CR _827
Attachment 1


# EPCOR WATER SERVICES INC.

## 2012-2016 PERFORMANCE BASED REGULATION

MAY 2014

PROVIDING MORE EPCOR

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# 1 Executive Summary

This report provides an annual update to The City of Edmonton ("City") on the operational and financial results for the year ended December 31, 2013 for water services and wastewater treatment services provided within Edmonton by EPCOR Water Services Inc. ("EWSI"). These services are provided pursuant to Bylaw 15816, the EPCOR Water Services and Wastewater Treatment Bylaw (the Bylaw). The Bylaw prescribes Performance Based Regulation ("PBR") for water services ("Water") and wastewater treatment services ("Wastewater") within Edmonton for the 2012-2016 PBR term.

## 1.1 Financial Performance

Water and Wastewater achieved strong financial results in 2013. On a combined basis, net income for 2013 was **$45.4 million**, generating a combined Return on Equity ("ROE") of **11.88%**, 2.32% greater than their combined approved ROE of 9.56% (see Table 1.1 below). Water and Wastewater's strong financial results reflect major cost saving initiatives undertaken in 2013, including an EPCOR-wide corporate reorganization implemented on March 1, 2013 (the "2013 Reorganization"), which more than offset lower than forecast revenues.

**Table 1.1**
**Water and Wastewater Combined Net Income and ROE**
**($ millions)**

| | | A | B | C | D |
|---|---|---|---|---|---|
| **Net Income and ROE** | | **2013** | | **Two Years ended 2013** | |
| | | **Actual** | **PBR Forecast** | **Actual** | **PBR Forecast** |
| 1 | Revenue | 228.1 | 237.5 | 439.6 | 461.6 |
| 2 | Operating costs | (127.4) | (140.2) | (257.9) | (275.9) |
| 3 | Depreciation | (27.7) | (27.9) | (54.1) | (54.3) |
| 4 | Interest Expense | (27.6) | (31.2) | (55.6) | (59.7) |
| 5 | **Combined Net Income** | **45.4** | **38.2** | **72.0** | **71.7** |
| | | | | | |
| 6 | Rate Base[1] | 962.8 | 991.2 | | |
| 7 | Equity ratio | 39.69% | 40.31% | | |
| 8 | **Equity portion of Rate Base** | **382.1** | **399.5** | | |
| | | | | | |
| 9 | **Combined ROE - %** | **11.88%** | **9.56%** | **9.64%** | **9.18%** |

[1]Since the Rate Base is a mid-year value, the combined Rate Base is only shown for 2013; ROE for 2012-2013 is calculated as the weighted average of 2012-2013 ROE

For 2012-2013, Water and Wastewater's combined net income is $72.0 million, $0.3 million greater than forecast and their combined ROE for 2012-2013 is 9.64%, 0.46% greater than forecast. This result reflects lower than forecast rate bases; if Water and Wastewater's combined rate base had been equal to forecast, combined ROE for 2012 would have been only 0.04% greater than forecast ROE. This difference illustrates the fact that, in any single year, advances or delays in completion of capital projects (additions to the rate base) can result in fluctuations in ROE. Accordingly, ROE is more accurately assessed over the five year PBR term, rather than in any single year within the term.

### 1.1.1 Financial Performance - Water

On an individual basis, Water's 2013 net income was **$34.9 million,** providing Water with an ROE of **12.66%,** 1.79% greater than its approved ROE of 10.875%. Besides higher net income, Water's higher than forecast ROE in 2013 reflects a lower than forecast rate base associated with delays in completion of capital projects, most notably the Rossdale Water Laboratory and the Rossdale Sodium Hypochlorite Generator (see Section 3.2.6). Therefore, even though Water's 2012-2013 ROE of 10.60% is close to its approved ROE, Water's $57.1 million net income for 2012-2013 is $3.9 million less than 2012-2013 forecast net income of $61.0 million (see Table 1.1.1 below).

**Table 1.1.1**
**Water – Net Income and ROE**
**($ millions)**

| | | A | B | C | D |
|---|---|---|---|---|---|
| **Net Income and ROE** | | **2013** | | **Two Years ended 2013** | |
| | | **Actual** | **PBR Forecast** | **Actual** | **PBR Forecast** |
| 1 | Revenue | 161.7 | 167.9 | 312.1 | 327.5 |
| 2 | Operating costs | (87.2) | (94.8) | (177.5) | (186.6) |
| 3 | Depreciation | (19.0) | (18.7) | (36.2) | (36.0) |
| 4 | Interest Expense | (20.6) | (23.2) | (41.3) | (43.9) |
| **5** | **Net Income** | **34.9** | **31.2** | **57.1** | **61.0** |
| | | | | | |
| 6 | Rate Base (In-City) | 696.5 | 710.1 | | |
| 7 | Equity Ratio | 39.57% | 40.38% | | |
| 8 | **Equity Portion of Rate Base** | **275.6** | **286.7** | | |
| | | | | | |
| **9** | **Water - ROE (%)** | **12.66%** | **10.88%** | **10.60%** | **10.88%** |

Section 3.2 provides a more detailed analysis of Water's financial performance.

### 1.1.2 Financial Performance - Wastewater

Similar to Water, Wastewater had strong financial results in 2013, with operating cost savings and lower than forecast interest expense more than offsetting declines in revenue. Wastewater's net income in 2013 was **$10.5 million**, resulting in 2013 ROE of **9.86%**, 3.66% greater than its approved ROE of 6.20% (see Table 1.1.2 below). Wastewater's lower than forecast rate base results from lower than forecast capital expenditures, as well as delays in completion of projects. Wastewater continues to evaluate alternatives to optimize and reprioritize its capital program, resulting in significant reallocations of capital project costs over the 2012-2016 PBR term.

**Table 1.1.2**
**Wastewater – Net Income and ROE**
**($ millions)**

| | | A | B | C | D |
|---|---|---|---|---|---|
| Net Income and ROE | | 2013 | | Two Years ended 2013 | |
| | | Actual | PBR Forecast | Actual | PBR Forecast |
| 1 | Revenue | 66.4 | 69.6 | 127.5 | 134.1 |
| 2 | Operating costs | (40.2) | (45.4) | (80.4) | (89.3) |
| 3 | Depreciation | (8.7) | (9.2) | (17.9) | (18.3) |
| 4 | Interest Expense | (7.0) | (8.0) | (14.3) | (15.8) |
| **5** | **Net Income** | **10.5** | **7.0** | **14.9** | **10.7** |
| | | | | | |
| 6 | Rate Base | 266.3 | 281.1 | | |
| 7 | Equity Ratio | 40.02% | 40.12% | | |
| 8 | **Equity Portion of Rate Base ($)** | **106.5** | **112.8** | | |
| | | | | | |
| **9** | **Wastewater – ROE (%)** | **9.86%** | **6.20%** | **7.19%** | **4.89%** |

Section 4.2 provides a more detailed analysis of Wastewater's financial performance.

## 1.2 Operational Performance

In 2013, both Water and Wastewater exceeded PBR operating performance standards. Under the PBR framework, EWSI is awarded bonus points for performance above the PBR standard of 100 points, allowing Water to earn **106.8** points and Wastewater to earn **107.3** points.

### 1.2.1 Operational Performance – Water

Water's operational performance is evaluated using the five performance measure indices prescribed in the Bylaw. In 2013, Water exceeded target performance standards for four of the performance indices, with only the Safety Index below target performance standards (see Table 1.2.1). Section 3.4 provides detailed discussions of the performance measures making up each of the indices, highlights of Water's operational performance, as well as planned process improvements.

**Table 1.2.1**
**2013 Performance Measures**
**Water System Service Quality Standards**

| | A | B | C | D |
|---|---|---|---|---|
| Performance Measure Index | Index Standard Points | Total Actual Points | Maximum Available Points | Total Points Earned |
| System Reliability Index | 25.0 | 31.5 | 28.5 | 28.5 |
| Water Quality Index | 25.0 | 25.1 | 25.5 | 25.1 |
| Customer Service Index | 20.0 | 22.8 | 23.0 | 22.8 |
| Environmental Index | 15.0 | 15.8 | 16.5 | 15.8 |
| Safety Index | 15.0 | 14.6 | 16.5 | 14.6 |
| **Aggregate Points Earned (sum of all indices)** | **100.0** | **109.8** | **110.0** | **106.8** |

### 1.2.2 Operational Performance - Wastewater

Wastewater's operational performance is evaluated on a similar basis to Water, except that the individual performance measures making up each performance index are tailored to wastewater treatment operations. In 2013, Wastewater met or exceeded the performance standards for all five performance measure indices (see Table 1.2.2). A detailed discussion of Wastewater's performance measures is provided in Section 4.4.

**Table 1.2.2**
**2013 Performance Measures**
**Wastewater Treatment Service Quality Standards**

| | A | B | C | D |
|---|---|---|---|---|
| **Performance Measure Index** | **Index Standard Points** | **Total Actual Points** | **Maximum Available Points** | **Total Points Earned** |
| System Reliability Index | 15.0 | 17.8 | 16.0 | 16.0 |
| Wastewater Quality Index | 40.0 | 88.9 | 44.0 | 44.0 |
| Customer Service Index | 5.0 | 5.4 | 5.0 | 5.0 |
| Environmental Index | 20.0 | 19.3 | 22.0 | 19.3 |
| Safety Index | 20.0 | 23.0 | 23.0 | 23.0 |
| **Aggregate Points Earned (sum of all indices)** | **100.0** | **154.4** | **110.0** | **107.3** |

## 1.3 Non-Routine Adjustments

Under the PBR framework, EWSI may request adjustments to Water and Wastewater's rates for Non-Routine Adjustments ("NRAs") from the City. NRAs are defined in the Bylaw as "items which are unusual, significant in size or nature and beyond the scope of control of EWSI". Requests for NRAs are provided to either the City Manager or City Council, depending on the impact of the NRA on Water and Wastewater's revenue requirements.

In review of its 2013 operations, EWSI did not identify any NRAs that met the criteria outlined in Bylaw 15816, Schedule 3, Section 5.0 which would either increase or decrease water or wastewater treatment rates.

EWSI has, however, identified two potential NRAs for 2014 and future years (see Section 5.1.2). EWSI is reviewing these items to determine whether they meet the criteria for NRAs and to quantify their impacts on Water and Wastewater rates. EWSI will present these items, together with recommendations and supporting rationale, to City Administration in early June, 2014.

# 2 PBR Framework

The PBR conceptual framework encompasses PBR rates, performance measures and return on equity. EWSI operates within this PBR framework over a five year term as approved by City Council, ensuring capital and operating cost decisions provide a balance with operational performance and return on equity.

- **PBR Rates.** Under the PBR framework for 2012-2016, water and wastewater treatment rate increases are limited to inflation, less a 0.25% efficiency factor and special rate adjustments for rebasing and the Accelerated Water Main Renewal ("AWMR") program. For PBR purposes, inflation is weighted 65% on a Consumer Price Index (CPI) component and 35% on a Labour Cost component, where the CPI component is measured by Statistics Canada's Annual Growth in All Items CPI for Alberta (CANSIM series V41694625) and the Labour Cost component is measured by Statistics Canada's Annual Growth in Average Hourly Earnings (AHE) for Alberta (CANSIM Series V1603533).

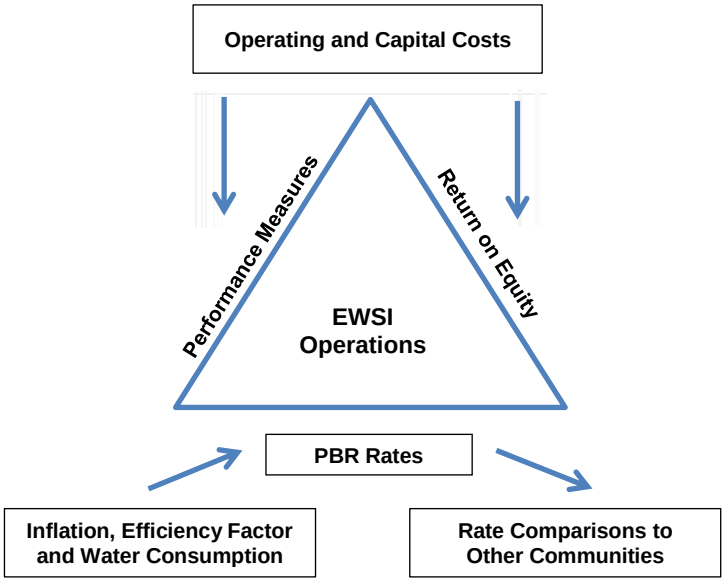
  EWSI also undertakes annual bill comparison surveys with various cities and local communities to ensure that the City's water and wastewater treatment rates are reasonable and competitive (see Sections 3.3 and 4.3).

- **Performance Measures.** EWSI's PBR framework includes performance criteria which provide assurance to customers that water and wastewater treatment system service quality will not be sacrificed to keep rates low. EWSI faces financial penalties if performance measures are not met. EWSI's annual performance measures and results are provided in detail in Section 3. EWSI's results on the performance criteria are audited by an independent accounting firm.

- **Return on Equity.** The regulated rates for In-City customers are designed to allow EWSI to recover costs and earn a fair return on its investment as approved by City Council.

Figure 2 below illustrates how the various components of the PBR conceptual framework inter-relate.

**Figure 2**
**PBR Conceptual Framework**



## PBR Principles

The PBR Principles are reflected in the following value statements:

- **Health, Safety & Environment**
  - Health and safety of the public and of Water and Wastewater employees is paramount.
  - Water quality remains significantly better than regulatory standards.
  - Water and Wastewater comply fully with environmental regulation.

- **Customer Focus**
  - Service is reliable, demonstrable and performance-based.
  - Rate structure and customer bills are transparent and predictable.
  - Rate increases are managed and phased.
  - Basic water needs are affordable.

- **Financial**
  - Water and Wastewater treatment utilities are accounted for on a full-cost basis.
  - Customer classes are allocated charges based on cost of service.
  - Return on equity is comparable to other utilities with similar risks.

# 3 Water

## 3.1 Consumption and Customer Count Summary

In 2013, Water's average customer counts in each customer class and in total are within 1% of the PBR forecast. In 2013, 91% of Water's customers are in the Residential customer class, 7% are in the Commercial customer class and the remainder are in the Multi-Residential customer class.

**Table 3.1**
**Customer Count, Total Annual Consumption and Monthly Consumption per Customer**

| | | A | B |
|---|---|---|---|
| | Customer Class | 2013 | |
| | | Actual | PBR Forecast |
| 1 | **Average Monthly Customer Count** | | |
| 2 | Residential | 226,226 | 228,137 |
| 3 | Multi-Residential | 3,470 | 3,439 |
| 4 | Commercial | 17,917 | 17,996 |
| 5 | **Total** | **247,613** | **249,572** |
| | | | |
| 6 | **Average Monthly Consumption per Customer ($m^3$ per month)** | | |
| 7 | Residential | 16.1 | 17.1 |
| 8 | Multi-Residential | 412.1 | 405.9 |
| 9 | Commercial | 133.3 | 134.0 |
| | | | |
| 10 | **Total Annual Consumption (ML – thousands of $m^3$)** | | |
| 11 | Residential | 43,622 | 46,983 |
| 12 | Multi-Residential | 17,162 | 16,751 |
| 13 | Commercial | 28,662 | 28,939 |
| **14** | **Total** | **89,446** | **92,673** |

In 2013, differences between actual and forecast consumption per customer are as follows:

- **Residential consumption per customer** in 2013 is 1.0$m^3$ (6%) per month lower than forecast. Residential consumption per customer has been declining for many years reflecting multiple factors, including: increased use of water-efficient appliances; smaller residential lots, especially in new areas; water-conserving landscaping techniques; greater than forecast impacts of inclining rate structures on water consumption; and EWSI's promotion of water conservation.
- **Multi-residential consumption per customer** in 2013 is greater than forecast. Although multi-residential customers have also adopted water-efficient technologies, the average multi-residential building and, in particular, new multi-residential buildings, have more units than had been forecast, while occupancy rates are also higher than forecast.
- **Commercial consumption per customer** in 2013 is very close to forecast. This category is characterized by a large number of customers with low consumption and a small number of customers with very high consumption. In 2013, for example, 0.3% of commercial customers accounted for 27.9% of total commercial consumption (see Section 3.3.3.2). Accordingly, changes in average monthly consumption for commercial customers tend to be related to changes within the large customer group, such as the addition or loss of a large customer, or technological changes affecting consumption for these customers.

Total annual consumption is the product of the number of customers and average consumption per customer. Accordingly, since customer counts are very close to forecast, lower than forecast annual consumption is primarily attributable to lower than forecast Residential consumption, with slight increases in Multi-Residential consumption offsetting slight decreases in Commercial consumption.

## 3.2 Financial Performance

Water's net income includes the revenues, operating costs, depreciation and interest expense derived from the provision of water services within the boundaries of the City of Edmonton ("In-City Water"). Besides these services, EWSI also provides water services to the Regional Water Customers Group ("RWCG") under a series of bulk water sales agreements and Fire Protection services to the City under a service agreement.

EWSI operates a fully integrated water system where Water, the RWCG and Fire Protection share facilities and services. Therefore, each component of net income, including operating costs, interest expense and depreciation, are presented and analyzed on a total system basis. Water's share of each income statement component, calculated in accordance with a cost of service model developed jointly by EWSI, the RWCG and the City, is shown as a separate line item on each applicable schedule. Capital expenditures and rate base are presented and analyzed on a similar basis.

### 3.2.1 Revenue

In 2013, Water's revenues are $6.2 million less than the PBR forecast ($15.4 million less for 2012-2013). As in 2012, lower than forecast revenues are concentrated in residential consumption (see Table 3.2.1.1) and are primarily attributable to the long-term decline in consumption per customer described in Section 3.1, with the slight decrease in residential customer counts providing a secondary impact. Variances in other customer categories are not significant; both consumption and customer counts in the commercial and multi-residential categories are close to the forecast.

**Table 3.2.1.1**
**Revenue by Customer Class**
**($ millions)**

| | | A | B | C | D |
|---|---|---|---|---|---|
| **Revenue by Customer Class** | | **2013** | | **Two Years Ended 2013** | |
| | | **Actual** | **PBR Forecast** | **Actual** | **PBR Forecast** |
| 1 | **Consumption Revenue** | | | | |
| 2 | Residential | 79.2 | 86.9 | 153.1 | 169.3 |
| 3 | Multi-Residential | 24.3 | 24.0 | 46.7 | 47.0 |
| 4 | Commercial | 31.4 | 30.9 | 60.9 | 60.0 |
| 5 | **Total Consumption Revenue** | **134.9** | **141.8** | **260.7** | **276.3** |
| | | | | | |
| 6 | **Fixed Charge Revenue** | | | | |
| 7 | Residential | 19.1 | 19.0 | 36.8 | 37.0 |
| 8 | Multi-Residential | 0.8 | 0.8 | 1.6 | 1.6 |
| 9 | Commercial | 2.6 | 2.8 | 5.1 | 5.4 |
| 10 | **Total Fixed Charge Revenue** | **22.5** | **22.6** | **43.5** | **44.0** |
| | | | | | |
| 11 | **Total Water Revenue** | **157.4** | **164.4** | **304.2** | **320.3** |
| 12 | **Non-Rate Revenue** | 4.3 | 3.5 | 7.9 | 7.2 |
| | | | | | |
| 13 | **Total Revenue** | **161.7** | **167.9** | **312.1** | **327.5** |

Differences between actual and forecast inflation also affect water revenues. Under the PBR framework, annual water rate increases are limited to inflation less a 0.25% efficiency factor. As Table 3.2.1.2 shows, the expected rate of inflation from the 2013 rate filing was 1.82%, 0.48% less than in the PBR forecast. This difference had an impact of about $0.9 million on 2013 revenues, with cumulative differences amounting to approximately $2.1 million over the two years ended 2013.

The PBR framework also provides for a true-up between actual inflation and inflation forecast in the prior year's rate filing. In 2013, actual weighted inflation is 1.75%, or 0.07% less than in the 2013 rate filing. Since actual inflation is not known until after the year end, the impact of the actual to rate filing difference is reflected in 2014 rates.

**Table 3.2.1.2**
**Inflation Impacts on 2013 Water Rates**

| | | A | B | C | D |
|---|---|---|---|---|---|
| **PBR Inflation** | | **Weight** | **2013** | | |
| | | | **Actual** | **Rate Filing** | **PBR Forecast** |
| 1 | CPI Component | 65% | 1.40% | 1.50% | 2.00% |
| 2 | Labour Cost Component | 35% | 3.10% | 3.10% | 3.56% |
| 3 | Total | 100% | | | |
| 4 | **Weighted Inflation before Efficiency Factor** | | **2.00%** | **2.07%** | **2.55%** |
| 5 | Less: Efficiency Factor | | (0.25%) | (0.25%) | (0.25)% |
| 8 | **PBR Inflation** | | **1.75%** | **1.82%** | **2.30%** |

## 3.2.2 Operating Costs by Cost Category

In 2013, EWSI's Operating Costs are $8.0 million less than the PBR forecast ($8.8 million less for 2012-2013). Actual and forecast operating costs are summarized in Table 3.2.2.1 below:

**Table 3.2.2.1**
**Water Operating Costs by Cost Category**
**($ millions)**

| | | A | B | C | D |
|---|---|---|---|---|---|
| **Cost Category** | | **2013** | | **Two Years Ended 2013** | |
| | | **Actual** | **PBR Forecast** | **Actual** | **PBR Forecast** |
| 1 | Salaries and Benefits | 42.9 | 43.8 | 87.4 | 86.1 |
| 2 | Corporate Service Charges | 14.0 | 20.2 | 34.3 | 39.7 |
| 3 | Franchise Fees | 12.4 | 13.1 | 24.0 | 25.6 |
| 4 | Customer Billing | 7.7 | 7.6 | 15.6 | 15.0 |
| 5 | Power | 7.2 | 7.2 | 14.8 | 14.2 |
| 6 | Chemical | 5.6 | 7.1 | 10.2 | 14.1 |
| 7 | Contractors and Consultants | 6.1 | 5.8 | 11.9 | 11.4 |
| 8 | Materials and Supplies | 2.7 | 3.1 | 5.7 | 6.1 |
| 9 | Vehicles | 1.9 | 2.1 | 3.6 | 4.2 |
| 10 | Other | 5.1 | 3.6 | 7.2 | 7.1 |
| 11 | **Total System Operating Costs** | **105.6** | **113.6** | **214.7** | **223.5** |
| 12 | **In-City Water Share (%)** | **82.6%** | **83.5%** | **82.7%** | **83.5%** |
| 13 | **In-City Water Share ($)** | **87.2** | **94.8** | **177.5** | **186.6** |

Much of the actual to forecast variance in 2013 operating costs is attributable to the 2013 Reorganization. The reorganization was undertaken in response to the Alberta Utilities Commission ("AUC") Decision 2012-272 on corporate service costs allocated from EPCOR Utilities Inc. ("EUI") to

its AUC-regulated subsidiaries, EPCOR Distribution and Transmission Inc. ("EDTI") and EPCOR Energy Alberta Inc. ("EEAI"). The objectives of the reorganization were to reduce the overall level of corporate services costs provided by EUI and to create greater accountability and transparency by embedding specific corporate service functions and resources in the operating business units that they support, including EWSI. The functions and resources transferred from EUI to EWSI included Human Resources, Public & Governmental Affairs, Regulatory Affairs, Health Safety & Environment, Training and Development, and Supply Chain Management.

The 2013 Reorganization, implemented on March 1, 2013, resulted in substantial reductions to the overall level of Corporate Shared Services costs with an overall EPCOR-wide reduction of 61 equivalent headcount positions. Accordingly, the benefits of the 2013 Reorganization extend to EWSI, as well as to EDTI and EEAI. Further, embedding functions in EWSI provides EWSI with the flexibility to optimize the level of shared services support; facilitating EWSI's cost management initiatives for administrative and shared service costs. The direct impacts of the 2013 Reorganization are summarized in Table 3.2.2.2 below:

**Table 3.2.2.2**
**2013 Reorganization Impacts**
**($ millions)**

| | | A | B | C |
|---|---|---|---|---|
| | **2013 Reorganization Impacts** | **Corporate Service Charges** | **Other Expenses** | **Net Savings** |
| 1 | Functions transferred to EWSI | (3.2) | 2.6 | (0.6) |
| 2 | EUI Corporate Services staff reductions | (2.4) | - | (2.4) |
| 3 | Reductions in Asset Usage Fees | (0.6) | - | (0.6) |
| 4 | **Total** | **(6.2)** | **2.6** | **(3.6)** |

Other significant factors resulting in differences between actual and forecast operating costs include:

- **Salaries and Benefits** - $0.9 million less than forecast ($1.3 million greater for 2012-2013).

  In 2013, lower than forecast salaries and benefits costs reflect:

  - Initiatives to optimize staffing in response to lower than forecast water sales, as well as delays in filling vacancies during the 2013 Reorganization, provided cost savings of $1.9 million in 2013. EWSI will continue to evaluate and manage the effects of lower than forecast water sales throughout the remainder of the PBR term.
  - The low number of main breaks in 2013 (see Section 3.4.1) allowed for greater focus on capital programs, resulting in an additional $0.5 million of capitalized labour costs.
  - Water incurred additional incentive plan costs of $0.9 million in 2013 as EWSI exceeded incentive plan targets for financial and operating performance and, similar to 2012, and due to an actuarial increase in supplemental pension plan obligations of $0.6 million.

  For 2012-2013, additional incentive plan costs of $2.8 million and actuarial increases in the supplemental pension plan obligation of $1.5 million are partially offset by cost savings related to staffing initiatives and capitalization of labour costs amounting to $3.0 million.

- **Corporate Service Charges** - $6.2 million less than forecast ($5.4 million less for 2012-2013).

  In 2013, lower than forecast costs are entirely attributable to the 2013 Reorganization. For 2012-2013, the favourable variance of $5.4 million includes savings from the 2013 Reorganization, less a one-time $0.8 million provision for reorganization costs, primarily for employee severance, recorded in 2012.

- **Franchise Fees** - $0.7 million less than forecast, ($1.6 million less for 2012-2013).

  Lower than forecast franchise fees in 2013 and in 2012-2013 are entirely attributable to lower than forecast revenue.

- **Chemical** - $1.5 million less than forecast ($3.9 million less for 2012-2013).

  The favourable variance in chemical costs reflects the following:

  - In the PBR Forecast, the costs of caustic soda and alum were based on a 0% dilution factor instead of the normal dilution factor of 50%, resulting in lower annual costs of $0.8 million in each year of the 2012-2016 PBR term. This difference will be reviewed with City Administration as part of the NRA discussion in June, 2014.
  - EWSI continued to achieve significant savings in chemical usage in 2013. These savings result from chemical optimization and process improvements, primarily from greater use of direct filtration and the use of flavour profile analysis to quantify and characterize odours in raw and treated water. These process improvements provided savings of $0.5 million in 2013 and $1.2 million in 2012-2013.
  - The remainder of the actual to forecast variance in chemicals is related to lower than forecast chemical costs.

- **Other -** $1.5 million greater than forecast ($0.1 million greater for 2012-2013).

  In 2013, the $2.6 million increase in Other Expenses resulting from the transfer of corporate functions to EWSI as part of the 2013 Reorganization was partially offset by a one-time $0.4 million reduction in Technical Training costs related to a revised service level agreement with EDTI and $0.3 million in savings in natural gas costs related to lower than forecast natural gas prices. The remainder of the variance in this category is made up of numerous small items which, in aggregate amount to $0.4 million.

- Variances in Customer Billing, Power, Contractors, Materials and Supplies, and Vehicle cost categories are not significant, amounting to $0.2 million less than forecast in 2013 ($0.7 million greater in 2012-2013).

In 2013, 82.6% of EWSI's operating costs were allocated to In-City Water, compared to 82.7% in 2012. The lower than forecast allocation in both years is consistent with the decline in In-City Water's residential consumption and increased bulk water sales to the RWCG.

### 3.2.3 Operating Costs by Operational Function

In addition to analysis of operating costs by cost category, EWSI's operating costs are also analyzed on a functional basis. Actual and forecast operating costs by operational function are summarized in Table 3.2.3 below.

**Table 3.2.3**
**Operating Costs by Operational Function**
**($ millions)**

| | | A | B | C | D |
|---|---|---|---|---|---|
| **Operational Function** | | **2013** | | **Two Years Ended 2013** | |
| | | **Actual** | **PBR Forecast** | **Actual** | **PBR Forecast** |
| 1 | Water Treatment Plants | 22.7 | 25.1 | 43.6 | 49.2 |
| 2 | Water Distribution and Transmission | 31.3 | 31.6 | 62.6 | 62.2 |
| 3 | Quality Assurance | 4.7 | 4.8 | 9.2 | 9.5 |
| 4 | Operations Support Services | 7.1 | 9.3 | 15.1 | 18.4 |
| 5 | Administrative Services | 5.7 | 1.9 | 10.3 | 3.9 |
| 6 | Customer Billing | 7.7 | 7.6 | 15.6 | 15.0 |
| 7 | Corporate Service Charges | 14.0 | 20.2 | 34.3 | 39.7 |
| 8 | Franchise Fees | 12.4 | 13.1 | 24.0 | 25.6 |
| **9** | **Total EWSI Operating Costs** | **105.6** | **113.6** | **214.7** | **223.5** |

Significant differences between 2013 actual and PBR forecast costs by Operational Function include:

- **Water Treatment Plants** - $2.4 million less than forecast ($5.6 million less for 2012-2013).

  The difference between actual and forecast costs reflects lower than forecast chemical costs (see Section 3.2.2) which provided savings of $1.5 million ($3.9 million for 2012-2013), lower natural gas prices (also in Section 3.2.2) which provided savings of $0.3 million ($0.7 million for 2012-2013) and cost containment efforts taken in response to lower than forecast water sales. Cost containment efforts, primarily optimization of maintenance work, reduced water treatment costs by $0.7 million from the PBR forecast ($1.0 million for 2012-2013).

- **Operations Support Services -** $2.2 million less than forecast ($3.3 million less for 2012-2013).

  In 2013, the variance in this category includes:

  - $1.0 million ($1.7 million for 2012-13) of reductions in Salaries and Benefits primarily from positions moving to Administrative Services as part of the 2013 Reorganization;
  - $0.3 million ($0.3 million for 2012-2013) of reductions in Advertising and Promotion resulting from aligning conservation programs with corporate initiatives;
  - $0.3 million ($0.7 million for 2012-2013) from reductions in Technical Training fees paid to EDTI reflecting revisions to the service level agreement with EDTI; and
  - $0.6 million ($0.6 million for 2012-2013) of reductions in Long-term Disability costs which are included in the PBR forecast in Operations Support Services, rather than in Administrative Services.

- **Administrative Services -** $3.8 million greater than forecast ($6.4 million greater for 2012-2013).

  The variance in Administrative Services includes:

- $2.6 million ($2.6 million for 2012-2013) of additional costs associated with the transfer of functions and resources from EUI to EWSI as part of the 2013 Reorganization (see Section 3.2.2).
- $0.9 million ($2.8 million for 2012-2013) of additional incentive plan costs (see Section 3.2.2).
- $0.6 million ($1.5 million for 2012-2013) for an actuarial revaluation of the Supplementary Pension Plan (see Section 3.2.2).
- $0.3 million ($0.3 million for 2012-2016) of net cost reductions associated with unfilled vacancies and 2013 Reorganization refinements.

- **Customer Billing, Franchise Fees** and **Corporate Service Charges** refer to the same operating cost categories discussed and explained in Section 3.2.2 above.
- Variances in other cost categories are not significant, amounting to $0.4 million less than forecast in 2013 ($0.1 million greater in 2012-2013).

### 3.2.4 Depreciation Expense

In 2013, EWSI's net depreciation expense is $24.4 million; $0.4 million greater than in the PBR forecast (see Table 3.2.4). As in 2012, this difference results from higher than forecast opening asset balances. Actual depreciation and amortization rates of 2.06% are very close to the PBR forecast rate of 2.02% and, therefore, do not have significant effects on net depreciation expense. Accordingly, the proportion of net depreciation expense allocated to EWSI is also very close to the PBR forecast.

**Table 3.2.4**
**Net Depreciation Expense**
**($ millions)**

| | | A | B | C | D |
|---|---|---|---|---|---|
| **Depreciation Expense** | | **2013** | | **Two Years Ended 2013** | |
| | | **Actual** | **PBR Forecast** | **Actual** | **PBR Forecast** |
| 1 | Gross Depreciation Expense | 32.4 | 31.7 | 62.4 | 61.3 |
| 2 | Less: Amortization of Contributions | (8.0) | (7.7) | (15.5) | (15.1) |
| **3** | **Net EWSI Depreciation Expense** | **24.4** | **24.0** | **46.9** | **46.2** |
| 4 | In-City Water Share (%) | **77.9%** | **77.9%** | **77.2%** | **77.8%** |
| **5** | **In-City Water Share ($)** | **19.0** | **18.7** | **` 36.2** | **36.0** |

### 3.2.5 Interest Expense and Cost of Debt

In 2013, EWSI's total interest expense is $2.7 million less than in the PBR forecast (see Table 3.2.5). This variance is primarily attributable to lower average cost of debt.

In 2013, Water's share of EWSI interest expense is 75.4%, 2.2% less than forecast. This result reflects the basis under which interest costs are allocated between In-City, RWCG and Fire Protection. Unlike In-City and Fire Protection interest expense, which are based on EWSI's actual capital structure, RWCG's interest expense is based on a deemed capital structure. Since RWCG's deemed capital structure for 2012 and 2013 has a higher proportion of debt than was anticipated in the PBR forecast, a higher proportion of interest expense is allocated to RWCG, leaving less interest expense available for In-City.

**Table 3.2.5**
**Interest Expense and Cost of Debt – Water**
**($ millions)**

| | | A | B | C | D |
|---|---|---|---|---|---|
| **Interest Expense and Cost of Debt** | | **2013** | | **Two Years Ended 2013** | |
| | | **Actual** | **PBR Forecast** | **Actual** | **PBR Forecast** |
| 1 | Average Debt Balance[1] | 420.9 | 423.4 | | |
| 2 | Average Cost of Debt[2] | 4.89% | 5.49% | | |
| 3 | EWSI Interest Expense | 27.3 | 30.0 | 53.6 | 57.1 |
| 4 | In-City Water Share (%) | 75.4% | 77.6% | 77.0% | 77.0% |
| 5 | **In-City Water Share ($)** | **20.6** | **23.2** | **41.3** | **43.9** |

[1] Refers to the portion of the Water Rate Base financed by debt.
[2] Effective cost of In-City debt, based on EWSI interest expense net of RWCG deemed interest expense.

## 3.2.6 Capital Expenditures

In 2013, Water's capital expenditures are within $0.1 million of the forecast ($5.0 million less for 2012-2013). Actual and PBR forecast capital expenditures for major projects (projects with forecast costs greater than $10.0 million) and in aggregate are shown Table 3.2.6 below.

**Table 3.2.6**
**Capital Expenditures by Project**
**($ millions)**

| | | A | B | C | D | E |
|---|---|---|---|---|---|---|
| **Capital Project** | | **2013** | | **2012-2013** | | **PBR Forecast 2012-2016** |
| | | **Actual** | **PBR Forecast** | **Actual** | **PBR Forecast** | |
| 1 | **City Driven Capital Projects** | | | | | |
| 2 | AWMR Program | 22.4 | 20.0 | 43.0 | 40.0 | 100.0 |
| 3 | Reactive Renewal Program | 12.5 | 12.0 | 25.2 | 24.0 | 56.0 |
| 4 | Private Development Transmission Mains | 4.0 | 5.1 | 10.0 | 10.1 | 26.1 |
| 5 | Water Main Relocation Projects | 2.0 | 3.4 | 2.0 | 5.6 | 10.0 |
| 6 | City-Driven Projects < $10 Million | 4.0 | 2.4 | 7.3 | 4.9 | 12.5 |
| **7** | **Total City Driven Capital Projects** | **44.9** | **42.9** | **87.5** | **84.6** | **204.6** |
| | | | | | | |
| 8 | **Other Capital Projects** | | | | | |
| 9 | Rossdale Sodium Hypochlorite | 6.6 | 7.3 | 9.8 | 17.0 | 17.0 |
| 10 | Rossdale Laboratory Building | 3.4 | 5.2 | 3.8 | 12.3 | 12.3 |
| 11 | Proactive Renewal Program | 3.6 | 2.5 | 6.2 | 5.0 | 13.0 |
| 12 | Water Main Cathodic Protection | 2.0 | 2.0 | 3.8 | 4.0 | 10.0 |
| 13 | Meter Change Outs | 2.5 | 2.3 | 4.4 | 4.5 | 11.7 |
| 14 | Plant Residuals | 3.0 | 2.1 | 5.1 | 2.7 | 12.1 |
| 15 | Other projects < $10 million | 19.9 | 21.5 | 49.3 | 44.8 | 120.2 |
| **16** | **Total Other Capital Projects** | **41.0** | **42.9** | **82.4** | **90.3** | **196.3** |
| | | | | | | |
| 17 | **Total Capital Expenditures** | **85.9** | **85.8** | **169.9** | **174.9** | **400.9** |

City-driven capital includes: construction projects to accommodate private development growth within the city; rehabilitation and revitalization projects driven by City departments; relocation of transmission and distribution mains due to LRT or bridge work; and the AWMR program. In 2013, City-driven capital projects amounted to over one-half of EWSI's total water capital expenditures.

Significant actual to PBR forecast variances for City-driven and other capital expenditures in 2013 and for 2012-2013 include:

- **AWMR** - $2.4 million greater than forecast ($3.0 million greater for 2012-2013).

  EWSI's AWMR program supports the City's request for EWSI to replace water mains under roadways that are scheduled to be rehabilitated by the City's Transportation Services department. Actual expenditures on AWMR reflect replacement of a higher than forecast number of water mains in order to accommodate the City's paving plans.

- **Reactive Renewal** - $0.5 million greater than forecast ($1.2 million greater for 2012-2013).

  Actual to forecast variances in 2013 and for 2012-2013 result from timing differences; work originally forecast for 2014 and future years was advanced to 2012 and 2013. Total expenditures on these programs over the 2012-2016 PBR term are expected to be on target.

- **Private Development Transmission Mains –** $1.1 million less than forecast ($0.1 million less for 2012-2013).

  This program includes private development transmission mains, private development construction coordination and the water main cost sharing program. EWSI and private developers share in the costs of extending EWSI's distribution and transmission network to new subdivisions. Actual to forecast differences in these categories are consistent with actual levels of construction activity.

- **Water Main Relocation Projects** - $1.4 million less than forecast ($3.6 million less for 2012-2013).

  The PBR forecast anticipated approval of the West LRT extension with work on related relocation projects well underway in 2012-2013. The City's approval of the South East LRT extension, rather than the West LRT extension, as well as delays in funding from other levels of government, has resulted in delays in expenditures on relocation projects and has required EWSI to identify an entirely different set of relocation projects.

  EWSI expects that the large number of conflicts with existing transmission mains will result in higher than forecast costs to Water over the remainder of the current PBR term (see Section 1.3) and has developed standardized processes for managing relocation requests and selecting the least-cost options for addressing utility conflicts.

- **Proactive Renewal** - $1.1 million greater than forecast ($1.2 million greater for 2012-2013).

  This project is closely tied to Reactive Renewal. Actual to forecast variances in 2013 and for 2012-2013 result from timing differences; work originally forecast for 2014 and future years was advanced to 2012 and 2013. Total expenditures on these programs over the 2012-2016 PBR term are expected to be on target.

- **Rossdale Sodium Hypochlorite** – $0.7 million less than forecast ($7.2 million less for 2012-2013)

  This project involves the installation of an on-site hypochlorite generator at the Rossdale Water Treatment Plant. Lower than forecast expenditures on this project in 2012 and 2013 are primarily timing-related. The project duration was adjusted from 2011-2013 to 2011-2014, so that experience gained from similar work at E.L. Smith could be leveraged to reduce total expenditures. EWSI expects that, when completed, the total cost of this project will be $2.4 million less than forecast.

- **Rossdale Laboratory Building** - $1.8 million less than forecast ($8.5 million less for 2012-2013).

  Although actual to forecast differences in 2013 and for 2012-2013 are primarily timing-related, the scope of this project has changed significantly from the forecast and the total cost of this project,

now expected to be completed in 2015, is projected to be $24.9 million, $12.4 million greater than forecast. Delays in project completion and changes in scope reflect:

- Discovery of historical artifacts on the site prior to the planned start of construction. The resulting excavation, archeological fieldwork and consultative work with interest groups delayed preparation and completion of the Historical Resources Impact Assessments (HRIA) Report, resulting in further delays in receiving Approval to Construct from Alberta Culture by eight months.
- Soil conditions were much different from what had been expected, resulting in unanticipated remediation work, which increased costs and further delayed construction of the basement.
- The 2013 Reorganization also affected this project. EWSI delayed construction to identify and assess options for construction needed to accommodate additional staffing movements resulting from the 2013 Reorganization. The resulting changes in project scope led to increases in floor space and a resulting increase in cost. EWSI expects that a portion of the increased costs of the building will be offset by future savings in rent at other EPCOR locations.

- **Plant Residuals** – $0.9 million greater than the PBR forecast ($2.4 million greater for 2012-2013).

  This program consists of alum sludge treatment and de-chlorination of waste streams for the plants. Water has been reviewing treatment options with Alberta Environment and Sustainable Resource Development (AESRD) to identify the most cost effective solution for reducing the impact of alum residuals on the river and is currently trialing direct filtration. The result of this trial and other potential solutions will determine the final cost for this program.

- **All Other Projects** - $0.2 million less than the PBR forecast ($6.6 million greater for 2012-2013).

  EWSI closely manages Water's capital program. Capital projects are advanced or delayed as needed, so that resources are used efficiently and that required capital projects are completed over the five year PBR term, and that total capital spending remains within the PBR forecast envelope.

### 3.2.7 Rate Base and ROE

In 2013, EWSI's net rate base is $894.1 million, $2.5 million (0.3%) less than the PBR forecast, primarily related to lower than forecast additions. Although capital expenditures in 2013 were close to forecast, two significant projects, the Rossdale Sodium Hypochlorite Generator and the Rossdale Laboratory Building, were not completed in 2013 and, accordingly, have been excluded from the rate base.

The In-City proportion of the rate base was 77.9%, compared to 77.8% in 2012 and 79.2% in the PBR forecast. The actual In-City proportion of the rate base in 2013 reflects the decrease in the proportion of In-City consumption relative to RWCG consumption, a trend that was not reflected in the PBR forecast. Details of Water's rate base are shown in Table 3.2.7.1 below.

**Table 3.2.7.1**
**Rate Base – Net of Contributions**
**($ millions)**

| | | A | B |
|---|---|---|---|
| **Mid-Year Rate Base** | | **2013** | |
| | | **Actual** | **PBR Forecast** |
| 1 | Gross Property, Plant & Equipment, Opening | 1,137.6 | 1,134.6 |
| 2 | Additions | 80.8 | 102.7 |
| 3 | Retirements/Transfers | (3.8) | (3.5) |
| 4 | Gross Property, Plant & Equipment, Closing | 1,214.6 | 1,233.8 |
| | | | |
| 5 | Accumulated Depreciation, Opening | 290.6 | 292.9 |
| 6 | Depreciation Expense | 24.2 | 24.0 |
| 7 | Retirements/Transfers | (3.8) | (3.5) |
| 8 | Accumulated Depreciation, Closing | 311.0 | 313.4 |
| | | | |
| 9 | Mid-Year Gross Property | 1,176.1 | 1,184.2 |
| 10 | Mid-Year Accumulated Depreciation | (300.8) | (303.2) |
| 11 | **Mid-Year Net Property** | 875.3 | 881.0 |
| | | | |
| 12 | Add: Working Capital | 16.4 | 13.8 |
| 13 | Add: Average Materials and Supplies | 2.4 | 1.8 |
| | | | |
| 14 | **Mid-Year Rate Base** | **894.1** | **896.6** |
| | | | |
| 15 | **In-City Share of Mid-Year Rate Base (%)** | **77.9%** | **79.2%** |
| 16 | **In City Share of Mid-Year Rate Base ($)** | **696.5** | **710.1** |

In 2013, the total return on Water's rate base is $1.1 million greater than in the PBR forecast. This difference reflects the lower cost of debt (see Section 3.2.5) and higher than forecast net income (see Section 1.1.1). Actual and forecast returns are summarized in Table 3.2.7.2 below.

**Table 3.2.7.2**
**Return on Rate Base**
**($ millions)**

| | | A | B |
|---|---|---|---|
| **Return on Rate Base** | | **2013** | |
| | | **Actual** | **PBR Forecast** |
| 1 | Mid-year Rate Base Allocated to In-City | 696.5 | 710.1 |
| | | | |
| 2 | Capital Structure: Debt (%) | 60.43% | 59.62% |
| 3 | Capital Structure: Equity (%) | 39.57% | 40.38% |
| | | | |
| 4 | Cost of Debt | 4.89% | 5.49% |
| 5 | Cost of Equity | 12.65% | 10.88% |
| 6 | **Weighted Average Cost of Capital** | 7.96% | 7.67% |
| | | | |
| 7 | Return on Mid-year Rate Base Financed by Debt | 20.6 | 23.2 |
| 8 | Return on Mid-year Rate Base Financed by Equity | 34.9 | 31.2 |
| 9 | **Return on Mid-year Rate Base** | **55.5** | **54.4** |

## 3.3 Water Rates and Bill Comparisons

### 3.3.1 Water Rates

Water rates consist of consumption charges and fixed monthly service charges. Table 3.3.1.1 shows the 2013 water consumption charges for Residential, Multi-residential and Commercial customer classes, with comparable charges for 2012.

In accordance with the Bylaw, the increase in consumption charges between 2012 and 2013 reflects the 2013 forecast inflation adjustment of 1.82% (see Section 3.2.1), the actual to forecast inflation adjustment for 2012 of -0.77%, special rate adjustments for rebasing and the AWMR program. The special rate adjustment for Residential, Multi-Residential and Commercial consumption charges accounted for about 5% of the consumption charges. The special rate adjustment is applicable for 2012 and 2013 only, and will not be added to the 2014 rates. The rate adjustment for AWMR accounted for about 1% of the consumption charges.

**Table 3.3.1.1**
**Water Consumption Charges**

| | | A | B |
|---|---|---|---|
| | **Consumption Block** | **2013 Rate ($/m$^3$)** | **2012 Rate ($/m$^3$)** |
| 1 | **Residential** | | |
| 2 | 0.0 $m^3$ to 10.0 $m^3$ | 1.7469 | 1.6435 |
| 3 | 10.1 $m^3$ to 35.0 $m^3$ | 1.9084 | 1.7955 |
| 4 | Over 35.0 $m^3$ | 2.4117 | 2.2691 |
| | | | |
| 5 | **Multi-Residential** | | |
| 6 | 0.0 $m^3$ to 100.0 $m^3$ | 1.6951 | 1.5948 |
| 7 | 100.1 $m^3$ to 1,000.0 $m^3$ | 1.4182 | 1.3343 |
| 8 | Over 1,000.0 $m^3$ | 1.1718 | 1.1025 |
| | | | |
| 9 | **Commercial** | | |
| 10 | 0.0 $m^3$ to 25.0 $m^3$ | 1.3296 | 1.2508 |
| 11 | 25.1 $m^3$ to 100.0 $m^3$ | 1.3296 | 1.2508 |
| 13 | 100.1 $m^3$ to 1,000.0 $m^3$ | 1.2263 | 1.1537 |
| 14 | 1,000.1 $m^3$ to 5,000.0 $m^3$ | 0.9706 | 0.9131 |
| 15 | Over 5,000.0 $m^3$ | 0.7813 | 0.7351 |

Table 3.3.1.2 shows the 2013 water fixed monthly service charges by meter size with comparable charges for 2012. Similar to consumption charges, the increase in monthly fixed service charges between 2012 and 2013 reflects PBR inflation and efficiency factors, as well as special rate adjustments. Special rate adjustments for fixed monthly service charges relate only to rebasing and increase fixed monthly service charges by about 4% for all meter sizes.

**Table 3.3.1.2**
**Water Fixed Monthly Service Charge**

| | | A | B |
|---|---|---|---|
| | **Fixed Rates (based on meter size)** | **2013 Rate ($)** | **2012 Rate ($)** |
| 1 | 15 mm | 6.90 | 6.55 |
| 2 | 20 mm | 9.46 | 8.99 |
| 3 | 25 mm | 13.41 | 12.74 |
| 4 | 40 mm | 23.43 | 22.26 |
| 5 | 50 mm | 31.22 | 29.66 |
| 6 | 75 mm | 61.98 | 58.88 |
| 7 | 100 mm | 113.23 | 107.57 |
| 8 | 150 mm | 211.93 | 201.32 |
| 9 | 200 mm | 336.68 | 319.83 |
| 10 | 250 mm | 786.79 | 747.41 |
| 11 | 300 mm | 786.79 | 747.41 |
| 12 | 400 mm | 940.61 | 893.52 |
| 13 | 500 mm | 1,012.88 | 962.18 |

## 3.3.2 Water Rate Structure by Customer Class

### 3.3.2.1 Residential

Residential customers are charged based on an inclining rate structure with three consumption blocks. The inclining rate structure is intended to promote water conservation and provide incentives for residential customers to use water efficiently.

### 3.3.2.2 Multi-Residential

Multi-residential customers are charged based on a declining rate structure with three consumption blocks. EWSI has found that the cost to provide water to Multi-residential customers is not the same as to Residential and Commercial customers. Multi-residential customer consumption does not have the same seasonal variation as Residential customers' consumption patterns, nor do they have the same infrastructure requirements as Commercial customers. As a result, pricing for Multi-residential customers is a unique declining rate structure.

The American Water Works Association M1 manual states that declining rate structure is appropriate where a "class of service has an array of customers with varying usage and demand requirements."[1] This is the case with the EWSI multi-residential customer class. This customer category encompasses small multi-residential units of five dwellings to large residential high rise towers. The declining rate structure therefore reflects the economies of scale for large customers on a cubic meter basis, while also reflecting the cost of service for smaller customers on a cubic meter basis.

### 3.3.2.3 Commercial

Commercial customers tend to have stable consumption patterns, using the same amount of water evenly throughout the year, resulting in efficient use of the water system. Water rates for commercial customers are based on a declining rate structure with five consumption blocks.

[1] American Water Works Association. Principles of Water Rates, Fees, and Charges, Manual of Water Supply Practices, M1, Fifth Edition, 2000, page 92.

Similar to the multi-residential customer class, the commercial customer class has a wide variety of customers with varying consumption patterns and peaking factors. For that reason, the declining rate structure reflects the cost to provide service to this customer class. The declining rate structure reflects economies of scale for large customers on a cubic meter basis, while also reflecting the cost of service for smaller customers on a cubic meter basis.

### 3.3.3 Water Bill Comparisons to Other Communities

Water bill comparisons for 2013 are based on surveys of Calgary, Vancouver, Winnipeg and local communities within the Alberta Capital Region. These comparisons are based on the total cost to the customer and include fixed charges, consumption charges and any other applicable surcharges.

#### 3.3.3.1 Residential Water Bills

Figure 3.3.3.1 provides a comparison of residential household water bills based upon the average Edmonton residential household consumption of 16.1 $m^3$ per month.

**Figure 3.3.3.1**
**Average Edmonton Monthly Residential Water Bill in 2013**
**(16.1 $m^3$/month)**

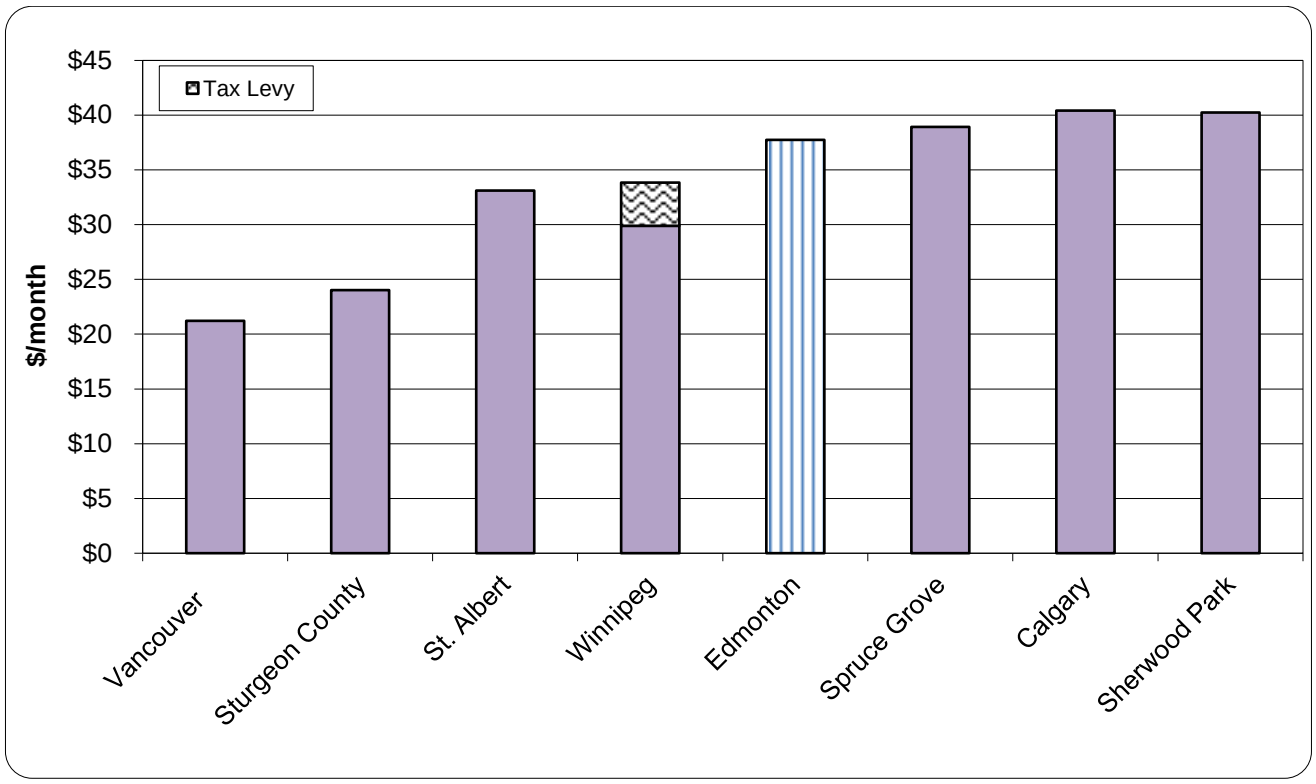



Figure 3.3.3.1 shows that Edmonton residential water customers rates are competitive with surrounding communities and other major cities in western Canada. Further:

- Historically, Edmonton's per capita water consumption has been lower than per capital consumption in other cities in western Canada[2]. Therefore, the actual cost paid by residential customers in other municipalities would reflect their higher consumption.
- Edmonton has the challenge of a poor raw water source compared to some other cities and must conduct additional treatment. For example, Vancouver only disinfects water with chlorine which results in lower water treatment costs.
- Different water rate structures also affect bill amounts. For example, EWSI pays an 8% franchise fee to the City, whereas St. Albert has no franchise fees.

### 3.3.3.2 Commercial Water Bills

Table 3.3.3.2 provides a comparison of the water bills for five types of commercial customers:

- A convenience store consuming an average of 8.4 $m^3$ of water per month. Customers in this category comprise 55.4% of EWSI's commercial customers and 3.4% of commercial water consumption.
- A larger retail store consuming an average of 51.8 $m^3$ of water per month. Customers in this category comprise 25.5% of EWSI's commercial customers and 9.4% of commercial water consumption.
- A restaurant consuming an average of 263.8 $m^3$ of water per month. Customers in this category comprise 16.8% of EWSI's commercial customers and 34.2% of commercial water consumption.
- A hotel consuming an average of 1,969.5 $m^3$ of water per month. Customers in this category comprise 2.1% of EWSI's commercial customers and 25.0% of commercial water consumption.
- A hospital consuming an average of 11,835.3 $m^3$ of water per month. Customers in this category comprise 0.3% of EWSI's commercial customers and 27.9% of commercial water consumption.

Overall, in the commercial water segment, water bills for EWSI's commercial customers are at the low end of the range compared to the other surveyed utilities.

**Table 3.3.3.2**
**Commercial Monthly Water Bill Comparison**
**($ per month)**

| | | A | B | C | D | E |
|---|---|---|---|---|---|---|
| | **Community** | **Convenience Store** | **Retail Store** | **Restaurant** | **Hotel** | **Hospital** |
| **1** | **Average Monthly Consumption ($m^3$)** | **8.4** | **51.8** | **263.8** | **1,969.5** | **11,835.3** |
| 2 | **Average Bill ($ per month)** | | | | | |
| 3 | Vancouver[1] | 15.56 | 59.81 | 285.20 | 2,086.72 | 10,520.78 |
| 4 | Edmonton | **18.09** | **78.38** | **336.87** | **2,024.83** | **9,458.82** |
| 5 | Winnipeg | 19.18 | 79.50 | 376.88 | 2,838.76 | 14,872.73 |
| 6 | St. Albert | 21.20 | 87.37 | 409.61 | 3,002.27 | 17,998.29 |
| 7 | Calgary | 28.10 | 97.50 | 356.68 | 1,950.70 | 11,101.23 |
| 8 | Sturgeon County | 24.00 | 101.59 | 618.87 | 4,441.46 | 25,060.98 |
| 9 | Sherwood Park | 23.55 | 117.51 | 583.03 | 4,301.29 | 25,266.11 |
| 10 | Spruce Grove | 20.29 | 125.15 | 637.34 | 4,758.31 | 25,594.08 |

[1] Reflects weighted average of seasonal water rates

[2] Environment Canada, "2011 Municipal Water Use Report, Municipal Water Use 2009 Statistics", Cat. No. En11-2/2009E, Chart 2, pp 7.

## 3.4 PBR Operating Performance Measures

Water System Service Quality is measured by the results of five indices prescribed in the Bylaw. Performance under each index is measured independently on a point basis with 100 base points available if the standards for all five performance measure indices are achieved. Bonus points are available for performance above standards and financial penalties are applied if EWSI does not meet the 100 base point standard. For some performance measures, such as main breaks, a lower-than-standard score represents performance above standards. For other measures, such as the Planned Construction Factor, a higher score indicates better performance. Accordingly, to provide for greater clarity, actual outcomes have been noted as "Exceeded Standard" if the actual outcome was better than the standard or "Below Standard", if the actual outcome was worse than the standard.

### 3.4.1 System Reliability Index

The System Reliability Index is a measure of the confidence that customers can place in the reliability of the waterworks system. In 2013, Water exceeded all standards in this index.

| Performance Measure | PBR Measure | Standard | Actual Score | Actual Outcome | Available Points | Actual Points |
|---|---|---|---|---|---|---|
| Water Main Break Factor | The number of water main breaks that occurred in the reporting period | 574 | 278 | Exceeded standard | 5.0 | 7.6 |
| Water Main Break Duration Factor | The percentage of water main breaks repaired within 24 hours from the time the water is shut off | 93.7% | 94.9% | Exceeded standard | 5.0 | 5.1 |
| Planned Construction Factor | The number of times that EWSI Water complies with required construction notification procedures and met construction timelines as a percentage of the total planned construction events | 95% | 95.6% | Exceeded standard | 5.0 | 5.0 |
| Water Pressure Factor | The number of incidents per year where the water pressure is below 20 psi for two or more consecutive 15-minute periods. | 5 | 0 | Exceeded standard | 5.0 | 6.0 |
| Water Loss Factor (ILI) | The ILI is a performance indicator quantifying how well a water distribution system is managed for the control of real (leakage) water losses | 3.0 | 1.29 | Exceeded standard | 5.0 | 7.8 |
| | | | | Index Standard Points | 25.0 | |
| | | | | Available Bonus Points | 3.5 | |
| | | | | Maximum Available Points | **28.5** | |
| | | | | Total Actual Points | | 31.5 |
| | | | | **Total Points Earned** | | **28.5** |

**2013 Highlights**

- **Water Main Break Factor.** Refinement of water main maintenance practices and replacement of cast iron water mains with PVC water mains have contributed to a long-term decline in the annual number of water main breaks. In 2013, these factors combined with favourable weather conditions to result in the lowest number of water main breaks in almost fifty years.

- **Water Pressure Factor.** In 2013, for the first time since 2009, there were no instances where water pressure dropped below 20 psi for two or more consecutive 15-minute periods.

- **Water Loss Factor.** The Infrastructure Leakage Index (ILI) measures how well a distribution system is managed for the control of real losses (leakage), with lower measures indicating better management. The PBR standard of 3.0 was derived from the Water Research Foundation's guidelines for setting a target ILI based on financial, operational and water resource considerations. In 2013, Water's actual ILI of 1.29 indicates excellent management of leakage within the distribution system.

### 3.4.2 Water Quality Index

The Water Quality Index is calculated as the percentage of water quality test results that meet or exceed Water's internal water quality standards. At a minimum, these standards are equal to the standards set out in the AESRD Standards and Guidelines for Waterworks Systems, and Schedule 3 of Water Service's Approval to Operate issued by the AESRD. In 2013, Water exceeded the standard in this index.

| Performance Measure | PBR Measure | Standard | Actual Score | Actual Outcome | Available Points | Actual Points |
|---|---|---|---|---|---|---|
| Water Quality Index | The percentage of Edmonton water quality tests that meet EWSI Water's internal standards and regulatory measures | 99.6% | 99.8% | Exceeded standard | 25 | 25.1 |
| | | | | Index Standard Points | 25.0 | |
| | | | | Available Bonus Points | 0.5 | |
| | | | | Maximum Available Points | **25.5** | |
| | | | | Total Actual Points | | 25.1 |
| | | | | **Total Points Earned** | | **25.1** |

**2013 Highlights**

- In 2013, 54,319 of 54,415 applicable laboratory tests met Water's internal quality standards and, except for one high result for Nitrilotriacetic Acid ("NTA"), all Canadian Drinking Water Guidelines for radiochemical, chemical and physical parameters were met.
- Water Quality Assurance and Environment ("Quality Assurance") investigated the high NTA result and found no evidence of contamination at the water treatment plants or reservoirs. Quality Assurance concluded that the high NTA result occurred because the procedure for selecting glassware for NTA sampling was not followed.
- Quality Assurance found many different factors contributed to the other 95 water quality tests that did not meet Water's internal quality standards. Low chlorine residuals in the distribution system (26 test results) and sampling difficulties (19 test results) were two common themes. In response to these factors:
    - In 2013, Quality Assurance completed a study on chlorine decay to develop corrective measures (i.e. line flushing) for areas with low water turnover, so that water stagnation is avoided and acceptable chlorine levels are maintained.

- Quality Assurance is developing a training module for bacteriological sample collectors to reduce the number of non-standard results. New training in a classroom setting will focus on aseptic sampling techniques and selection of appropriate sample points. By the end of 2014, over 120 samplers will have completed the training.

### 3.4.3 Customer Service Index

The Customer Service Index is a measure of the level of satisfaction that customers place in Water's overall level of service. In 2013, Water exceeded all standards in this Index.

| Performance Measure | PBR Measure | Standard | Actual Score | Actual Outcome | Available Points | Actual Points |
|---|---|---|---|---|---|---|
| Post Service Audit Factor | The percentage of surveyed customers who rated their service experience with Water Dispatch personnel and/or field staff as "very satisfied" or "completely satisfied" | 74.0% | 77.8% | Exceeded standard | 6.66 | 7.00 |
| Response Time Factor | The average number of minutes to confirm a water main break once a call is received by the dispatch office | 25 | 16 | Exceeded standard | 6.67 | 9.07 |
| Home Sniffing Factor | The percentage of volunteer community members who favourably assess drinking water odour during the spring run-off season | 93.8% | 94.8% | Exceeded standard | 6.67 | 6.67 |
| | | | | Index Standard Points | 20.0 | |
| | | | | Available Bonus Points | 3.0 | |
| | | | | Maximum Available Points | **23.0** | |
| | | | | Total Actual Points | | 22.8 |
| | | | | **Total Points Earned** | | **22.8** |

**2013 Highlights**

- **Post Service Audit Factor.** During 2013, all negative comments from surveyed customers were followed-up and opportunities to improve the customer experience identified. Water also worked with the survey service provider to create an additional follow-up question on customer expectations for all customers who provided a rating below excellent. The objective was to improve employee training, reinforce customer based messaging and identify process improvement opportunities.
- **Response Time Factor.** The low number of main breaks in 2013 enabled crews to respond directly to main breaks, since fewer resources were needed for emergency activities.
- **Home Sniffing Factor.** Although the Home Sniffing Factor exceeded the standard, it was lower than in 2012 (97.0%) and 2011 (96.7%). These results reflect a two day period in early April, 2013, where elevated colour and ammonia in raw water resulted in instances of customers reporting strong chlorinous odour. These reports subsided when water treatment plant operators responded by increasing powdered activated carbon ("PAC"). For 2014, Water will increase the level of raw water monitoring prior to spring run-off to better anticipate the critical early phase of run-off and will review and revise spring run-off operations strategies as necessary.

### 3.4.4 Environment Index

The Environmental Index measures Water's efforts to limit its impact on the environment and contributes to the City's ten-year strategic goal to "Preserve and Sustain Edmonton's Environment". In 2013, Water exceeded the overall Environmental Index standard and met or exceeded all standards in this index.

| Performance Measure | PBR Measure | Standard | Actual Score | Actual Outcome | Available Points | Actual Points |
|---|---|---|---|---|---|---|
| Emergency Response Training | The number of practice exercises undertaken in the year | 4 | 4 | Met standard | 3.75 (0.75 available bonus points) | 3.75 |
| Completeness and Timeliness of Reporting | The percentage of incident reports completed | 100% | 100.0% | Met standard | 3.75 | 3.75 |
| Environment Incident Management | The number of reportable and preventable environmental incidents | 7 | 4 | Exceeded standard | 3.75 | 3.75 |
| Water Conservation Factor | The 10 year average monthly water consumption in $m^3$ per Edmonton residential household | 19.0 | 17.8 | Exceeded standard | 1.5 | 1.5 |
| Watershed Program Activity | # of deliverables completed | 5 | 7 | Exceeded standard | 2.25 (0.75 available bonus points) | 3.0 |
| | | | | Index Standard Points | 15.0 | |
| | | | | Available Bonus Points | 1.5 | |
| | | | | Maximum Available Points | **16.5** | |
| | | | | Total Actual Points | | 15.8 |
| | | | | **Total Points Earned** | | **15.8** |

**2013 Highlights**

- **Environment Incident Management.** Water experienced four environmental incidents reportable to AESRD and met the preventable criteria. All four incidents were managed according to EPCOR's incident management standards and procedures and corrective actions were identified for each incident. No incidents resulted in enforcement action.
- **Water Conservation Factor.** Standard and actual scores for this factor are based on rolling averages to emphasize long-term results. This decrease reflects the higher than forecast decline in Residential consumption discussed in Section 3.1.
- **Watershed Program Activity.** In 2013, the Watershed program met all of its targets and supported watershed initiatives through:
  - Representation on Alberta Water Council teams;
  - Direct and indirect financial support for the North Saskatchewan Watershed Alliance;
  - Completion of a 3-year strategic plan for the watershed program;
  - Update of the Source Water Protection Plan for Edmonton;
  - Development of an integrated monitoring program for the basin;
  - Development of a pilot watershed program on Strawberry Creek; and

- Provision of financial support to stewardship groups that focus on: reducing agricultural and urban footprints on water quality in the river; public education programs around water protection; development of accurate watershed models; and increases in watershed planning literacy.

### 3.4.5 Safety Index

The Safety Index measures Water's progress towards its commitment of achieving a zero injury culture and encouraging staff awareness and engagement in safety activities. The Safety Index includes both activity-based performance measures (safety meetings, safe work plans, first aid training, inspections and observations) and outcome-based performance measures (lost time frequency, injury frequency and injury severity). In 2013, Water met or exceeded all but one standard in this index.

| Performance Measure | PBR Measure | Standard | Actual Score | Actual Outcome | Available Points | Actual Points |
|---|---|---|---|---|---|---|
| Safety Meetings | Number of safety meetings conducted during the year | 36 | 36 | Met standard | 1.5 | 1.5 |
| Formal Safe Work Plans (SWP) | Number of Formal Safe Work Plans each calendar year to identify, control and communicate hazards | 3,100 | 12,417 | Exceeded standard | 3.75 | 3.75 |
| First Aid Training | Percentage of permanent employees at year-end who hold a valid Standard First Aid Certificate | 33% | 55.5% | Exceeded standard | 3.0 | 3.0 |
| Work Site Inspections / Observations | Number of Work Site Inspections / Observations each calendar year to find problems and assess accidents before other losses occur | 800 | 998 | Exceeded standard | 3.0 | 3.0 |
| Lost Time Frequency Rate | A measure of the effectiveness of a safety program – the frequency of injury rate per unit of exposure | 0.59 | 0.46 | Exceeded standard | 0.75 (0.375 available bonus points) | 0.96 |
| Injury Frequency Rate | A measure of the frequency of disabling injuries and medical aid injuries per unit of exposure | 2.40 | 0.46 | Exceeded standard | 1.5 (0.562 available bonus points) | 2.06 |
| Injury Severity Rate | A measure of the seriousness of injuries and illnesses – ratio number of disability days to the number of employee exposure hours in a calendar year | 8.92 | 41.76 | Below standard | 1.5 (0.562 available bonus points) | 0.32 |
| | | | | Index Standard Points | 15.0 | |
| | | | | Available Bonus Points | 1.5 | |
| | | | | Maximum Available Points | **16.5** | |
| | | | | Total Actual Points | | **14.6** |
| | | | | **Total Points Earned** | | **14.6** |

## 2013 Highlights

In 2013, Water met or exceeded the standards for all activity-based performance measures including Safety Meetings, Formal Safe Work Plans, First Aid Training and Work Site Inspections & Observations. These activities and programs support Water's commitment to move toward a zero injury culture. Water D&T had exceptionally strong results in 2013 and has not had a reportable incident in over one year.

## Area of Improvement

**Injury Severity Rate.** The lower than standard result for this measure is primarily attributable to a single event where an employee working alone incurred an injury which required 180 days for recovery. Following review of this incident, working alone procedures were reviewed and enhanced.

# 4 Wastewater

## 4.1 Consumption and Customer Count Summary

Wastewater customer counts and consumption are similar to those of Water. Differences in actual customer counts between Water and Wastewater relate to "water-only" customers, such as Commercial customers who are not tied into the City's drainage system. Accordingly, average monthly consumption per customer and total annual consumption are also similar to those of Water, with actual to forecast differences caused by the same factors described in Section 3.1.

**Table 4.1**
**Customer Count, Total Annual Consumption and Monthly Consumption per Customer**

| | | A | B |
|---|---|---|---|
| | Customer Class | 2013 Actual | 2013 PBR Forecast |
| | | | |
| 1 | **Average Monthly Customer Count** | | |
| 2 | Residential | 226,118 | 228,004 |
| 3 | Multi-Residential | 3,470 | 3,439 |
| 4 | Commercial | 15,488 | 15,477 |
| 5 | **Total** | **245,076** | **246,920** |
| | | | |
| 6 | **Average Monthly Consumption per Customer ($m^3$ per month)** | | |
| 7 | Residential | 15.5 | 16.4 |
| 8 | Multi-Residential | 410.8 | 405.9 |
| 9 | Commercial | 136.3 | 135.6 |
| | | | |
| 10 | **Total Annual Consumption (ML – thousands of $m^3$)** | | |
| 11 | Residential | 41,924 | 44,944 |
| 12 | Multi-Residential | 17,107 | 16,751 |
| 13 | Commercial | 25,331 | 25,182 |
| **14** | **Total** | **84,362** | **86,877** |

## 4.2 Financial Performance

### 4.2.1 Revenue

In 2013, Wastewater's revenues are $3.2 million less than the PBR forecast ($6.6 million less for 2012-2013). As with Water, the actual-to-forecast difference is concentrated in the Residential customer class. This difference is primarily attributable to the long-term decline in consumption per customer discussed in Section 3.1. Variances in other customer categories are not significant; both consumption and customer counts in the commercial and multi-residential categories are close to the PBR forecast. Actual and PBR forecast revenue for 2013 and 2012-2013 are summarized in Table 4.2.1 below.

**Table 4.2.1**
**Revenue by Customer Class**
**($ millions)**

| | | A | B | C | D |
|---|---|---|---|---|---|
| **Revenue by Customer Class** | | **2013** | | **Two years ended 2013** | |
| | | **Actual** | **PBR Forecast** | **Actual** | **PBR Forecast** |
| 1 | **Consumption Revenue** | | | | |
| 2 | Residential | 26.3 | 29.1 | 50.3 | 55.8 |
| 3 | Multi-Residential | 10.7 | 10.8 | 20.5 | 20.9 |
| 4 | Commercial | 15.1 | 15.3 | 28.9 | 29.3 |
| 5 | **Total Consumption Revenue** | **52.1** | **55.2** | **99.7** | **106.0** |
| | | | | | |
| 6 | **Fixed Charge Revenue** | | | | |
| 7 | Residential | 9.1 | 9.3 | 17.2 | 17.7 |
| 8 | Multi-Residential | 0.1 | 0.1 | 0.2 | 0.3 |
| 9 | Commercial | 0.6 | 0.6 | 1.2 | 1.2 |
| 10 | **Total Fixed Charge Revenue** | **9.8** | **10.0** | **18.6** | **19.2** |
| | | | | | |
| 11 | **Sub-total** | **61.9** | **65.2** | **118.3** | **125.2** |
| 12 | **Non-Rate Revenue** | 4.5 | 4.4 | 9.2 | 8.9 |
| | | | | | |
| 13 | **Total Revenue** | **66.4** | **69.6** | **127.5** | **134.1** |

As with Water, differences between actual and forecast inflation also affect Wastewater revenues. The inflation adjustment mechanism for Wastewater is the same as for Water (see Section 3.2.1).

### 4.2.2 Operating Costs by Cost Category

Total operating costs for 2013 are $5.2 million less than forecast ($8.9 million less for 2012-2013). Actual and forecast costs by cost category are summarized in Table 4.2.2 below.

**Table 4.2.2**
**Operating Costs by Cost Category**
**($ millions)**

| | | A | B | C | D |
|---|---|---|---|---|---|
| **Cost Category** | | **2013** | | **Two Years Ended 2013** | |
| | | **Actual** | **PBR Forecast** | **Actual** | **PBR Forecast** |
| 1 | Salaries and Benefits | 15.5 | 16.5 | 30.7 | 32.4 |
| 2 | Power Costs and Other Utilities | 4.8 | 5.0 | 9.5 | 9.9 |
| 3 | Franchise Fees | 4.8 | 5.2 | 9.2 | 10.0 |
| 4 | Customer Billing | 4.5 | 4.4 | 9.0 | 8.6 |
| 5 | Contractors and Consultants | 3.7 | 3.7 | 7.4 | 7.6 |
| 5 | Corporate Service Charges | 3.6 | 5.7 | 8.0 | 11.2 |
| 6 | Materials and Supplies | 2.5 | 2.9 | 4.8 | 5.7 |
| 7 | Other | 0.8 | 2.0 | 1.8 | 3.9 |
| 9 | **Total Operating Costs** | **40.2** | **45.4** | **80.4** | **89.3** |

Significant differences between 2013 actual and PBR forecast costs include:

- **Salaries and Benefits** - $1.0 million less than forecast ($1.7 million less for 2012-2013).

  In 2013, unfilled vacancies, initiatives to optimize staffing levels, such as the restructuring of technical services, and higher-than-forecast capitalized labour provided cost savings of $1.5

million ($3.0 million for 2012-2013). These savings were offset by actuarial increases in supplemental pension plan obligations of $0.2 million in 2013 ($0.5 million for 2012-2013) and higher than forecast incentive plan costs of $0.3 million in 2013 ($0.8 million for 2012-2013).

- **Franchise Fee** - $0.4 million (8%) less than forecast ($0.8 million less for 2012-2013).

  Actual to PBR forecast variances in franchise fees are entirely attributable to lower than forecast revenues.

- **Corporate Service Charges** - $2.1 million less than forecast ($3.2 million less for 2012-2013).

  The 2013 Reorganization, described in Section 3.2.2, reduced corporate service charges to Wastewater by $1.3 million. The remainder of the actual to forecast variance of $0.8 million in 2013 ($2.0 million in 2012-2013) is attributable to changes in allocation factors for corporate service charges and corporate asset usage fees.

- **Materials and Supplies** - $0.4 million less than forecast ($0.9 million less for 2012-2013).

  Actual to forecast variances reflect numerous cost-saving initiatives. In 2013, the most significant of these was the deferral of UV bulb replacement which provided cost reductions of $0.3 million.

- **Other** - $1.2 million less than forecast ($2.1 million less for 2012-2013)

  In 2013, $0.9 million of the actual to forecast variance ($1.7 million for 2012-2013) relates to cost recoveries for non-utility operations. The remainder of the difference is made up of numerous small items, none of which are individually significant.

- Variances in Power and Other Utilities, Customer Billing, and Contractors and Consultants are not significant, amounting to $0.1 million less than forecast in 2013 ($0.2 million less for 2012-2013).

### 4.2.3 Operating Costs by Operational Function

In addition to analysis of operating costs by cost category in Section 4.2.2, Wastewater operating costs are also analyzed on a functional basis. Actual and forecast operating costs by operational function are summarized in Table 4.2.3 below.

**Table 4.2.3**
**Operating Costs by Operational Function**
**($ millions)**

| | | A | B | C | D |
|---|---|---|---|---|---|
| **Operational Function** | | **2013** | | **Two Years Ended 2013** | |
| | | **Actual** | **PBR Forecast** | **Actual** | **PBR Forecast** |
| 1 | Wastewater Treatment Plants | 18.6 | 19.8 | 36.2 | 38.9 |
| 2 | Quality Assurance and Environment | 2.7 | 2.7 | 5.2 | 5.4 |
| 3 | Operations Support Services | 2.8 | 4.3 | 6.0 | 8.6 |
| 4 | Administration Services | 3.2 | 3.3 | 6.8 | 6.5 |
| 5 | Customer Billing | 4.5 | 4.4 | 9.0 | 8.7 |
| 6 | Franchise Fees | 4.8 | 5.2 | 9.2 | 10.0 |
| 7 | Corporate Service Charges | 3.6 | 5.7 | 8.0 | 11.2 |
| 8 | **Total Operating Costs** | **40.2** | **45.4** | **80.4** | **89.3** |

Significant differences between 2013 actual and PBR forecast operating costs by operational function include:

- **Wastewater Treatment Plant ("WWTP") -** $1.2 million less than forecast ($2.7 million less for 2012-2013).

  The decrease in WWTP costs includes $0.9 million of cost recoveries from non-utility operations ($1.7 million for 2012-2013) which were applied against WWTP costs. Similar to 2012, the remainder of the actual to forecast variance reflects cost reductions consistent with the decrease in wastewater consumption, with reductions in power and other utility costs, as well as unfilled vacancies. These savings are partially offset by higher contractor costs for various maintenance projects, including grit tank cleaning and struvite cleaning at the lagoons.

- **Operations Support Services** - $1.5 million less than forecast ($2.6 million less for 2012-2013).

  In 2013, $1.0 million of the actual to forecast variance ($1.6 million in 2012-2013) relates to a restructuring of technical services in 2012 which continues to provide substantial benefits. The remainder of the variance in this category is attributable to cost savings throughout operations support services, primarily related to reductions in head count, and in-sourcing functions, such as project engineering, which had previously been performed by contract employees.

- **Customer Billing, Franchise Fees** and **Corporate Service Charges** refer to the same operating cost categories discussed and explained in Section 4.2.2 above.

- Variances in other cost categories are not significant, amounting to $0.1 million less than forecast in 2013 and $0.1 million greater than forecast for 2012-2013.

### 4.2.4 Depreciation Expense

In 2013, Wastewater's depreciation expense is $0.5 million less than the PBR forecast ($0.4 million less for 2012-2013). This variance is attributable to lower than forecast opening asset balances and capital additions (see Section 4.2.7). Actual and PBR forecast depreciation expenses are summarized in Table 4.2.4 below.

**Table 4.2.4**
**Net Depreciation Expense**
**($ millions)**

| | | A | B | C | D |
|---|---|---|---|---|---|
| **Depreciation Expense** | | **2013** | | **Two Years Ended 2013** | |
| | | **Actual** | **PBR Forecast** | **Actual** | **PBR Forecast** |
| 1 | Depreciation Expense | 9.6 | 10.1 | 19.7 | 20.1 |
| 2 | Less: Amortization of Contributions | (0.9) | (0.9) | (1.8) | (1.8) |
| 3 | **Net Depreciation Expense** | **8.7** | **9.2** | **17.9** | **18.3** |

### 4.2.5 Interest Expense and Cost of Debt

In 2013, as in 2012, interest expense, average cost of debt and average debt balances were less than the PBR forecast. Lower debt levels reflect lower than forecast capital expenditures (see Section 4.2.6), resulting in lower debt financing. Lower than forecast debt levels, combined with lower than forecast interest rates resulted in lower than forecast interest expense. These results are summarized in Table 4.2.5 below.

**Table 4.2.5**
**Interest Expense and Cost of Debt**
**($ millions)**

| | | A | B | C | D |
|---|---|---|---|---|---|
| **Interest Expense and Cost of Debt** | | **2013** | | **Two years ended 2013** | |
| | | **Actual** | **PBR Forecast** | **Actual** | **PBR Forecast** |
| 1 | Average Debt Balance ($) | 166.5 | 171.1 | | |
| 2 | Average Cost of Debt (%) | 4.23% | 4.68% | | |
| 3 | Interest Expense | 7.0 | 8.0 | 14.3 | 15.8 |

## 4.2.6 Capital Expenditures

In 2013, Wastewater's capital expenditures were $7.1 million less than the PBR forecast ($13.8 million for 2012-2013). Early in 2012, preliminary engineering analysis indicated that the costs of many projects in Wastewater's capital program would be significantly greater than forecast. These differences arose because the compressed time frame between the study of major process changes and the PBR forecast submission meant that there had been insufficient time spent on completing process design and preliminary engineering.

Accordingly, EWSI conducted a comprehensive review of its capital program to identify an alternate set of upgrades that would provide needed solids handling capacity while striving to keep total capital spending within the approved 2012-2016 PBR forecast levels, wherever possible. This review and subsequent optimization of the capital plan has contributed to delays in project execution and reductions in capital expenditures during 2012 and 2013. These results are summarized in Table 4.2.6 below, which has been organized in four broad reliability categories that reflect Wastewater's revised capital program. Note that the revised forecast does not include the $ 20 million Sanitary Grit Treatment project discussed in Section 5.1.2

**Table 4.2.6**
**Capital Expenditures**
**($ millions)**

| | | A | B | C | D | E | F |
|---|---|---|---|---|---|---|---|
| **Capital Program Category** | | **2013** | | **Two Years Ended 2013** | | **2012-2016** | |
| | | **Actual** | **PBR Forecast** | **Actual** | **PBR Forecast** | **PBR Forecast** | **Revised Forecast** |
| 1 | Digester Reliability | 7.9 | 6.0 | 9.7 | 9.0 | 22.0 | 27.6 |
| 2 | Solids Handling Reliability | 6.1 | 12.1 | 9.9 | 19.5 | 51.7 | 39.2 |
| 3 | Clover Bar Reliability | 0.8 | 7.1 | 1.1 | 8.6 | 8.9 | 16.9 |
| 4 | Base Reliability | 10.2 | 6.9 | 16.2 | 13.6 | 29.1 | 50.8 |
| **5** | **Total** | **25.0** | **32.1** | **36.9** | **50.7** | **111.7** | **134.5** |

Actual to forecast differences by category are as follows:

- **Digester Reliability** – $1.9 million greater than forecast ($0.7 million greater for 2012-2013).

  This category includes upgrades to the digesters and gas room to improve capacity and reliability. Although the costs to upgrade each digester are higher than forecast, EWSI's efforts to maximize digester capacity have decreased the number of digesters requiring upgrades. EWSI expects that total expenditures in this category will be $5.6 million higher than the 2012-2016 PBR forecast.

- **Solids Handling Reliability** – $6.0 million less than forecast ($9.6 million less for 2012-2013).

  This category includes upgrades to grit removal and screening, sludge storage and thickening, head-works flow control, and solids handling processes. EWSI has completed detailed studies and reviewed several design options for handling increased solids to the plant. These changes have led to revised designs and a higher focus on process optimization, which EWSI expects will reduce the total expenditures in this category by $12.5 million over the 2012-2016 PBR term.

- **Clover Bar Reliability** – $6.3 million less than forecast ($7.5 million less than for 2012-2013).

  This category includes the OSTARA project, a new process for recovering phosphorus and nitrogen from used water streams. The cost of this project in the PBR forecast was based on preliminary cost estimates and the start of this project was delayed to allow EWSI to confirm costs and benefits. EWSI expects that the total cost of this project will be $8.0 million higher than forecast.

- **Base Reliability** – $3.3 million greater than forecast ($2.6 million greater for 2012-2013).

  This category consists primarily of life-cycle replacements and additional assets to maintain or improve reliability and safety of plant operations. EWSI, in its review of risk level of plant systems, has determined that more funds need to be allocated to this category than had been considered in the PBR forecast. As a result, EWSI expects that, when completed, the total cost of this category will exceed the 2012-2016 PBR forecast by $21.7 million.

### 4.2.7 Rate Base and ROE

In 2013, Wastewater's mid-year rate base is $14.8 million less than the PBR forecast. This decrease is consistent with lower than forecast capital expenditures discussed in Section 4.2.6. Wastewater's rate base is summarized in Table 4.2.7.1 below.

**Table 4.2.7.1**
**Rate Base – Net of Contributions**
**($ millions)**

| | | A | B |
|---|---|---|---|
| **Mid-Year Rate Base** | | **2013** | |
| | | **Actual** | **PBR Forecast** |
| 1 | Gross Property, Opening | 351.3 | 364.6 |
| 2 | Additions | 8.9 | 18.4 |
| 3 | Retirements/Transfers | (4.0) | - |
| 4 | Gross Property, Closing | 356.2 | 383.0 |
| | | | |
| 5 | Accumulated Depreciation, Opening | 91.4 | 94.0 |
| 6 | Depreciation Expense | 8.7 | 9.2 |
| 7 | Retirements/Transfers | (3.9) | - |
| 8 | Accumulated Depreciation, Closing | 96.2 | 103.2 |
| | | | |
| 9 | Mid-Year Gross Property | 353.8 | 373.8 |
| 10 | Mid-Year Accumulated Depreciation | (93.9) | (98.6) |
| 11 | **Mid-Year Net Property** | 259.9 | 275.2 |
| | | | |
| 12 | Add: Working Capital | 5.3 | 5.1 |
| 13 | Add: Average Materials and Supplies | 1.1 | 0.8 |
| | | | |
| 14 | **Mid-Year Rate Base** | **266.3** | **281.1** |

In 2013, the total return on Wastewater's rate base was $2.5 million greater than the PBR forecast. This result reflects lower than forecast debt costs (see Section 4.2.5) and significantly higher net income (see Section 1.1.2). These results are summarized in Table 4.2.7.2 below.

**Table 4.2.7.2**
**Wastewater Return on Rate Base**
**($ millions)**

| | | A | B |
|---|---|---|---|
| **Return on Rate Base** | | **2013** | |
| | | **Actual** | **PBR Forecast** |
| 1 | Mid-year Rate Base | 266.3 | 281.1 |
| | | | |
| 2 | Capital Structure: Debt (%) | 59.98% | 59.88% |
| 3 | Capital Structure: Equity (%) | 40.02% | 40.12% |
| | | | |
| 4 | Cost of Debt | 4.38% | 4.75% |
| 5 | Cost of Equity | 9.86% | 6.20% |
| 6 | Weighted Average Cost of Capital | 6.57% | 5.34% |
| | | | |
| 7 | Return on Mid-year Rate Base Debt Portion | 7.0 | 8.0 |
| 8 | Return on Mid-year Rate Base Equity Portion | 10.5 | 7.0 |
| 9 | **Return on Mid-year Rate Base** | **17.5** | **15.0** |

## 4.3 Wastewater Treatment Rates and Bill Comparisons

### 4.3.1 Wastewater Treatment Rates

Wastewater rates include consumption charges, fixed monthly service charges and overstrength surcharges. Unlike Water, there are no separate rates for Multi-residential customers. Instead, customers who would be classified as Multi-residential Water customers are included in the Residential customer class.

In accordance with the Bylaw, the increase in Wastewater's rates between 2012 and 2013 includes a forecast inflation adjustment of 1.82% (see Section 3.2.1), the actual to forecast inflation adjustment for 2012 of -0.77% and special rate adjustment of about 5%. Table 4.3.1.1 shows Wastewater's 2012 and 2013 rates for Residential and Commercial customers.

**Table 4.3.1.1**
**Wastewater Consumption and Fixed Monthly Service Charges**

| | | A | B |
|---|---|---|---|
| | **Consumption and Fixed Monthly Service Charges** | **2013 Rate ($)** | **2012 Rate ($)** |
| 1 | **Consumption Charge per $m^3$** | | |
| 2 | **Residential** | | |
| 3 | All consumption | 0.6361 | 0.5955 |
| 4 | **Commercial** | | |
| 5 | 0.0 $m^3$ to 10,000.0 $m^3$ | 0.6361 | 0.5955 |
| 6 | 10,000.1 $m^3$ to 100,000.0 $m^3$ | 0.4921 | 0.4607 |
| 7 | Over 100,000.0 $m^3$ | 0.2567 | 0.2403 |
| | | | |
| 8 | **Fixed Monthly Service Charge per Meter** | | |
| 9 | All Customers | 3.3300 | 3.1200 |

In addition to consumption charges and fixed monthly service charges, over-strength and additional overstrength surcharges are applied to each kilogram of surchargeable matter per cubic metre ($m^3$) of wastewater that exceeds the concentrations shown in Section 4 of Schedule 1 to the Bylaw. Wastewater overstrength surcharges for 2013, together with comparative charges for 2012, are shown in Table 4.3.1.2 with additional overstrength surcharges shown in Table 4.3.1.3.

**Table 4.3.1.2**
**Wastewater Overstrength Surcharges**

| | | A | B |
|---|---|---|---|
| | **Surchargeable Matter** | **2013 Rate ($/kg)** | **2012 Rate ($/kg)** |
| 1 | Biochemical Oxygen Demand (BOD) > 300 mg/L | 0.3984 | 0.3730 |
| 2 | Chemical Oxygen Demand (COD) > 600 mg/L * | 0.3984 | 0.3730 |
| 3 | Oil and grease > 100 mg/L | 0.3484 | 0.3262 |
| 4 | Phosphorous > 10 mg/L | 3.3152 | 3.1038 |
| 5 | Suspended solids > 300 mg/L | 0.3617 | 0.3386 |
| 6 | Total Kjeldahl nitrogen (TKN) > 50 mg/L | 0.8461 | 0.7922 |

* Or twice the BOD concentration in the wastewater, whichever is greater.

**Table 4.3.1.3**
**Wastewater Additional Overstrength Surcharges**

| | | A | B |
|---|---|---|---|
| | **Surchargeable Matter** | **2013 Rate ($/kg)** | **2012 Rate ($/kg)** |
| 1 | Biochemical Oxygen Demand (BOD) > 3,000 mg/L | 0.3984 | 0.3730 |
| 2 | Chemical Oxygen Demand (COD) > 6,000 mg/L * | 0.3984 | 0.3730 |
| 3 | Oil and grease > 400 mg/L | 0.3484 | 0.3262 |
| 4 | Phosphorous > 75 mg/L | 3.3152 | 3.1038 |
| 5 | Suspended solids > 3,000 mg/L | 0.3617 | 0.3386 |
| 6 | Total Kjeldahl nitrogen (TKN) > 200 mg/L | 0.8461 | 0.7922 |

* Or twice the BOD concentration in the wastewater, whichever is greater.

The increase in rates for wastewater consumption charges, fixed monthly service charges and wastewater overstrength surcharges in 2013 reflects the 2013 forecast inflation adjustment of 1.82% (see Section 4.1.1), the actual to forecast inflation adjustment for 2012 of -0.77%, and special rate adjustments for Wastewater treatment services of about 5%.

## 4.3.2 Wastewater Treatment Rate Structure by Customer Class

### 4.3.2.1 Residential

The Residential customer class accounts for 70.0% of Edmonton's 2013 wastewater treatment consumption volumes. Rates for the Residential customer class are charged based on a uniform rate with a single consumption block.

### 4.3.2.2 Commercial

The Commercial customer class comprises 30.0% of Wastewater's 2013 treatment consumption volume. Commercial customers are charged based on a declining rate structure with three consumption blocks.

## 4.3.3 Wastewater Bill Comparisons to Other Communities

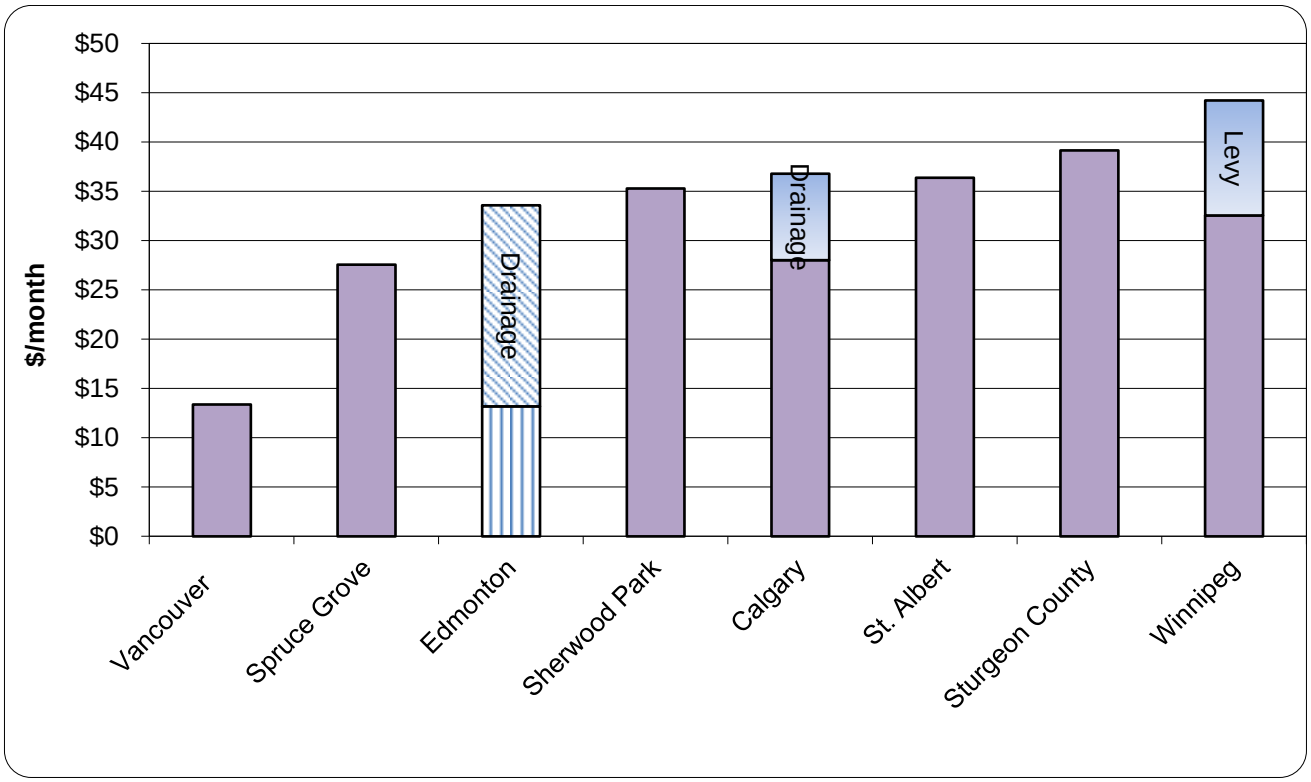
Unlike most communities where drainage and wastewater treatment services are combined, EWSI Wastewater is only responsible for wastewater treatment. Drainage services, including the operations and maintenance of the collection system, are provided by the City. Accordingly, wastewater bill comparisons are based on blended EWSI wastewater treatment and City drainage rates.

The 2013 comparative wastewater rate information is based on surveys of Calgary, Vancouver, Winnipeg and as well as local communities within the Alberta Capital Region. The rate comparisons are based on the total cost to the customer and include fixed charges, consumption charges, plus any surcharges.

### 4.3.3.1 Residential Wastewater Bills

Figure 4.3.3.1 provides a comparison of residential household wastewater bills based upon the average Edmonton residential household consumption of 15.5 $m^3$ per month. Figure 4.3.3.1 shows that Edmonton residential customers have average wastewater bills compared to other customers in the comparison sample. Edmonton's residential wastewater bill is based on a blended rate consisting of EWSI Wastewater's charge of $13.19 per month and the City's drainage charge of $20.39 per month.

**Figure 4.3.3.1**
**Average Edmonton Monthly Residential Wastewater Bill**
**(15.5 $m^3$/month)**




### 4.3.3.2 Commercial Wastewater Bills

Table 4.3.3.2 provides a comparison of the water bills for the five types of commercial customers discussed in Section 3.3.3. Overall, there is substantial variation in monthly wastewater bills for commercial customers. As with Residential bill comparisons, wastewater bill comparisons are based on blended EWSI wastewater treatment and City drainage rates.

**Table 4.3.3.2**
**Commercial Monthly Wastewater Bill Comparison**

| | | A | B | C | D | E |
|---|---|---|---|---|---|---|
| | **Community** | **Convenience Store** | **Retail Store** | **Restaurant** | **Hotel** | **Hospital** |
| **1** | **Average Monthly Consumption ($m^3$)** | **8.4** | **51.8** | **263.8** | **1,969.5** | **11,835.3** |
| 2 | **Average Bill ($ per month)** | | | | | |
| 3 | Vancouver | 7.24 | 44.67 | 227.51 | 1,698.54 | 10,206.99 |
| 4 | Edmonton | **23.46** | **85.35** | **423.52** | **3,251.13** | **12,953.36** |
| 5 | Winnipeg | 18.06 | 111.37 | 567.17 | 4,234.43 | 25,445.90 |
| 6 | St. Albert | 32.84 | 157.92 | 768.90 | 5,684.73 | 34,117.96 |
| 7 | Calgary | 30.82 | 71.21 | 268.52 | 1,856.01 | 11,038.11 |
| 8 | Sturgeon County | 39.98 | 101.13 | 776.99 | 5,612.09 | 33,482.97 |
| 9 | Sherwood Park | 21.35 | 34.81 | 260.03 | 707.97 | 3,043.30 |
| 10 | Spruce Grove | 14.94 | 92.10 | 469.04 | 3,501.77 | 21,043.16 |

## 4.4 Wastewater PBR Performance Measures

### 4.4.1 System Reliability Index

The System Reliability Index is a measure of the confidence that customers can place in the reliability of Wastewater Treatment Services. In 2013, Wastewater exceeded the standard in this index.

| Performance Measure | PBR Measure | Standard | Actual Score | Actual Outcome | Available Points | Actual Points |
|---|---|---|---|---|---|---|
| Enhanced Primary Treatment (EPT) | EPT performance, measured in percent, where the EPT facility operated during wet weather events when the influent flow rate exceeded the EPT event threshold | 75.0% | 89.2% | Exceeded standard | 15.0 (1.0 available bonus point) | 17.8 |
| | | | | Index Standard Points | 15.0 | |
| | | | | Available Bonus Points | 1.0 | |
| | | | | Maximum Available Points | **16.0** | |
| | | | | Total Actual Points | | 17.8 |
| | | | | **Total Points Earned** | | **16.0** |

**2013 Highlights**

**Enhanced Primary Treatment ("EPT").** During 2013, rehabilitation of the channel feeding EPT was carried out to improve system reliability and extend asset life. Process testing was also performed in 2013 to develop plans for improving hydraulics upstream of EPT and ensuring maximum flow to the EPT process during wet weather events. These process improvements enabled Wastewater to exceed the standard for this measure.

### 4.4.2 Wastewater Quality Index

The Wastewater Quality Index is a measure of the percentage of the Gold Bar wastewater treatment plant's actual final effluent quality relative to its discharge limits for five parameters. In 2013, Wastewater exceeded the standard in this index.

| Performance Measure | PBR Measure | Standard | Actual Score | Actual Outcome | Available Points | Actual Points |
|---|---|---|---|---|---|---|
| Wastewater Effluent Limit Performance Index (WELPI) | The percentage of the discharge limit for five parameters in the Gold Bar wastewater treatment plant's final effluent | 46.0% | 20.7% | Exceeded standard | 40.0 | 88.9 |
| | | | | Index Standard Points | 40.0 | |
| | | | | Available Bonus Points | 4.0 | |
| | | | | Maximum Available Points | **44.0** | |
| | | | | Total Actual Points | | 88.9 |
| | | | | **Total Points Earned** | | **44.0** |

**2013 Highlights**

**Wastewater Effluent Limit Performance Index ("WELPI").** Wastewater consistently exceeded the standard for this index throughout 2013, reflecting improvements to Wastewater's solids handling and nutrient removal processes and reducing Wastewater's dependency on chemical nutrient removal.

### 4.4.3 Customer Service Index

The Customer Service Index is a measure of the level of satisfaction that customers place in Wastewater's overall level of customer service. In 2013, Wastewater exceeded the standard in this index.

| Performance Measure | PBR Measure | Standard | Actual Score | Actual Outcome | Available Points | Actual Points |
|---|---|---|---|---|---|---|
| Customer Inquiries Responses | Percentage of customer issues responded to within 24-hours of receipt by EPCOR | 90.0% | 96.3% | Exceeded standard | 5.0 | 5.4 |
| | | | | Index Standard Points | 5.0 | |
| | | | | Maximum Available Points | **5.0** | |
| | | | | Total Actual Points | | 5.4 |
| | | | | **Total Points Earned** | | **5.0** |

**2013 Highlights**

**Customer Inquiries Responses.** In 2013, Wastewater implemented improvement initiatives identified in 2012 to better identify and track customer issues, including engaging additional management staff to respond to customer concerns regarding odour at the Gold Bar Wastewater Treatment Plant. These process improvements enabled Wastewater to exceed the standard for this measure.

### 4.4.4 Environmental Index

The Environmental Index measures Wastewater's activities for limiting its impact on the environment. In addition, the Environmental Index contributes to the City's measure of progress towards its ten-year strategic goal to "Preserve and Sustain Edmonton's Environment". In 2013, Wastewater met or exceeded all but one standard in this index.

| Performance Measure | PBR Measure | Standard | Actual Score | Actual Outcome | Available Points | Actual Points |
|---|---|---|---|---|---|---|
| Emergency Response Training | The number of Emergency Response Training exercises with an environmental component conducted in each calendar year | 1 | 1 | Met standard | 6.66 (2.0 available bonus points) | 6.66 |
| Completeness and Timeliness of Reporting | Achievement in meeting report submission deadlines and complete report submissions | 100% | 88.9% | Below standard | 6.67 | 5.93 |
| Environment Incident Management | The number of reportable and preventable environmental incidents | 18 | 8 | Exceeded standard | 6.67 | 6.67 |
| | | | | Index Standard Points | 20.0 | |
| | | | | Available Bonus Points | 2.0 | |
| | | | | Maximum Available Points | **22.0** | |
| | | | | Total Actual Points | | 19.3 |
| | | | | **Total Points Earned** | | **19.3** |

**2013 Highlights**

**Environment Incident Management.** During 2013, there were eight environmental incidents reportable to AESRD that met the preventable criteria, significantly better than the standard of

eighteen. All eight incidents were managed according to Wastewater's incident management standards and procedures, and corrective actions were identified. No incidents resulted in enforcement action.

**Area of Improvement**

**Completeness and Timeliness of Reporting.** Delays in validation of samples and analysis resulted in three reports being posted to the EPCOR external web site one or two days late. A secondary factor was due to a delay in internal business process timelines for posting results. These administrative issues will be addressed with more automated reporting and quicker turnaround on the validation process. Improvements have already been implemented to decrease business process time for web site posting of reports and additional resources will be assigned to reduce report preparation and compilation time.

### 4.4.5 Safety Index

The Safety Index measures Wastewater's progress towards achieving a zero injury culture and encouraging staff awareness and engagement in safety activities. The Safety Index includes both activity-based performance measures (safety meetings, safe work plans, first aid training, inspections and observations) and outcome-based performance measures (lost time frequency, injury frequency and injury severity). In 2013, Wastewater met or exceeded all standards in this index.

| Performance Measure | PBR Measure | Standard | Actual Score | Actual Outcome | Available Points | Actual Points |
|---|---|---|---|---|---|---|
| Safety Meetings | Number of safety meetings conducted during the year | 12 | 12 | Met standard | 2.0 | 2.0 |
| Formal Safe Work Plans (SWP) | Number of Formal Safe Work Plans each calendar year to identify, control and communicate hazards | 1,100 | 8,283 | Exceeded standard | 5.0 | 5.0 |
| First Aid Certified | Percentage of permanent employees at year-end who hold a valid Standard First Aid Certificate | 33.0% | 71.5% | Exceeded standard | 4.0 | 4.0 |
| Work Site Inspections / Observations | Number of Work Site Inspections / Observations each calendar year to find problems and assess accidents before other losses occur | 270 | 685 | Exceeded standard | 4.0 | 4.0 |
| Lost Time Frequency Rate | A measure of the effectiveness of a safety program – the frequency of injury rate per unit of exposure | 0.81 | 0.00 | Exceeded standard | 1.0 (0.6 available bonus points) | 1.6 |
| All Injury Frequency Rate | A measure of the frequency of disabling injuries and medical aid injuries per unit of exposure | 2.42 | 0.00 | Exceeded standard | 2.0 (1.2 available bonus points) | 3.2 |
| Injury Severity Rate | A measure of the seriousness of injuries and illnesses – ratio number of disability days to the number of employee exposure hours in a calendar year | 8.88 | 0.00 | Exceeded standard | 2.0 (1.2 available bonus points) | 3.2 |
| | | | | Index Standard Points | 20.0 | |
| | | | | Available Bonus Points | 3.0 | |
| | | | | Maximum Available Points | **23.0** | |
| | | | | Total Actual Points | | 23.0 |
| | | | | **Total Points Earned** | | **23.0** |

## 2013 Highlights

In 2013, Wastewater met or exceeded the standards for all performance measures in the Safety Index and, as in 2012, had no Lost Time Injuries or Medical Treatment Injuries in 2013.

# 5 Future Plans and Challenges

The PBR framework provides incentives for EWSI to improve operational performance while achieving cost savings through process improvements and other means. Under this framework, EWSI assumes the risks associated with water consumption and variability in operating, administrative and capital costs. These risks and EWSI's strategies to mitigate them are summarized below.

- **Water Consumption Risk (Short-term)**. Weather conditions have significant impacts on water consumption and water quality. Wet weather can significantly reduce water consumption, affecting both revenues and return. As well, variability in weather conditions affects water quality during spring run-off and storm events, leading to volatility in chemical use. Under PBR, these risks are wholly borne by EWSI.

- **Water Consumption Risk (Long-Term)**. Although the number of Water and Wastewater customers is expected to increase over the 2012-2016 PBR term, average consumption per customer has been declining at a greater rate than forecast (see Section 3.1). This decline exposes EWSI to greater risk in recovering its operational costs through rates which are predominantly consumption-based.

- **Operating Cost Risks**. EWSI strives to minimize fluctuations in input prices. For example, EWSI actively monitors and analyzes the prices of Power and Other Utility costs and uses long-term contracts to provide greater price stability. EWSI also works to mitigate anticipated price increases for treatment chemicals through optimization strategies. In addition, EWSI makes continuous efforts to implement cost reduction strategies in other areas of its operations.

- **Capital Cost Risks.** Water and Wastewater's operations are capital intensive. In Alberta's rapidly growing economy, construction costs have historically increased at rates which are higher than PBR inflation rates.

  As well, over half of Water's capital program is City-driven (see Section 3.2.6). EWSI works closely with the City to identify changes to the City-driven portion of the capital plan. In the current PBR term, revisions to City-driven projects identified by EWSI are expected to result in higher than forecast capital expenditures both for Water and for Wastewater.

  EWSI also faces the challenges of replacing aging infrastructure more rapidly than planned. This challenge is particularly apparent at the wastewater plant, where the expected cost of base reliability projects is much higher than anticipated in the PBR forecast.

Finally, EWSI faces the challenges associated with operating both water and wastewater treatment utilities. Accordingly, EWSI is undertaking specific initiatives in the areas of water efficiency, environment and infrastructure investment, ensuring that EWSI is aligned with City-driven initiatives, provincial government initiatives; anticipated changes in provincial and federal regulations; and managing a complex regulatory structure. These initiatives are discussed in Sections 5.1 through 5.5 below.

## 5.1 EWSI Infrastructure Investment

### 5.1.1 Capital Expenditure Management

Capital expenditures reflect both recurring and non-recurring projects. In the 2012-2016 PBR term, to effectively manage capital investments in Water and Wastewater infrastructure, EWSI categorizes its capital projects as follows:

- **Environmental Regulation.** Projects specifically identified to address current and upcoming regulatory requirements from regulatory bodies such as AESRD (e.g. residuals handling projects). At Rossdale, the de-chlorination project was commissioned in 2012. With respect to improving environmental stewardship and efficiency, EWSI is also looking closely at co-generation at its wastewater plant by converting bio-gas to electricity.

- **City Requirements (City-Driven).** Projects necessary to accommodate growth in Edmonton, to relocate water utilities due to changes made by City departments (e.g. LRT work, bridge rehabilitation) and to meet any other requirements stipulated in the franchise agreement that EWSI has with the City, such as water service to new customers, fire protection, and increased flow and solids handling at the Wastewater plant.

- **Health and Safety.** Projects specifically identified to meet health and safety requirements. The most significant of these is the replacement of the gaseous chlorine chemical system at the Rossdale WTP with an on-site hypochlorite generation system similar to the one installed at the E.L. Smith WTP in 2007.

- **Reliability.** Projects identified to rehabilitate or replace existing assets at the end of their useful life, to improve redundancy and to ensure acceptable risk management is maintained (e.g. water main proactive renewal program, electrical systems, structural and mechanical rehabilitation of plants and reservoirs, water meter change outs, etc.).

- **Efficiency.** Projects which provide a net benefit to customers to improve operational efficiency and lower future costs. Efficiency projects include the distribution cathodic protection projects and energy efficiency projects such as optimization of large pumps and bio-gas utilization (co-generation).

- **General Facilities.** Projects for facilities, buildings and systems that directly affect EWSI staff, most notably the replacement of the Water Quality Assurance Laboratory, which is at the end of its useful life.

### 5.1.2 NRAs for 2014 and Future Years

As noted in Section 1.3, EWSI may request adjustments to Water and Wastewater's rates for NRAs from the City. Although no NRAs were identified for 2013, EWSI has, however, identified two potential City-Driven NRAs for 2014 and future years. These items include:

- **Water Main Relocation Projects**. Water main relocation, replacement and modification projects are often undertaken in response to City infrastructure projects, such as LRT expansion, bridge work, and road paving. Water's PBR forecast capital program includes estimates of the costs of these projects, but since that time, changes to City infrastructure projects have resulted in significant increases in actual and projected costs. In particular, the evolution of the South East LRT extension has resulted in a larger number of conflicts with existing transmission mains and

higher costs to Water than were reflected in the PBR application. EWSI estimates that the total increase in project costs for the South East LRT extension and other water main relocation projects is $16.3 million.

- **Sanitary Grit Treatment Project**. A potential new City-driven project is the treatment of sanitary grit at the wastewater plant. EWSI is currently evaluating the construction of a Sanitary Grit Facility, with a cost of no more than $20 million, and has started discussions with the City.

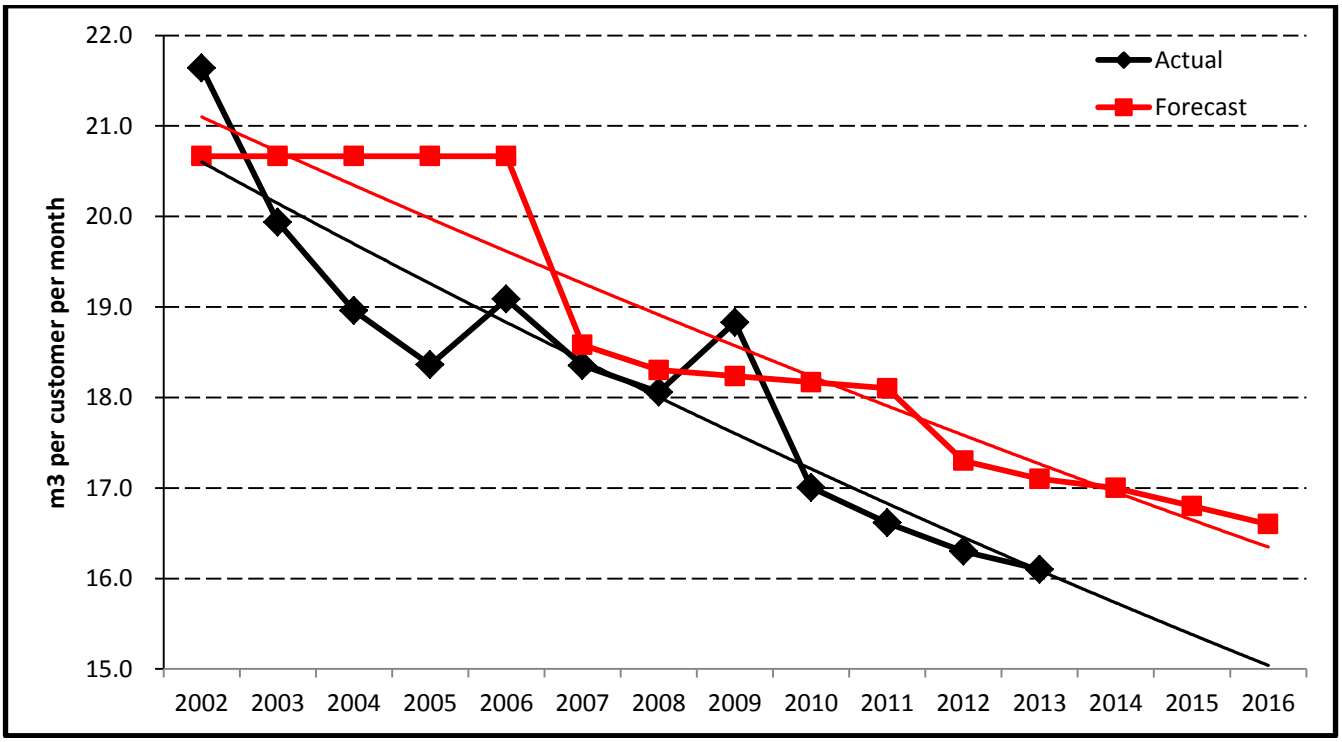
EWSI is reviewing these items to determine whether these items meet the criteria for NRAs and to quantify their impacts on Water and Wastewater rates. EWSI will present these items, together with recommendations and supporting rationale, to City Administration in June 2014.

## 5.2 Financial and Regulatory Challenges and Initiatives

### 5.2.1 Declining Residential Consumption

As noted in Section 3.1, declining residential consumption per customer is placing significant downward pressure on EWSI's revenues. Although EWSI incorporated declining residential consumption into the PBR forecasts for 2007-2011 and for 2012-2016, actual declines in consumption have been greater than anticipated and are expected to challenge EWSI over the remainder of the current PBR term. The greater than expected decline is illustrated in Figure 5.2.1 below which shows actual and forecast consumption per Residential customer from 2002, when PBR was introduced, to 2016. EWSI is currently researching best practices in water forecasting, so that forecasting process improvements can be identified and implemented well in advance of the next PBR term.

**Figure 5.2.1**
**Residential Consumption per Customer**
**2002 to 2016**



### 5.2.2 Dual Regulation

Although In-City water services are regulated by the City, the Alberta Utilities Commission ("AUC") has jurisdiction to regulate, on a complaint basis, wholesale water rates charged to the RWCG. EWSI's regulatory processes are designed to accommodate dual regulation, so that financial information is presented in accordance with the appropriate regulatory basis of accounting and that rates and tariffs are developed on a consistent basis.

### 5.2.3 Regulatory Basis of Accounting.

The regulatory basis of accounting used for determining EWSI's water and wastewater treatment rates and for reporting regulatory results differs from the International Financial Reporting Standards ("IFRS") used by EWSI for all other financial reporting. Accordingly, EWSI maintains separate IFRS and Regulatory financial records, so that it is able to meet regulatory reporting requirements.

### 5.2.4 Cost of Service Study Update and Depreciation Studies.

EWSI is in the final stages of developing a revised cost-of-service study that will encompass In-City Water, the RWCG and Fire Protection. This study incorporates system growth and operational changes since the previous cost of service study was developed and establishes the methodology for determining the share of EWSI costs allocated to each customer group. Over the past several years, there have been disagreements with the RWCG regarding the correct allocation of costs related to various components of the water systems (e.g. allocation of mains to distribution or transmission, water loss factors, etc.). Through a series of negotiations, all outstanding operational considerations are resolved. This resolution will enable the cost of service to be determined for all customers.

Completion of the revised cost of service study is one of the foundational requirements as EWSI moves to develop the next PBR application. A depreciation study is also being completed as further preparation. The depreciation study will review the useful lives of the assets and ensure that depreciation is being appropriately determined.

## 5.3 Conservation Initiatives

EPCOR's conservation platform focuses on identifying and addressing inefficient water use in different customer classes or groups. Some 2013 conservation initiatives include:

- Partnership between the City of Edmonton, RONA and EPCOR to host a Home$aver Eco Sale. This event promotes the use of water and energy efficiency products, general education and awareness. EPCOR"s participation in this event included sponsorship and promotion of rain barrels for outdoor water conservation and low-flow shower heads for indoor use.
- Partnering with government and business to support water efficiency and conservation programs, such as: The Way We Green Speaker Series; City of Edmonton Environment Week; World Water Day; Canada Water Week and a variety of other programs;
- Continuing sponsorship of Alberta RiverWatch and the City's River Clean Up project; and
- Promoting conservation and water efficiency through social media channels, including updating efficiency information and tools on EPCOR's website to help customers reduce water wastage.

## 5.4 Environmental Initiatives

EWSI strives to ensure that it surpasses current and proposed environmental standards. EWSI is a founding member of the North Saskatchewan Watershed Alliance and participates in a multi-stakeholder Integrated Management Plan for the North Saskatchewan River Basin.

EWSI continues to maintain its Champion status under the AESRD's Envirovista Program. Champion status involves a new ten-year outcome-based AESRD Approval-to-Operate (638-03-00) and a ten-year stewardship agreement. The stewardship agreement outlines a set of environmental initiatives EWSI has committed to, and that go above and beyond the requirements of a typical approval-to-operate for a waterworks system.

## 5.5 Provincial and Federal Government Initiatives

### 5.5.1 Water

EWSI is not currently aware of any impending changes or revisions to existing Alberta government or Health Canada guidelines that would significantly impact its water quality index. EWSI would request an adjustment to the index to conform to new requirements as they arise.

### 5.5.2 Wastewater

EWSI participates in the AESRD's Water Management Framework for the Industrial Heartland and Capital Region and sits on the advisory committee. One of the committee's initiatives is to address water quantity and quality issues surrounding the use of the North Saskatchewan River from Devon to Pakan, taking into consideration Alberta's economic development, industrial projects currently undergoing regulatory review, and existing industry in the region. EWSI anticipates that its operating approval for Gold Bar may need to be updated to include different standards related to this initiative when it is renewed in 2015.

Environment Canada issued new wastewater systems effluent regulations in 2012. EWSI expects that Gold Bar will be able to comply with the new regulations without the requirement of additional capital investment. EWSI will need to ensure, however, that future changes to plant operations that might be required to meet the City`s combined sewer overflow control strategy do not conflict with the new federal regulation. In addition, the new federal regulation does not address wet weather overflows at the treatment plant (other than the required reporting of such events). Future versions of the regulation may eventually place restrictions on these overflows.

# 6 Appendix A: Affiliate Transactions

## Appendix A-1: Water Affiliate Transactions Summary

| | | A | B |
|---|---|---|---|
| | | **2012 Actual** | **2013 Actual** |
| | | **($ millions)** | |
| **1** | **Transactions with EUI and its subsidiaries** | | |
| 2 | Interest expense (EUI) | 23.9 | 25.8 |
| 3 | Corporate services (EUI) | 23.9 | 18.0 |
| 4 | Customer billing services & UIS power costs (EEAI) | 7.2 | 6.9 |
| 5 | Meter reading services (EDTI) | 4.5 | 4.5 |
| 6 | Hydrovac charges & space rent (ETECH) | 3.7 | 4.0 |
| 7 | Other transactions with EUI and its subsidiaries | 0.7 | 0.7 |
| 8 | Meter reading services recoveries (from Wastewater) | (1.7) | (1.7) |
| 9 | Affiliate services recoveries (Wastewater and non-regulated operations) | (3.0) | (1.8) |
| 10 | Corporate services recoveries (non-regulated operations) | (3.6) | (3.9) |
| | **Total** | **55.6** | **52.5** |
| **11** | **Fees for services provided by Capital Power Corporation** | | |
| 12 | Power charges (Capital Power Corporation) | 7.6 | 7.2 |
| | **Total** | **7.6** | **7.2** |
| 13 | **Taxes and fees for services provided by the City of Edmonton** | | |
| 14 | Franchise fees | 11.6 | 12.4 |
| 15 | Customer services | 2.0 | 2.3 |
| 16 | Interest expense | 1.5 | 1.3 |
| 17 | Paving & barricades | 1.4 | 1.3 |
| 18 | Mobile equipment services | 1.3 | 1.4 |
| 19 | Other services provided by (recoveries from) the City of Edmonton | 0.2 | (0.8) |
| 20 | **Total** | **18.0** | **17.9** |
| | | | |
| 21 | **Sales and recoveries for services provided by EWSI to the City of Edmonton** | | |
| 22 | Water sales for City of Edmonton parks and facilities | 1.9 | 2.1 |
| 23 | Meter reading services recoveries | 1.7 | 1.7 |
| 24 | Miscellaneous sales | 0.2 | 0.4 |
| 25 | **Total** | **3.8** | **4.2** |

* Includes 5 basis point administration fee.

# Appendix A-2: Wastewater Affiliate Transactions Summary

| | | A | B |
|---|---|---|---|
| | | **2012 Actual** | **2013 Actual** |
| | | **($ millions)** | |
| 1 | **Transactions with EUI and its Subsidiaries** | | |
| 2 | Corporate services | 4.4 | 3.6 |
| 3 | Customer billing services | 2.6 | 2.5 |
| 4 | Interest expense | 1.4 | 2.0 |
| 5 | Meter reading services | 1.7 | 1.7 |
| 6 | Affiliate services | 0.7 | 1.4 |
| 7 | Other transactions with EUI and its subsidiaries | 0.5 | 0.5 |
| 9 | **Total** | **11.3** | **11.7** |
| 10 | **Fees for Services Provided to the City of Edmonton** | | |
| 11 | Wastewater sales | 0.5 | 0.7 |
| 12 | Miscellaneous sales and cost recoveries | 0.4 | 0.3 |
| 13 | **Total** | **0.9** | **1.0** |
| 14 | **Taxes and Fees for Services Provided by the City of Edmonton** | | |
| 15 | Interest expense* | 4.9 | 4.6 |
| 16 | Franchise fees | 4.4 | 4.8 |
| 17 | Power | 4.1 | 3.2 |
| 18 | Regulatory services | 0.9 | 0.9 |
| 19 | Property and business taxes | 0.5 | 0.4 |
| 20 | Other services | 0.2 | 0.2 |
| 21 | **Total** | **15.0** | **14.1** |

* Includes 5 basis point administration fee.

# Appendix B: Summary of Operating Performance Measures

## Appendix B-1: Water System Service Quality Measures

| | Description | A | B | C |
|---|---|---|---|---|
| | | Performance Standard | 2012A | 2013A |
| 1 | **System Reliability Index** | | | |
| 2 | Water Main Break Factor | 574 | 370 | 278 |
| 3 | Water Main Break Repair Duration Factor | 93.7% | 94.6% | 94.9% |
| 4 | Planned Construction Impact Factor | 95.0% | 95.6% | 95.6% |
| 5 | Water Pressure Factor | 5 | 1 | 0 |
| 6 | Water Loss Factor | 3.0 | 1.46 | 1.29 |
| 8 | **Water Quality Index** | 99.6% | 99.8% | 99.8% |
| 9 | **Customer Service Index** | | | |
| 10 | Post Service Audit Factor | 74.0% | 72.3% | 77.8% |
| 11 | Response Time Factor | 25 | 16 | 16 |
| 12 | Home Sniffing Factor | 93.8% | 97.0% | 94.8% |
| 13 | **Environmental Index** | 15.0 | 16.2 | 15.8 |
| 14 | **Safety Index** | 15.0 | 14.1 | 14.6 |
| | | | | |
| 15 | **Aggregate Points Earned** | | **106.4** | **106.8** |
| 16 | **Points Above / (Below) Performance Standard** | | **6.4** | **6.8** |

## Appendix B-2: Wastewater Service Quality Measures

| | Description | A | B | C |
|---|---|---|---|---|
| | | Performance Standard | 2012A | 2013A |
| 1 | **System Reliability Index** | | | |
| 2 | Enhanced Primary Treatment | 75.0% | 91.8% | 89.2% |
| 3 | **Water Quality Index** | | | |
| 4 | Wastewater Effluent Limit Performance | 46.0% | 20.7% | 20.7% |
| 5 | **Customer Service Index** | | | |
| 6 | Customer Inquiries Response | 90.0% | 96.4% | 96.3% |
| 7 | **Environmental Index** | 20.0 | 21.3 | 19.3 |
| 8 | **Safety Index** | 20.0 | 23.0 | 23.0 |
| | | | | |
| 9 | **Aggregate Points Earned** | | **109.3** | **107.3** |
| 10 | **Points Above / (Below) Performance Standard** | | **9.3** | **7.3** |

# Appendix C: Historical Summary of Financial Performance

## Appendix C-1: Financial Performance – Water

| | | A<br>**2012** | B<br>**2013** |
|---|---|---|---|
| | | **($ millions)** | |
| 1 | **Net income** | | |
| 2 | Revenue | 150.4 | 161.7 |
| 3 | Operating Costs | (90.3) | (87.2) |
| 4 | Depreciation | (17.2) | (19.0) |
| 5 | Interest Expense | (20.7) | (20.6) |
| 6 | **Net Income** | **22.2** | **34.9** |
| | | | |
| 7 | **Rate Base and ROE** | | |
| 8 | Rate Base (In-City) | 651.3 | 696.5 |
| 9 | Equity Ratio | 40.35% | 39.57% |
| 10 | **ROE - $** | **22.2** | **34.9** |
| 11 | **ROE - %** | **8.46%** | **12.65%** |
| | | | |
| 12 | **Capital Expenditures** | **84.1** | **85.9** |

| | | **A**<br>**2012** | **B**<br>**2013** |
|---|---|---|---|
| | | **($ millions)** | |
| 1 | **Operating Costs by Cost Category** | | |
| 2 | Salary & Benefits | 44.5 | 42.9 |
| 3 | Corporate Service Charges Costs | 20.3 | 14.0 |
| 4 | Franchise Fees | 11.6 | 12.4 |
| 5 | Customer Billing | 7.9 | 7.7 |
| 6 | Power | 7.6 | 7.2 |
| 7 | Chemical | 4.6 | 5.6 |
| 8 | Contractors and Consultants | 5.8 | 6.1 |
| 9 | Materials & Supplies | 3.0 | 2.7 |
| 10 | Vehicles | 1.7 | 1.9 |
| 11 | Other | 2.1 | 5.1 |
| 12 | **Total Water Operating Costs** | **109.1** | **105.6** |
| | | | |
| 13 | **Operating Costs by Operational Function** | | |
| 14 | Water Treatment Plants | 20.9 | 22.7 |
| 15 | Water Distribution and Transmission | 31.3 | 31.3 |
| 16 | Quality Assurance | 4.5 | 4.7 |
| 17 | Operations Support Services | 8.0 | 7.1 |
| 18 | Administrative Services | 4.6 | 5.7 |
| 19 | Customer Billing | 7.9 | 7.7 |
| 20 | Corporate Service Charges | 20.3 | 14.0 |
| 21 | Franchise Fees | 11.6 | 12.4 |
| 22 | **Total Water Operating Costs** | **109.1** | **105.6** |
| | | | |
| 23 | **In-City Share of Water Operating Costs - %** | **82.7%** | **82.6%** |
| 24 | **In-City Share of Water Operating Costs - $** | **90.3** | **87.2** |

# Appendix C-2: Financial Performance - Wastewater

| | | A<br>**2012** | B<br>**2013** |
|---|---|---|---|
| | | **($ millions)** | |
| 1 | **Net income** | | |
| 2 | Revenue | 61.1 | 66.4 |
| 3 | Operating Costs | (40.2) | (40.2) |
| 4 | Depreciation | (9.2) | (8.7) |
| 5 | Interest Expense | (7.3) | (7.0) |
| 6 | **Net Income** | **4.4** | **10.5** |
| | | | |
| 7 | **Rate Base and ROE** | | |
| 8 | Rate Base (In-City) | 263.2 | 266.3 |
| 9 | Equity Ratio | 40.51% | 40.02% |
| 10 | **ROE - $** | 4.4 | 10.5 |
| 11 | **ROE - %** | **4.07%** | **9.86%** |
| | | | |
| 12 | **Capital Expenditures** | **11.8** | **25.0** |

| | | **A**<br>**2012** | **B**<br>**2013** |
|---|---|---|---|
| | | **($ millions)** | |
| 1 | **Operating Costs by Cost Category** | | |
| 2 | Salaries and Benefits | 15.2 | 15.5 |
| 3 | Power Costs and Other Utilities | 4.7 | 4.8 |
| 4 | Franchise Fees | 4.4 | 4.8 |
| 5 | Customer Billing | 4.5 | 4.5 |
| 6 | Contractors and Consultants | 3.7 | 3.7 |
| 7 | Corporate Service Charges | 4.4 | 3.6 |
| 8 | Materials and Supplies (including chemicals) | 2.3 | 2.5 |
| 9 | Other | 1.0 | 0.8 |
| 10 | **Total Wastewater Operating Costs** | **40.2** | **40.2** |
| | | | |
| 11 | **Operating Costs by Operational Function** | | |
| 12 | Wastewater Treatment Plants | 17.6 | 18.6 |
| 13 | Quality Assurance and Environment | 2.5 | 2.7 |
| 14 | Operations Support Services | 3.2 | 2.8 |
| 15 | Administration Services | 3.6 | 3.2 |
| 16 | Customer Billing | 4.5 | 4.5 |
| 17 | Franchise Fees | 4.4 | 4.8 |
| 18 | Corporate Service Charges | 4.4 | 3.6 |
| 19 | **Total Wastewater Operating Costs** | **40.2** | **40.2** |

# Appendix D: Historical Consumption

## Appendix D-1: Historical Consumption - Water

| | | A<br>2012A | B<br>2013A |
|---|---|---|---|
| 1 | **Average Monthly Customer Count** | | |
| 2 | Residential | 221,444 | 226,226 |
| 3 | Multi-Residential | 3,407 | 3,470 |
| 4 | Commercial | 17,597 | 17,917 |
| 5 | **Total** | **242,448** | **247,613** |
| | | | |
| 6 | **Average Monthly Consumption per Customer (m3 per month)** | | |
| 7 | Residential | 16.3 | 16.1 |
| 8 | Multi-Residential | 413.4 | 412.1 |
| 9 | Commercial | 136.2 | 133.3 |
| | | | |
| 10 | **Annual Consumption by Customer Class (ML)** | | |
| 11 | Residential | 43,317 | 43,622 |
| 12 | Multi-Residential | 16,900 | 17,162 |
| 13 | Commercial | 28,768 | 28,662 |
| **14** | **Total** | **88,985** | **89,446** |

## Appendix D-2: Historical Consumption - Wastewater

| | | A<br>2012A | B<br>2013A |
|---|---|---|---|
| 1 | **Average Monthly Customer Count** | | |
| 2 | Residential | 221,170 | 226,118 |
| 3 | Multi-Residential | 3,406 | 3,470 |
| 4 | Commercial | 15,231 | 15,488 |
| 5 | **Total** | **239,807** | **245,076** |
| | | | |
| 6 | **Average Monthly Consumption per Customer (m3 per month)** | | |
| 7 | Residential | 15.6 | 15.5 |
| 8 | Multi-Residential | 414.4 | 410.8 |
| 9 | Commercial | 138.8 | 136.3 |
| | | | |
| 10 | **Annual Consumption by Customer Class (ML)** | | |
| 11 | Residential | 41,346 | 41,924 |
| 12 | Multi-Residential | 16,936 | 17,107 |
| 13 | Commercial | 25,378 | 25,331 |
| **14** | **Total** | **83,660** | **84,362** |