# PERFORMANCE BASED REGULATION 2023 PROGRESS REPORT

**EPCOR Water Services**
**September 2024**

# Overview

## 2023 Water Utilities Progress Report

- Requirement under Bylaws 19626 (Water) and 19627 (Wastewater)
- Financial and operational performance measures approved by Council
- Reflects results for Water and Wastewater in Edmonton
- Updated financial and performance measures will be established for wastewater as part of the 2025-2027 Wastewater Services PBR

- Progress on updating **Demand Management Measures**
- **Infrastructure Risk Management**

# 2023 Financial Review

# 2023 Summary of Results

**2023 results in line with PBR forecast**

| | In-City Water | | Wastewater Treatment | | Wastewater Collection | | EWS Total | |
|---|---|---|---|---|---|---|---|---|
| | **PBR** | **Actual** | **PBR** | **Actual** | **PBR** | **Actual** | **PBR** | **Actual** |
| **Revenue ($M)** | 231.3 | 237.9 | 129.2 | 133.9 | 251.2 | 251.7 | 611.7 | 623.5 |
| **Operating Costs ($M)** | 115.5 | 118.2 | 77.8 | 79.8 | 117.5 | 124.8 | 310.8 | 322.8 |
| **Capital ($M)** | 113.2 | 122.3 | 76.0 | 52.8 | 248.4 | 244.7 | 437.6 | 419.8 |
| **ROE ($M)** | 47.1 | 48.6 | 21.2 | 22.3 | 56.6 | 50.3 | 124.9 | 121.2 |
| **ROE %** | 8.58% | 8.93% | 10.23% | 10.40% | 7.33% | 6.62% | | |
| **Rate Base ($M)** | 1,371 | 1,362 | 551 | 535 | 1,930 | 1,900 | 3,852 | 3,797 |

# 2023 Customers and Consumption

| In-City Water | PBR | Actual | % Change |
|---|---|---|---|
| Customers | | | |
| Residential | 283,342 | 287,925 | 1.6% |
| Multi-Residential | 3,800 | 3,832 | 0.8% |
| Commercial | 20,101 | 20,522 | 2.1% |
| **Total Customers** | **307,243** | **312,280** | **1.6%** |
| Annual Consumption (ML) | | | |
| Residential | 44,784 | 47,718 | 6.6% |
| Multi-Residential | 17,627 | 18,938 | 7.4% |
| Commercial | 22,677 | 27,203 | 20.0% |
| **Total Consumption** | **85,088** | **93,859** | **10.3%** |
| Consumption per Customer (m3 per month) | | | |
| Residential | 13.2 | 13.8 | 4.5% |
| Multi-Residential | 386.6 | 411.8 | 6.5% |
| Commercial | 94.0 | 110.5 | 17.6% |

**Consumption higher across all three customer classes**

# In-City Water – Capital Expenditures

($ millions)

**Investment in Growth, City Requirements and Flood Protection driving higher than projected capital**

| | 2023 | | 2022-2026 | |
|---|---|---|---|---|
| **Project Category** | **PBR** | **Actual** | **PBR** | **Projection** |
| Regulatory | 6.0 | 8.9 | 25.5 | 44.7 |
| Growth/Customer Requirements | 36.5 | 53.3 | 159.9 | 217.8 |
| Health, Safety and Environment | 2.4 | 1.5 | 11.4 | 21.5 |
| Reliability and Life Cycle Improvements | 50.3 | 53.0 | 235.4 | 305.5 |
| Performance Efficiency and Improvements | 28.6 | 19.9 | 83.0 | 117.0 |
| **Capital Expenditures before Contributions** | **123.8** | **136.6** | **515.2** | **706.8** |
| Contributions | (10.7) | (14.3) | (51.0) | (67.5) |
| **Capital Expenditures, net of Contributions** | **113.2** | **122.3** | **464.1** | **639.2** |

# Wastewater Treatment – Capital Expenditures

($ millions)

**Total WWT capital expected to be in line with approved PBR**

| | 2023 | | 2022-2024 | |
|---|---|---|---|---|
| **Project Category** | **PBR** | **Actual** | **PBR** | **Projection** |
| Regulatory | 2.4 | 0.8 | 5.6 | 8.4 |
| Growth/Customer Requirements | 1.9 | 1.8 | 5.5 | 5.1 |
| Health, Safety and Environment | 0.2 | 4.3 | 0.8 | 8.0 |
| Reliability and Life Cycle Improvements | 61.6 | 40.9 | 141.4 | 137.2 |
| Performance Efficiency and Improvements | 9.8 | 5.0 | 18.4 | 20.6 |
| **Capital Expenditures before Contributions** | **76.0** | **52.8** | **171.7** | **179.3** |
| Contributions | - | - | - | - |
| **Capital Expenditures, net of Contributions** | **76.0** | **52.8** | **171.7** | **179.3** |

# Wastewater Collection – Capital Expenditures

($ millions)

**Total WWC capital expected to be slightly higher than approved PBR**

| | 2023 | | 2022-2024 | |
|---|---|---|---|---|
| **Project Category** | **PBR** | **Actual** | **PBR** | **Projection** |
| Drainage Neighbourhood Renewal Program | 21.3 | 12.5 | 76.5 | 52.8 |
| Drainage System Expansion | 19.8 | 20.7 | 57.6 | 61.0 |
| Drainage System Rehabilitation | 51.4 | 68.9 | 166.0 | 207.1 |
| Flood Mitigation | 22.7 | 8.9 | 47.7 | 25.9 |
| Real Estate | - | 4.6 | - | 25.2 |
| Stormwater Integrated Resource Plan | 71.8 | 44.3 | 233.3 | 196.8 |
| Sanitary Servicing Strategy Fund | 9.3 | 3.0 | 38.6 | 11.7 |
| Corrosion and Odour Reduction | 68.4 | 76.3 | 180.4 | 198.1 |
| LRT Relocates | 12.9 | 16.5 | 48.5 | 58.6 |
| **Capital Expenditures before Contributions** | **277.6** | **255.8** | **848.7** | **837.5** |
| Contributions | (29.2) | (11.1) | (94.3) | (53.4) |
| **Capital Expenditures, net of Contributions** | **248.4** | **244.7** | **754.3** | **783.8** |

# Water Services Operational Performance Measures

| Performance Measure | Benchmark | Standard | Actual |
|---|---|---|---|
| **Water Quality Index** | Non-suspect test results | 99.7% | 99.6% |
| **Customer Service Index** | | | |
| Post Service Audit Measure | % satisfied | 75.0% | 91.4% |
| Home Sniffing Measure | % satisfaction | 94.4% | 95.3% |
| Response Time Measure | min to confirm breaks | 25.0 | 15.9 |
| Planned Construction Impact Measure | % compliance | 95.8% | 99.1% |
| **System Reliability & Optimization Index** | | | |
| Water Main Break Measure | # of breaks | 365 | 265 |
| Repair Duration Measure | % fixed within 24 hrs | 95.4% | 96.8% |
| Water Loss Measure | leakage index (ILI) | 1.23 | 1.20 |
| System Energy Efficiency Measure | kWh / ML treated | 281 | 238 |
| **Environmental Index** | | | |
| Water Conservation (Residential) Measure | $m^3$/month/household | 16.8 | 14.7 |
| Environmental Incident Management Measure | # of incidents | 5 | 2 |
| Solids Residual Management Measure | # days | 120 | 149 |
| **Safety Index** | | | |
| Near Miss Reporting Measure | # completed | 550 | 659 |
| Work Site Inspections/Observations Measure | # conducted | 1,032 | 3,650 |
| Lost Time Frequency Rate | frequency rate | 0.40 | 0.00 |
| All Injury Frequency Rate | frequency rate | 1.00 | 0.42 |

**Standards met on 4 out of 5 indices**

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# Wastewater Treatment Operational Performance Measures

| Performance Measure | Benchmark | Standard | Actual |
|---|---|---|---|
| **Water Quality & Environment Index** | | | |
| Wastewater Quality Measure | WELP | 26.0 | 19.1 |
| Environmental Incident Measure | # of incidents | 5 | 1 |
| **Customer Service Index** | | | |
| $H_2S$ - 1-hour Exceedance Measure | exceedance std | 4 | 3.0 |
| $H_2S$ - 24-hour Exceedance Measure | exceedance std | 1 | 0.0 |
| Scrubber Uptime Measure | % on-line | 96.0% | 98.8% |
| **System Reliability and Optimization Index** | | | |
| Enhanced Primary Treatment Measure | % in use | 94.0% | 100.0% |
| Biosolids Inventory Reduction Measure | relative reduction | 1.05 | 0.91 |
| Energy Efficiency Measure | kWh / ML treated | 508 | 495 |
| **Safety Index** | | | |
| Near Miss Reporting Measure | # completed | 220 | 385 |
| Work Site Inspection/Observation Measure | # conducted | 919 | 1,974 |
| Lost Time Frequency Rate | frequency rate | 0.75 | 0.45 |
| All Injury Frequency Rate | frequency rate | 1.00 | 1.81 |

**Standards met on 3 out of 4 indices**

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# Wastewater Collection Operational Performance Measures

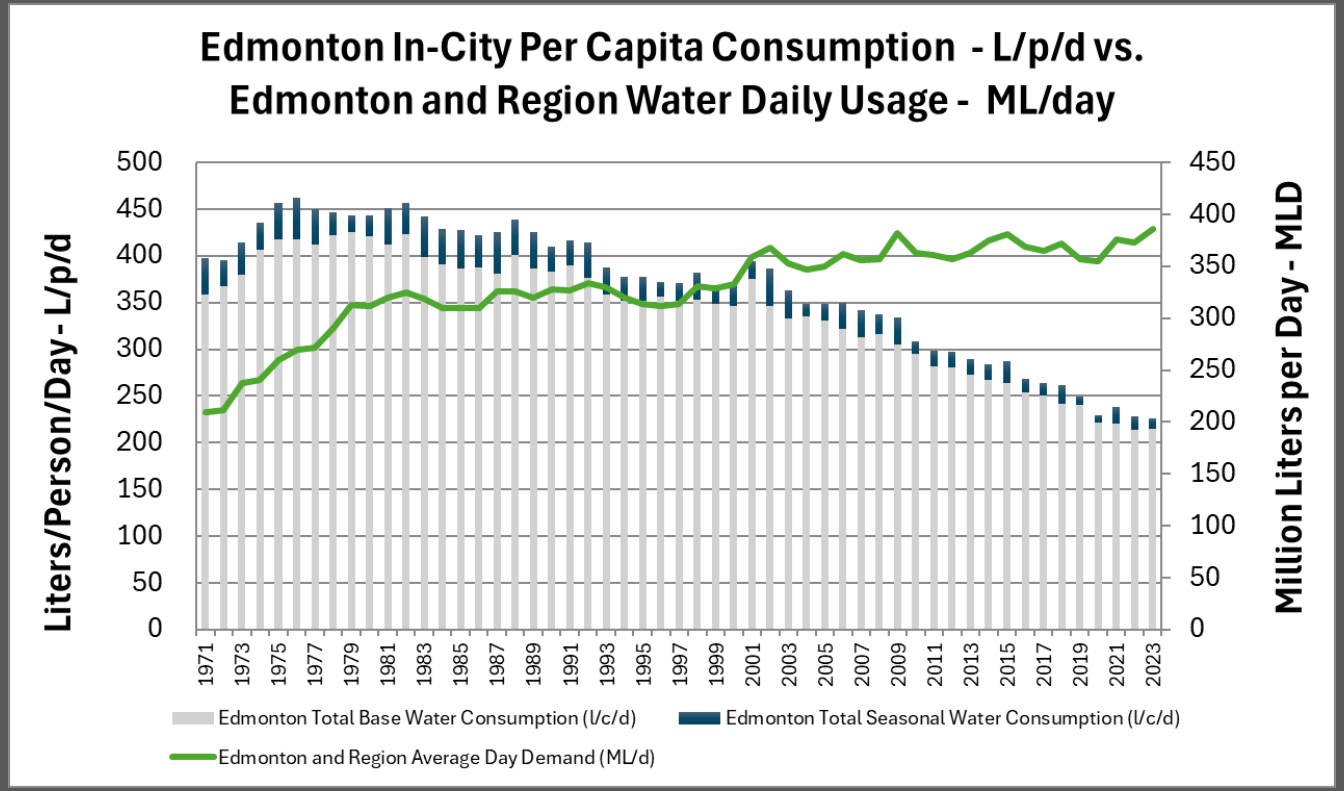
| Performance Measure | Benchmark | Standard | Actual |
|---|---|---|---|
| **Environmental Index** | | | |
| Stormwater Flow & Flow Monitoring Measure | % area monitored | 63.0 | 70.0 |
| Environmental Incident Management Measure | % reportable | 50 | 15 |
| Green Hectares Measure | managed area | 90.0 | 94.7 |
| **Customer Service Index** | | | |
| Service Maintenance Calls Measure | % resolved in 24h | 80.0 | 94.4 |
| Emergency Dig-Ups – Service Restored | % restored in 48h | 98.0 | 100.0 |
| Service Connections Measure | % within 6 weeks | 85.0 | 89.1 |
| Sewer Odour Hotspots Measure | % city area | 14.5 | 4.7 |
| **System Reliability and Optimization Index** | | | |
| Blocked Sewers Measure | # per 100 km | 2.10 | 3.37 |
| Sewer Renewal Measure | km renewed | 60.0 | 22.7 |
| Infrastructure Condition Rating Level Measure | % > minimum | 90.0 | 90.5 |
| Full Property Flood Proofing Inspections | # inspections | 750 | 1,677 |
| **Safety Index** | | | |
| Near Miss Reporting Measure | # completed | 750 | 1,913 |
| Work Site Inspection/Observation Measure | # conducted | 1,300 | 3,452 |
| Lost Time Frequency Rate | frequency rate | 0.75 | 0.40 |
| All Injury Frequency Rate | frequency rate | 4.00 | 2.23 |

**Standards met on all 4 indices**

# Demand Management Measures

# Demand Management Measures

- Demand Management Measures (DMM) introduced in the early 1990s
- Conservation and DMM have been beneficial in managing water demands for Edmonton



# Demand Management Overview

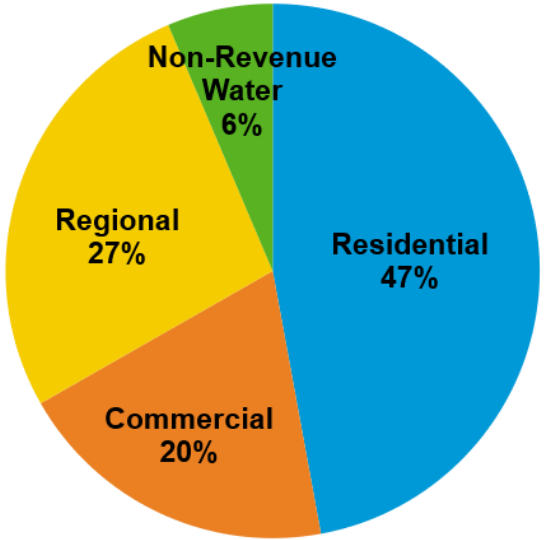
- Current DMM protocols consist of three targeted action levels
  - Measure A: internal operations curtailment
  - Measure B: voluntary public reduction
  - Measure C: mandatory reduction of non-essential water use
- Historic need for DMM related to either poor river water quality or infrastructure constraints (plant capacity)
- Measure C implemented only once in 20+ years

| Year | Count of DMM | Demand | River Quality | Infrastructure Constraints |
|---|---|---|---|---|
| 2001 | 2 | A | A | |
| 2002 | 1 | | A | |
| 2003 | 0 | | | |
| 2004 | 1 | | | A |
| 2005 | 2 | | B | |
| 2006 | 2 | | | B |
| 2007 | 1 | | | B |
| 2008 - 2015 | 0 | No DMM events in period | | |
| 2016 | 1 | | B | |
| 2017 | 1 | | | A |
| 2018 | 1 | | A | |
| 2019 | 1 | | A | |
| 2020 | 2 | | A | A |
| 2021 | 1 | B | | |
| 2022 | 0 | | | |
| 2023 | 0 | | | |
| 2024 | 1 | | | C |

# Key Consideration – Customer Usage

- Reviewed customer usage in winter and summer conditions in Edmonton and the region.
- Average daily demands can reach 600 MLD during the summer months, compared to average daily demand of 360 MLD in the winter.
- Seasonal variation driven by:
  - outdoor water use across all customer groups
  - changes in commercial customer activities, with different industries being high summer or high winter users of water
- Regional seasonal variation aligns with Edmonton variation

**Edmonton & Regional Water Demand By Customer Type**



# Key Consideration – Plant Capacities

- Production capacities at the Edmonton water treatment plants vary based on raw water quality and river temperature
- DMM protocols require flexibility in approach based on combination of plant capacity and customer usage at the time of the event

| Season | Rossdale Capacity | EL Smith Capacity | Total Capacity |
|---|---|---|---|
| Winter | 166 MLD | 276 MLD | 442 MLD |
| Spring | 179 MLD | 296 MLD | 475 MLD |
| Summer | 219 MLD | 340 MLD | 559 MLD |

A Demand DMM is more likely during an extended hot weather period in summer

A River Water DMM requirement is more likely when there a higher water usage as individuals start their gardens and the river water conditions limit treatment capacity

An Infrastructure Constraint DMM can occur during any season

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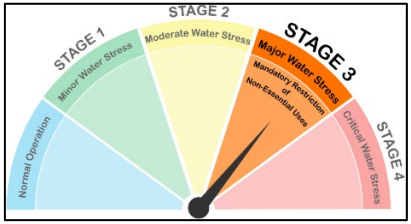
# Key Consideration – What We Heard

Following E.L. Smith event, EPCOR reviewed input from and engaged with our customers on impact and approaches to improve DMM protocols

- Multiple communication channels are necessary to align with demographics of the residential sector and the different types of commercial customers
- Provide greater clarity on actions tied to the levels of water restrictions
- Current approach is heavily focused on summer watering
- Targeting indoor reductions is necessary for mandatory scenarios but harder to achieve in the winter
- Address inconsistencies in water restrictions in Edmonton versus the regional communities

# Demand Management Measure Updated Proposed Framework – for Edmonton and Region

| | Target | Winter Approaches | Summer Approaches |
|---|---|---|---|
| **Conserve** | Efficient Use | • Reduce internal leakage campaigns.<br>• Encourage water conservation for all customers | • Responsible outdoor use campaigns<br>• Encourage water conservation for all customers |
| **Stage 1** | 5% | • EWS/City of Edmonton/Region Operational Response<br>• Voluntary appeal to reduce indoor usage | • EWS/City of Edmonton/Region Operational Response<br>• Voluntary appeal to reduce outdoor usage |
| **Stage 2** | 10% | • Mandatory appeal to reduce indoor usage by 10% to all customers<br>• Initiate discussions for targeted sector reductions for top 20 commercial sectors | • Voluntary appeal to reduce outdoor usage to all customers<br>• Voluntary appeal to all customers to reduce indoor usage |
| **Stage 3** | 15% | • Mandatory appeal to reduce indoor usage by 15% to all customers<br>• Mandatory restrictions for certain commercial water use activities | • Mandatory appeal to reduce indoor usage by 15% to all customers<br>• Mandatory restrictions on outdoor water usage<br>• Targeted reduction indoor and outdoor for commercial sector |
| **Stage 4** | 25% | • Mandatory appeal to reduce indoor usage by 25% to all customers<br>• Further targeted commercial sector reductions across the Region | • Mandatory appeal to reduce indoor usage by 25% to all customers<br>• Mandatory outdoor water restrictions for all customers |



# Potential for DMM - Due to Plant Shutdown

| | Raw Water Category | | |
|---|---|---|---|
| **Shutdown Scenario** | **Winter** | **Spring** | **Summer** |
| Rossdale Plant 1 Shutdown | Low | Low | Low |
| Rossdale Plant 2 Shutdown | Medium | Low | Low |
| Full Rossdale Shutdown | Medium | Medium | Medium |
| Partial E.L. Smith Shutdown | Low | Low | Low |
| Full E.L. Smith Shutdown | High | High | High |

*From 2021 Water Integrated Resource Plan*
Capital projects in progress in this PBR to reduce E.L. Smith risk

# Infrastructure Risk Management

# Managing risk

- EWS has a number of tools and processes to identify and manage risks associated with its infrastructure
- Enterprise Risk Management (ERM) framework systematically identifies, analyzes and monitors risks inherent to its water and wastewater operations
- Risks are reviewed and reported quarterly to EPCOR's Senior Leadership team
- Risk identification and mitigation is incorporated in various processes, including Integrated Resource Planning, Asset Management, Management of Change, annual budgeting and PBR Applications

# Infrastructure Risks & Mitigations

| Risk | Mitigation(s) |
| --- | --- |
| **Extreme weather** | |
| • Edmonton Water Treatment Plant and Wastewater Treatment Plant River Flooding | • Flood barriers, outfall isolation |
| • Urban Flooding | • SIRP (Slow, Move, Secure, Predict and Respond) |
| **Source Water Contamination** | |
| • Edmonton WTP Capacity Reduced | • Intake isolation, monitoring, enhanced treatment |

# Infrastructure Risks & Mitigations

| Risk | Mitigation(s) |
| --- | --- |
| **Operational Reliability** | |
| • E.L. Smith WTP Lack of Full Redundancy<br>• E.L. Smith and Rossdale Single Point Utility Power Feeds | • Electrical upgrades, HLPH, “two-train” split<br>• Additional power feeds, emergency supply |
| **Aging Infrastructure** | |
| • Water Treatment Plants and Gold Bar Wastewater Treatment Plant<br>• Wastewater Collection System<br>• Water Distribution and Transmission System | • Risk-based Integrated Asset Management programs, predictive and preventative maintenance, advanced monitoring, investment in rehabilitation programs. |

# Questions?