2S Exceedances Measures at SIA AQM Stations

	A	B	C	D	E	F	G	H	I	J	K	L
		Prior to PBR				PBR #2 (2017-2021)				PBR #3 (2022-2024)		
	Year	Gold Bar	Beverly	Avg *	Year	Gold Bar	Beverly	Avg *	Year	Gold Bar	Beverly	Avg *
1	2012	1	6	3.5	2017	0	1	0.5	2022	0	1	0.5
2	2013	1	7	4.0	2018	0	2	1.0	2023	1	5	3.0
3	2014	1	7	4.0	2019	0	0	0.0	2024			n/a
4	2015	8	35	22.0	2020	0	1	0.5				n/a
5	2016	2	6	4.0	2021	0	1	0.5				
6	Avg*	3	12	8.0	Avg*	0	1	0.5	Avg*	1	3	1.8
7	Adj.Avg*	8	7	7.5	Adj.Avg*	n/a	n/a	n/a	Adj.Avg*	n/a	n/a	n/a
8	Standard	n/a	n/a	n/a	Standard	n/a	n/a	6.0	Standard	n/a	n/a	4.0
9	10 Year Average											2.2

* All averages have been rounded upward in order to recognize that a partial result is not possible.

* The adjusted average normalizes for the 35 one hour exceedances at the Beverly station in 2015. For the adjusted average, the value of 35 has been replaced with a value of 7, which is the highest value to that date. This was done in order to establish a standard that was not unreasonably high.

Table 22.5.2-2
24-Hour H2S Exceedances at SIA AQM Stations

	A	B	C	D	E	F	G	H	I	J	K	L
	Prior to PBR				PBR #2 (2017-2021)				PBR #3 (2022-2024)			
	Year	Gold Bar	Beverly	Average*	Year	Gold Bar	Beverly	Average*	Year	Gold Bar	Beverly	Avg*
1	2012	1	0	1.0	2017	0	0	0.0	2022	0	2	1.0
2	2013	0	2	2.0	2018	0	0	0.0	2023	0	0	0.0
3	2014	0	2	2.0	2019	0	0	0.0	2024			n/a
4	2015	1	7	4.0	2020	0	0	0.0				
5	2016	0	0	0.0	2021	0	0	0.0				
6	Average*	1	2	2.0	Average*	0	0	0.0	Avg*	0	1	0.5
7	Standard	n/a	n/a	n/a	Standard	n/a	n/a	2.0	Standard	n/a	n/a	1.0
8	10-Year Average											0.7

** All averages have been rounded upward in order to recognize that a partial result is not possible.*

630. For the 2025-2027 PBR term, EWS is proposing to maintain measures for both 1-hour exceedances and 24-hour exceedances. The proposed standard for these measures is an average of 4 exceedances per year for 1-hour exceedances and an average of 1 exceedances per year for 24-exceedances.

631. It is noted that while exceedances can reflect the odour control performance of Gold Bar WWTP, there is a possibility that H_2S exceedances could be related to a release from an industrial facility site or from the Wastewater Collection system. Any exceedance of the limits will consider the wind direction during the time of an exceedance in order to ascertain its source. If the wind direction during the exceedance is coming from Gold Bar WWTP, the plant H_2S monitors, as well as the Envirosuite air quality model will also be used to assess if the AQM exceedance could be attributable to EPCOR.

632. A new AQM station has being constructed immediately South of the fence line at the Gold Bar WWTP. The existing SIA Gold Bar AQM station is approximately one kilometer away. This new station is required as part of the AEPA approval. EWS will continue to closely monitor the station, but will not include the results from this new station in calculation of the results for this measure for the 2025-2027 PBR term for comparability reasons.

Scrubbers Uptime

633. Gold Bar WWTP currently has four scrubbing towers equipped with large exhaust fans to collect and treat odourous air from plant zones known to be malodourous. During 2024, the WWTP will be adding two additional scrubbers. Scrubber fans draw foul air back from the

headspace under the operating area covers and from the enclosed buildings and blow it up through the scrubbing towers. Travelling upward through a plastic media, the foul air is sprayed from above with a solution of sodium hypochlorite (16%) and sodium hydroxide (50%). Hydrogen sulfide and other offending odour constituents are scrubbed from the air, producing a cleaner air that is released through the scrubber stack. The following are the six scrubbers proposed to be operational stating 2024:

- Scrubber 1 (historically: East scrubber system): Dedicated to treating foul air from Grit tanks 1, 2 and 3; Primary clarifiers 1, 2, 3 and 4; and Primary effluent channels;
- Scrubber 2 (historically: West scrubber system): One of four scrubbers treating foul air from Grit tanks 6 and 7; Primary clarifiers 5, 6, 7 and 8; East and West primary influent channel;
- Scrubber 3 (historically: EPT scrubber system): One of four scrubbers treating foul air from Enhanced Primary Treatment building;
- Scrubber 4 (historically: Fermenter scrubber system): Dedicated to treating foul air from the gas space of fermenters 1, 2, 3 and 4; and Grit tanks 4 and 5.
- Scrubber 5 (new): One of four scrubbers treating foul air from Enhanced Primary Treatment building and Scrubber 2 areas; and
- Scrubber 6 (new): One of four scrubbers treating foul air from Enhanced Primary Treatment building and Scrubber 2 areas.

634. The performance of the scrubbers has a direct impact on presence of H2S at site as well as outside the fence line. Un-scrubbed air that passes through the stack can lead to odour complaints or exceedance of H2S AAAQO at the Beverly or Gold Bar WWTP AQM stations

635. In the 2017-2021 PBR, EWS introduced a scrubber uptime measure to assess the percentage of time the scrubbers are operational. This measure is proposed to be maintained for the 2025-2027 term with modifications to incorporate new Scrubbers 5 and 6. The Scrubber Uptime result is calculated as the percentage of time that the required scrubbers were operating relative to the time that the Gold Bar Wastewater Treatment Plant was operating. The scrubbers that are required to operate in any hour include Scrubber 1, Scrubber 4 and two other scrubbers.

636. A scrubber system is considered operating when all of the following component systems are operating:

- a blower is introducing foul air to the scrubber,
- the scrubber chemical feed system is operating, and

- the scrubber recirculation system is operating.

637. A scrubber is considered offline when either the blower or the related chemical feed pump is offline for more than an hour. Scrubber offline hours can also result from downtime due to capital upgrades. Up to two of Scrubbers 2, 3, 5, and 6 are expected to be operating to scrub odours from west operating areas.

638. The Scrubber Uptime Result is calculated as the percentage of time that odour control systems were operating relative to the time that the Gold Bar Wastewater Treatment Plant was operating.

639. Historical results are presented in Table 22.5.2-3.

Table 22.5.2-3
Scrubber Uptime

	A	B	C	D
	2017-2021 PBR		2022-2024 PBR	
	Year	%	Year	%
1	2017	97.4%	2022	98.3%
2	2018	90.8%	2023	98.8%
3	2019	98.8%	2024	n/a
4	2020	99.4%		
5	2021	99.2%		
6	Average	97.1%	Average	98.6%
7	Standard	90.0%	Standard	96.0%
8	7 Year Average			97.5%

640. For the 2025-2027 PBR term, EWS is proposing to maintain the standard at 96.0% which is slightly below the average of the historical actual performance. This is to recognize both the operational variability in wastewater as well as the time required to integrate Scrubbers 5 and 6 into the overall odour control system.

22.5.3 System Reliability and Optimization Index

641. The System Reliability and Optimization Index is a measure of the confidence that customers can place in the reliability of the wastewater system and the degree to which those systems are optimized to lessen their impact on the environment. This index is comprised of three equally weighed measures:

- Enhanced Primary Treatment;
- Biosolids Management; and

- Energy Efficiency.

Enhanced Primary Treatment

642. The Enhanced Primary Treatment (EPT) facility at Gold Bar WWTP operates during wet weather and snowmelt runoff events when flows exceed the maximum secondary treatment capacity of Gold Bar WWTP's main treatment facilities. When this occurs, the EPT facility is activated and is intended to operate continuously during these events. EPT is a measure of the amount of time that the EPT facility runs during EPT events relative to the duration of those events. An EPT event is defined as a continuous period of time when total influent flows exceed the EPT event threshold, which is defined as 420 ML/day. The Enhanced Primary Treatment measure is calculated as the percentage of time that the enhanced primary treatment facility ran during wet weather events where the influent flow rate exceeded the EPT event threshold.

643. The EPT measure may be adjusted to address situations requiring process shutdowns such as:

- Capital work on alum or polymer systems, clarifiers, or the sludge/scum collection system,
- Completion of corrective actions to address process upsets, or
- Process shutdowns to accommodate requests of regulatory agencies.

644. The EPT-CRT is the Cumulative Run Time of the EPT facility is defined as the total time, measured in hours that the EPT Facility was actually operating during EPT Events. The EPT facility is defined to be operating when influent flow is being directed through the EPT Facility during an EPT Event.

645. Historical results for the Enhanced Primary Treatment measure are detailed in Table 22.5.3-1.

Table 22.5.3-1
Enhanced Primary Treatment Measure

	A	B	C	D	E	F
	2012-2016 PBR		2017-2021 PBR		2022-2024 PBR	
	Year	%	Year	%	Year	%
1	2012	91.8%	2017	100.0%	2022	100.0%
2	2013	89.2%	2018	98.7%	2023	100.0%
3	2014	84.3%	2019	100.0%	2024	n/a
4	2015	89.0%	2020	100.0%		
5	2016	100.0%	2021	100.0%		
6	Average	90.9%	Average	99.6%	Average	100.0%
7	Standard	75.0%	Standard	80.0%	Standard	94.0%
8	10 Year Average					97.2%

646. For the 2025-2027 PBR term, EWS is proposing to increase the Enhanced Primary Treatment standard from 94.0% to 97.0%, which is based on the 10-year average of historic performance.

Biosolids Management

647. Biosolids Management is a new measure of EWS' commitment to beneficially utilize biosolids rather than storing it in basins or diverting it to landfill. Biosolids are the nutrient rich organic by-product of domestic wastewater treatment that contains essential plant nutrients and organic matter. The Biosolids Management measure is calculated based on the total dry tonnes of biosolids removed from the Clover Bar Biosolids Resource Recovery Facility.

648. As part of the solids treatment processes at Gold Bar, treatment sludge and scum are treated and stabilized in digesters. The resulting digested solids are transported to the Clover Bar Biosolids Resource Recovery Facility (CBRRF). At this facility, additional solids from Arrow Utilities' Capital Region Wastewater Treatment facility are combined with those from Gold Bar.

649. At CBRRF, the solids are settled out of suspension and the resulting mass is removed directly or dewatered via a thickening process. The resulting material, referred to as "biosolids," is utilised for agricultural and land reclamation purposes as it provides high quality nutrients and improves general soil health. The amount of removed biosolids material is expressed in dry tonnes, which is the weight of the matter with all water removed. The historic performance of the Biosolids Management program is summarized in Table 22.5.3-2.

Table 22.5.3-2
Biosolids Management Program

	A Year	B Total Dry Tonnes Out (From CBRRF)
1	2017	23,961
2	2018	23,174
3	2019	28,202
4	2020	27,144
5	2021	30,763
6	2022	19,784
7	2023	19,058
8	7 Year Average	24,584

650. New equipment procured by EWS during 2023 and 2024 will allow better access to the material contained within the basins to allow for enhanced thickening to occur. For the 2025-2027 PBR term, EWS is proposing to set the performance standard for the Biosolids Management measure at 25,000 dry tonnes per year which is slightly above the 7-year average.

Energy Efficiency (kWh/ML)

651. The Gold Bar WWTP uses about 48 million kWh of electricity every year for the treatment of wastewater. Over 70% of the electricity is consumed in the bioreactors, UV disinfection, and membrane filtration processes. Although Gold Bar WWTP does not have control over the amount of wastewater coming to the plant, operational strategies are applied to efficiently use energy to treat the in-coming effluent. This measure assesses the energy used per million-litres (ML) of treated wastewater and will determine energy consumption for both UV treated effluent and membrane plant effluent.

652. Lower energy usage, in addition to ensuring high quality treated effluent, contributes to minimizing Gold Bar WWTP's environmental footprint. EWS introduced the energy efficiency measure to drive improvements in optimizing energy consumption and process operational strategies at the Gold Bar WWTP as well as to align with City of Edmonton goals. Table 22.5.3-3 details the historic results of the energy efficiency measure.

Table 22.5.3-3
Historic Energy Efficiency

	A	B	C	D	E	F	G	H
		Prior to PBR			2017-2021 PBRs		2022-2024 PBR	
	Year	#	Year	#	Year	#	Year	#
1			2012	515.0	2017	497.1	2022	520.7
2			2013	499.0	2018	503.6	2023	494.9
3			2014	515.0	2019	499.9	2024	n/a
4			2015	507.0	2020	498.0		
5	2011	534	2016	504.0	2021	538.9		
6	Average	534	Average	508.0	Average	507.5	Average	507.8
7	Standard	n/a	Standard	n/a	Standard	514.0	Standard	508.0
8	10 Year Average							507.9

653. EWS is proposing to maintain the Energy Efficiency standard at 508kWh per ML for the 2025-2027 PBR term which reflects the historic average of the past 10 years. This level demonstrates maintaining performance levels while recognizing the requirement for continued high levels of diligence in the operations strategy to manage energy utilization.

22.5.4 Safety Index

654. For the 2025-2027 PBR term, EWS is proposing common safety measures across Wastewater Treatment and Wastewater Collection operations to drive consistency in approach and comparability of results. As a result, the proposed measures and standards outlined in Section 22.4.5 will also be applicable to Wastewater Treatment.

22.5.5 Performance Measures Removed for the 2025-2027 PBR term

655. The Biosolids Inventory Reduction measure has been removed for the 2025-2027 PBR term, which measures the reduction of the biosolids inventory at the Clover Bar Biosolids Resource Recovery Facility (CBRRF). As there is variability year-over-year in the amount of biosolids deposited within the Facility, a continual year-over-year reduction does not necessarily translate to optimal basin management. The Biosolids Management measure will replace the Biosolids Inventory Reduction measure. The Biosolids Management measure is calculated based on the total dry tonnes of biosolids removed from the CBRRF, which measures the effective utilization of biosolids for agricultural and land reclamation purposes.