



EPCOR Water (West) Inc.

**2015-2017 Revenue Requirement and Rates
Application**

December 19, 2014

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1.0 OVERVIEW

1.1 Tariffs Applied For

1. Pursuant to sections 58-60, 89 and 90 of the *Utilities Commission Act*, EPCOR Water (West) Inc. (“EWW”) hereby submits this Revenue Requirement and Rates Application (the “Application” or “2015-2017 RRA”) for the years 2015- 2017 (the “2015-2017 test period”), requesting an Order or Orders for the following:

1. Approval to amend its current water rates and rate rider on an interim and refundable basis, effective January 1, 2015 to reflect the 2015 water rates and rate rider applied for in this Application as set out in Schedule B-1 of the Application (the “Interim Rates”).¹ EWW requests that the Interim Rates remain in effect until such time as the Comptroller approves the final water rates and rider for the 2015-2017 test period. Adjustments for differences between interim and final approved water rates, if any, will be applied to customers’ water rates during the remainder of 2015 following final approvals from the Comptroller.
2. Approval on a final basis for water rates for the 2015-2017 test period set out in Schedule B-1 and summarized in Table 1.1-1 below (collectively “Water Rates”).

¹ See pages 39, 40, 43, and 47 for proposed 2015 rates and pages 51, and 54, for proposed 2015 rate rider

**Table 1.1-1
Proposed Water Rates
2015-2017**

	A 2015	B 2016	C 2017
1 Base Rates			
2 Residential	40.45	45.29	50.70
3 Multi-Residential	36.89	41.30	46.24
4 Commercial	35.24	39.45	44.17
5 Consumption Rates			
6 Residential			
7 15-75 cubic meters	1.68	1.88	2.11
8 > 75 cubic meters	1.68	1.88	2.11
9 Multi-Residential			
10 15-75 cubic meters	1.68	1.88	2.11
11 > 75 cubic meters	1.68	1.88	2.11
12 Commercial			
13 15-75 cubic meters	0.84	0.94	1.06
14 > 75 cubic meters	0.84	0.94	1.06
15 Fire Hydrants (annual)	509.12	570.01	638.19
16 Standpipes (annual)	203.65	228.01	255.28
17 Availability of Service Charge (annual)	345.92	387.30	433.62

These proposed rate increases are primarily driven by: (i) increases in operating costs due to labour cost increases of 2.7%; additional one-time costs for studies including a geotechnical study, leak detection program, pressure zone study and a water taste and odour investigation; and increased costs for management oversight, (ii) increases in capital costs primarily associated with higher-than-forecast costs to complete several wells projects required to provide reliable and safe water supply for EWW's customers and to replace water supply from French Creek in compliance with Vancouver Island Health Authority's ("VIHA") new surface water disinfection policy; and (iii) lower-than-forecast consumption levels and customer counts relative to 2012-2014 forecast.

3. Revisions to the Water Tariff (terms and conditions and price schedules) by which EWW provides water services to its customers, as attached in Schedule B-1 of the Application. The revisions to the Water Tariff are discussed in section 9.0 of the Application.
4. Recovery of the 2012-2014 deferral account balances by means of a monthly Rate Rider for the following deferral accounts:
 - the consumption deferral account;
 - the property taxes deferral account;

- the interest deferral account; and
 - the hearing cost deferral account.
5. Approval of the proposed monthly Rate Rider and calculations as set out in Financial Schedule 4.0 of the Application.
 6. Continuation of the consumption deferral account, property tax deferral account, interest deferral account and hearing cost deferral account for the 2015-2017 test period as described in section 6.0 of the Application.
 7. Approval of the capital structure (60% debt; 40% equity) and the rate of return on equity of 10.05% for the 2015-2017 test period, as described in section 8.0 of the Application and subject to annual adjustment based on the BC benchmark utility return on equity approved by the BC Utilities Commission as explained in section 8.2.
 8. Approval of allowance for funds used during construction applied to EWW's capital expenditures as discussed in section 4.2.
 9. Approval to prospectively change depreciation rates commencing January 1, 2015 as discussed in section 4.7.
2. Order No. 2310 ("Order 2310"), dated March 20, 2012, approved EWW's water rates up to December 31, 2014. The rates approved by the Comptroller in Order 2310 are insufficient to recover EWW's forecast costs to continue to provide safe and reliable water services for the 2015-2017 test period, resulting in an annual revenue shortfall. This annual shortfall is reflected in Table 1.2-2 below.

Table 1.1-2
Revenue Requirement vs. Revenue Forecast
2015-2017
(\$ thousands)

	A 2015F	B 2016F	C 2017F
1 Forecast Revenue Requirement	1,545	1,558	1,668
2 Forecast Revenues based on 2014 Rates (excludes Other Revenues)	1,253	1,264	1,274
3 Annual Revenue Shortfall	292	295	394

3. In order to eliminate these annual shortfalls, EWW is proposing the water rates in Table 1.1-1 above for the 2015-2017 test period. The proposed water rates reflect increases of approximately 12% per year for all rates for each customer class as indicated in Table 1.1-3. EWW elected to smooth the water rates increase over the three year test period in order to minimize the impact of larger rate increases in any particular year.

**Table 1.1-3
Rate Adjustments
2015-2017**

	A 2015F	B 2016F	C 2017F
1 Base Rates			
2 Residential	11.96%	11.96%	11.96%
3 Multi-Residential	11.96%	11.96%	11.96%
4 Commercial	11.96%	11.96%	11.96%
5 Consumption Rates			
6 Residential			
7 15-75 cubic meters	11.96%	11.96%	11.96%
8 > 75 cubic meters	11.96%	11.96%	11.96%
9 Multi-Residential			
10 15-75 cubic meters	11.96%	11.96%	11.96%
11 > 75 cubic meters	11.96%	11.96%	11.96%
12 Commercial			
13 15-75 cubic meters	11.96%	11.96%	11.96%
14 > 75 cubic meters	11.96%	11.96%	11.96%
15 Fire Protection	11.96%	11.96%	11.96%

1.2 Residential Bill Impact

4. The resulting impact on a residential customer's bill for the 2015-2017 test period is shown in Tables 1.2-1, 1.2-2 and 1.2-3 for residential customers with low (10 m³/month), medium (20 m³/month) and high (30 m³/month) consumption. The customer bill includes both the impact of the proposed rate increases as well as the impact of the proposed rate rider for 2015-2017.

Table 1.2-1
Monthly Bill for Residential Customer (Minimum 10 m³/month)
2015-2017
(\$/customer/month)

	A 2014	B 2015F	C 2016F	D 2017F
Consumption Charge:				
1 Minimum (up to 15 m ³)	\$ 36.13	\$ 40.45	\$ 45.29	\$ 50.70
2 Additional	-	-	-	-
Rate Rider:				
3 Minimum (up to 15 m ³)	\$ 1.37	\$ 4.14	\$ 4.11	\$ 4.07
4 Additional	-	-	-	-
5 Total Monthly Bill	\$ 37.50	\$ 44.59	\$ 49.40	\$ 54.77
6 Change (\$)		\$ 7.09	\$ 4.81	\$ 5.38
7 Change (%)		18.9%	10.8%	10.9%

Table 1.2-2
Monthly Bill for Residential Customer (Average 20m³/month)
2015-2017
(\$/customer/month)

	A 2014	B 2015F	C 2016F	D 2017F
Consumption Charge:				
1 Minimum (up to 15 m ³)	\$ 36.13	\$ 40.45	\$ 45.29	\$ 50.70
2 Additional	7.52	8.42	9.42	10.55
Rate Rider:				
3 Minimum (up to 15 m ³)	\$ 1.37	\$ 4.14	\$ 4.11	\$ 4.07
4 Additional	0.28	0.85	0.85	0.85
5 Total Monthly Bill	\$ 45.30	\$ 53.85	\$ 59.67	\$ 66.17
6 Change (\$)		\$ 8.56	\$ 5.81	\$ 6.50
7 Change (%)		18.9%	10.8%	10.9%

Table 1.2-3
Monthly Bill for Residential Customer (High 30m³/month)
2015-2017
(\$/customer/month)

	A 2014	B 2015F	C 2016F	D 2017F
Consumption Charge:				
1 Minimum (up to 15 m ³)	\$ 36.13	\$ 40.45	\$ 45.29	\$ 50.70
2 Additional	22.55	25.25	28.27	31.65
Rate Rider:				
3 Minimum (up to 15 m ³)	\$ 1.37	\$ 4.14	\$ 4.11	\$ 4.07
4 Additional	0.85	2.55	2.55	2.55
5 Total Monthly Bill	\$ 60.90	\$ 72.39	\$ 80.21	\$ 88.97
6 Change (\$)		\$ 11.48	\$ 7.83	\$ 8.76
7 Change (%)		18.9%	10.8%	10.9%

5. As reflected in each of the three tables above, while water rates were smoothed over the test period, there is a larger impact to the bill in 2015. This increase is associated with a new rate rider applied beginning in 2015 to collect deferral account balances from the 2012-2014 test period. The rate rider on the bill for 2014 was established to collect deferral account balances from the 2009-2011 test period.

6. Table 1.2-4 below provides a breakdown of increases to the monthly bill for an average residential customer comparing the monthly bill in 2014 under the current approved rates and rate rider to the monthly bill forecast in 2017 under the proposed 2017 rates and rate rider.

Table 1.2-4
Breakdown of Monthly Bill for Residential Customer
Comparing 2014 Decision to 2017 Forecast
(\$/customer/month)

	A	B	C	D	E	F
	2014 Decision Rates	Operating Costs Impacts	Capital Cost Impacts	Consumption and Customer Count Impact	2017 Rate Rider	2017 Forecast Rates (Proposed)
1 Total Monthly Bill	\$ 45.30	\$ 7.25	\$ 6.88	\$ 3.47	\$ 3.27	\$ 66.17

*For an average residential customer consuming 20 m³/month.

7. Column B of Table 1.2-4 reflects the impact of additional operating costs associated with management oversight costs, labour cost increases of 2.7% and general inflation and one-time increases in costs for studies including a geotechnical study, leak detection program, pressure zone study and a water taste and odour investigation. Column C reflects the impact of higher capital costs primarily associated with higher-than-forecast costs to complete several wells projects required to provide reliable and safe water supply for EWW's customers and to replace water supply from French Creek in compliance with VIHA's new surface water disinfection policy. Column D reflects the impact of lower consumption and customer counts relative to the 2014 Decision levels. This decrease necessitates an increase in base and consumption rates beginning in 2015. Column E provides the impact of the higher rate rider in 2017 relative to the 2014 rate rider. The rate rider proposed for the 2015-2017 test period is required to recover balances in the consumption deferral account which largely reflects lower than forecast revenues from the 2012-2014 period due to lower than forecast consumption and customer counts. Finally, column F presents the 2017 monthly water bill based on the 2017 proposed rates and rate riders.

8. Over the past three years, EWW has undertaken a number of system upgrades, investing \$4.7 million (including \$2.5 million in developer contributions) to continue to provide safe and reliable water supply at the lowest possible cost to customers. These upgrades provided improvements in the areas of water quality, asset management, reliability and safety and included the following types of projects:

- well projects (7 new wells, partially developer funded);
- standby generators to ensure reliability;
- new billing software;
- other developer-funded projects including new water service connections, water treatment plant upgrades and water main upgrades;
- annual capital programs including meter replacements and new hydrants.

9. EWW's well program includes the drilling and commissioning of new groundwater wells to replace unreliable surface water supply from French Creek, provide sufficient and reliable capacity for existing customers, rehabilitate existing wells and to supply future demand. As EWW noted in its 2012-2014 Revenue Requirement and Rates Application, ("2012-2014 RRA"), development of these groundwater wells has proven to be challenging. EWW has now completed two of the seven wells. In addition, EWW has determined that two other wells have insufficient capacity; as a result, there were converted to monitoring wells. Three remaining wells are awaiting source water approval from VIHA and are expected to be tied in to the system in 2015 and 2016. Based on work completed to date, EWW has revised its forecast of total Well Program costs to \$4.8 million (a \$2.4 million increase from the forecast amounts in the 2012-2014 RRA). EWW's forecast of well program costs net of developer contributions has increased to \$2.5 million from the \$0.9 million estimated in the 2012-2014 RRA. Compared to forecasts in the 2012-2014 RRA, this updated forecast for well costs (net of contributions) reflects (i) known costs based on work completed to date; (ii) an update of the forecast costs including contingency for completing the remaining two wells; and (iii) a higher proportion of new well capacity required to provide a reliable source of supply to existing customers.

10. As a result of the \$1.6 million increase to rate base forecast costs for the Well Program for the 2012-2014 test period, EWW identified certain non-critical projects which could be postponed to the 2015-2017 test period in order to maintain the total capital program costs within a reasonable range of the approved amounts for the 2012-2014 test period. A complete explanation of the well program challenges, unanticipated cost increases and the resulting adjustments to EWW's capital plan for 2012-2014 is provided in Section 3.1.1.

11. Due in part to the high degree of uncertainty associated with developing groundwater wells, the forecast costs in the 2012-2014 RRA were underestimated. Since filing the 2012-2014 RRA, additional, unanticipated costs were identified. These additional costs relate to additional work in the areas of environmental risk mitigation and site access. They are also attributable to the significant additional work required to meet VIHA requirements for source water approval. These costs related to unique complications experienced with certain well projects including difficulties with neighboring wells, well screening and water quality testing. The additional expenditures were prudent, reasonable and necessary to properly develop and tie in wells of sufficient capacity; to meet American Water Works Association (“AWWA”) guidelines for screening/testing; to comply with VIHA requirements for new ground water wells; to comply with environmental regulations associated with draining into fish-bearing streams under BC Water Act Regulations and the Canadian Fisheries Act; and to address concerns of nearby landowners.

12. Since taking ownership of the French Creek water utility (the “Utility”) in 2006, EWW’s customers have benefitted from EWW’s extensive improvements in the security, reliability and quality of their water supply and in the level of customer service provided by the Utility. EWW has also undertaken several operational initiatives in the areas of water quality assurance, safety and security, environmental management, customer service and responsiveness. EWW has made some significant and necessary capital investments including adding a water treatment plant to improve water quality and to comply with the Guidelines for Canadian Drinking Water Quality (“GCDWQ”), developing additional wells to provide a safe and reliable source of water supply to EWW’s customers and to replace water supply from French Creek. EWW has also made several upgrades to the rest of the system including water main upgrades, new reservoirs and reservoir upgrades, water treatment plant and pumping plant upgrades, installing standby generators, replacing the billing system and ongoing capital programs including meter replacement, hydrant installation, residential service upgrades. These investments have resulted in a substantial reduction in customer complaints relating to water quality. The overall satisfaction with the water services provided by EWW is illustrated in the results of the 2013 Customer Survey provided as Appendix C to this Application.

1.3 Background

1.3.1 Description of French Creek Water Utility

13. EWW owns and operates the Utility, which provides service to approximately 2,000 metered accounts with an average consumption of 19.4 m³ of water per residential customer per

month (5-year average for residential customers in 2010-2014) in a service area within the Regional District of Nanaimo (the “RDN”). Every water service in the area is metered. Fire protection service is provided to the residents by means of 153 fire hydrants.

14. EWW’s distribution system is comprised of two water storage reservoir sites, with a total volume of approximately 4.0 ML, a booster station and 30 km of mainly cement pipe ranging in size from 50 mm to 300 mm in diameter. The Utility is currently operated by four employees - one manager, two operators and one administrative assistant.

15. EWW draws water from 16 active wells in two separate aquifers. Both aquifers provide good quality drinking water but one aquifer has slightly elevated levels of iron and manganese. This requires treatment in order to comply with the Guidelines for Canadian Drinking Water Quality (“GCDWQ”).

1.3.2 EPCOR Water (West) Inc. and EPCOR Water Services Inc.

16. EWW is a corporation incorporated under the Business Corporations Act (Alberta) and is extra-provincially registered under the British Columbia *Business Corporations Act*. EWW operates out of French Creek, British Columbia. EWW is a wholly owned subsidiary of EPCOR Water Services Inc. (“EWSI”). EWSI is a corporation incorporated under the laws of the Province of Alberta and is a wholly owned subsidiary of EPCOR Utilities Inc. (“EUI” or “EPCOR”). EUI is, in turn, wholly owned by the city of Edmonton.

17. EWSI and its predecessors have been designing, building, operating, and financing water and wastewater treatment facilities for more than a century and EWSI is considered one of the leading water utility operators in North America. EWSI, working in partnership with governments, municipalities, and industrial clients, provides water, wastewater and distribution services to more than one million people in 85 Western Canadian communities and 22 communities and seven counties in the U.S. In Canada, EWSI is active in Alberta communities, including Edmonton, Red Deer, Canmore, Strathmore, Okotoks, Chestermere, Taber, the Wood Buffalo Region and in British Columbia (“BC”) communities, including White Rock, Britannia Mine, Sooke and French Creek.

18. On an ongoing basis, EWW continues to draw technical support from EWSI. EWW will continue to benefit from EWSI’s expertise in water utility operations, maintenance, safety, training, accounting and customer support services.

1.4 2015-2017 Test Period Costs

19. EWW's Application is based on a three-year forecast test period from January 1, 2015 to December 31, 2017. A three-year test period is consistent with the previous test period approved by the Comptroller in Order 2310. A three-year test period continues to strike a reasonable balance between the risk associated with forecasting the proposed revenue requirement and the efficiencies associated with longer test periods and minimizing regulatory application costs.

20. Table 1.5-1 below summarizes the proposed revenue requirements for EWW for the 2015-2017 test period. The actual financial results for 2012 and 2013 (the "2012 actual" and "2013 actual" amounts), the forecast amounts for 2014 ("2014 forecast" amounts based on year-to-date actuals for 2014 and a forecast for the remaining months) and the amounts approved in Order 2310 for 2012, 2013 and 2014 (the "2012 decision", "2013 decision" and "2014 decision" amounts) are provided for comparison purposes.

Table 1.4-1
Revenue Requirement
2012-2017
(\$ thousands)

Cost Category	A 2012D	B 2012A	C 2013D	D 2013A	E 2014D	F 2014F	G 2015F	H 2016F	I 2017F
1 Operating Costs	819	684	901	884	920	950	1,093	1,020	1,091
2 Depreciation Expense	177	150	235	183	282	236	246	298	333
3 Amortization of CIAC	(46)	(55)	(62)	(50)	(77)	(61)	(108)	(133)	(152)
4 Interest Expense	107	97	136	122	167	147	166	195	207
5 Return on Equity	120	381	153	189	101	74	190	221	233
6 Revenue Requirement before Revenue Offsets	1,177	1,257	1,363	1,328	1,393	1,346	1,587	1,601	1,712
7 Less: Revenue Offsets	(35)	(25)	(48)	(44)	(58)	(30)	(42)	(43)	(44)
8 Net Revenue Requirement	1,142	1,232	1,315	1,284	1,335	1,316	1,545	1,558	1,668

21. As shown in Table 1.5-1, for the years 2012, 2013 and 2014, EWW's actual revenue requirement was lower than forecast primarily due to lower than forecast operating costs and depreciation. Decreases in actual operating costs relative to forecast are primarily related to: (i) a staff vacancy for part of 2012; (ii) lower chemical costs as a result of lower than forecast water consumption and the success of efforts to optimize the use of chemicals in water treatment.

22. EWW's expected revenue requirement, shown in Table 1.4-1, is \$1.5 million in 2015, \$1.6 million in 2016 and \$1.7 million in 2017. Cost increases during the 2015-2017 test period are primarily driven by the following factors:

Operating Costs

- Over the three year test period, EWW's operating costs are expected to increase by approximately 6% per year, on average, relative to the operating costs forecast in the 2014 Forecast.
- These increases are primarily driven by labour cost increases of 2.7%; additional one-time costs for studies including a geotechnical study, leak detection program, pressure zone study and a water taste and odour investigation; and increased costs for management oversight not included in earlier forecasts; and
- These increases are partially offset by a decrease in chemical costs due to optimized chemical usage, and no longer drawing surface water from French Creek.

Capital Related Costs

- Additional rate base capital costs for the 2015-2017 test period associated with completion of two well tie-ins, well rehabilitation, upgrades to the Drew Road pump station, upgrades to the Church Road complex and reservoir, residential service upgrades, decommissioning wells and annual capital programs for meters and hydrants.

23. Further discussion of these cost drivers are described in the sections that follow. Additional financial information, including EWW's financial statements and a comparison of actual results with decision amounts for 2011 to 2013, is also provided in EWW's Actual Results for 2011, 2012 and 2013 in Appendices G-1 to G-3, respectively.

24. In addition to the capital expenditures for rate base assets listed above, EWW's 2014-2017 capital plan includes approximately \$0.9 million in capital expenditures for assets contributed by customers or developers. By the end of 2017, approximately 48% of EWW's gross plant in-service is expected to be related to contributed assets. This represents a significant portion of assets for which EWW does not earn any form of compensation related to their construction and operating risk. Through the Deferred Capacity Trust Fund ("DCTF"), EWW only receives compensation for the direct costs and overhead associated with putting these assets into service. EWW will file an application to update the Contribution in Aid of Future Construction Charge in 2015.

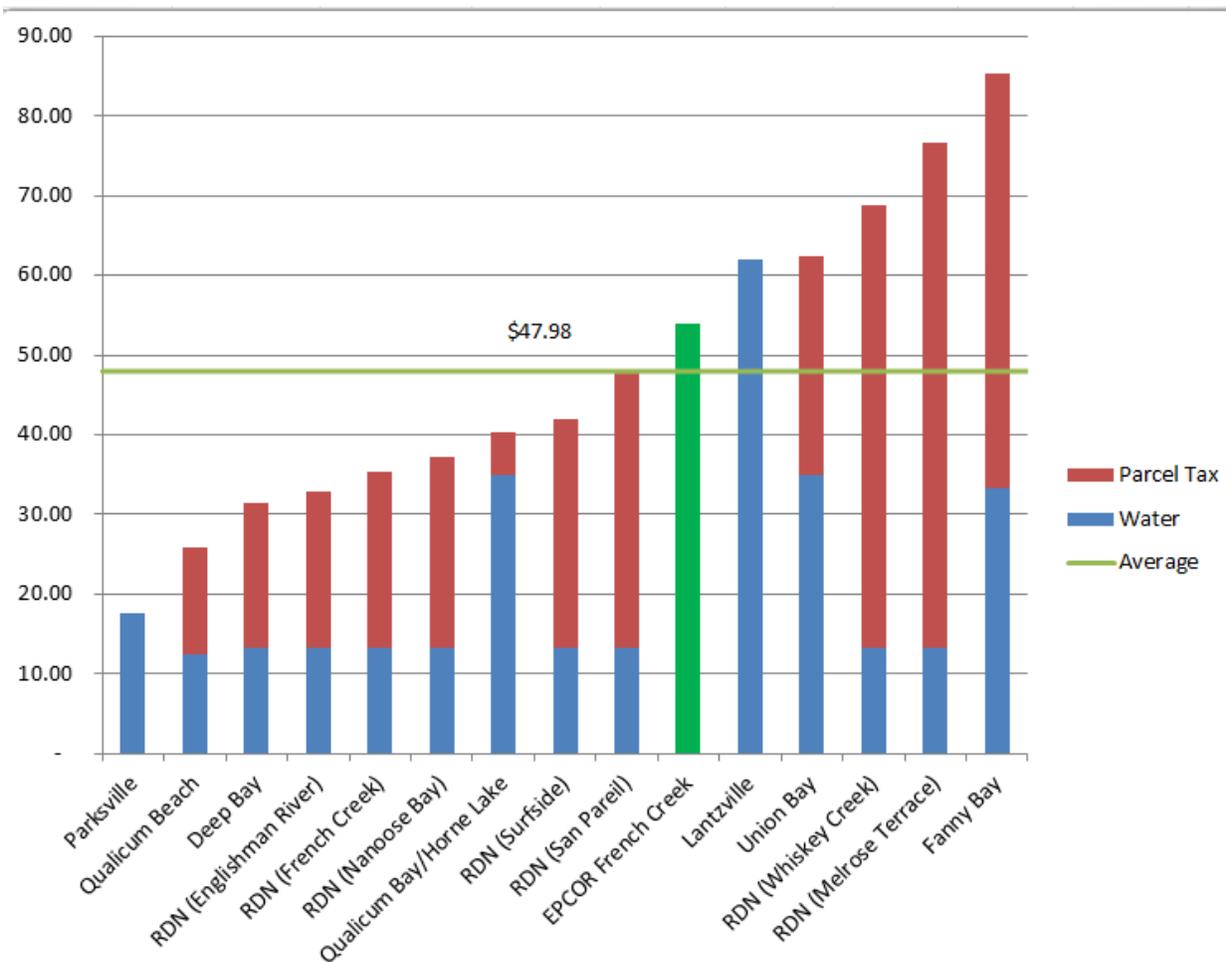
1.4.1 Comparison of Water Rates

25. Cost of providing water utility services continues to face upward pressures as utilities are required to replace aging infrastructure and invest in capital upgrades to meet regulatory requirements. Further, EWW's water consumption per customer has declined, and customer growth has been lower than expected putting an upward pressure on EWW's water rates. EWW's proposed water rates for 2015 will increase the monthly bill for a residential customer (based on consumption of 20 m³ per month) by about \$8.56 per month. The corresponding increases for this same customer in 2016 and 2017 are expected to be approximately \$5.81 per month and \$6.50 per month, respectively. EWW understands that its customers no longer pay an annual parcel tax for future water supply from the Arrowsmith Water Service, as well as Drinking Water Protection.

26. Figure 1.5.2-1 shows the comparison between EWW's forecast 2015 residential customer monthly bill relative to those of other water service providers in the surrounding area for a customer consuming 20 m³/month. Water parcel taxes are included in the Figure 1.5.2-1 in order to show the comparable total cost of water services in surrounding areas. Figure 1.5.2-2 shows the comparison between EWW's forecast 2017 residential customer monthly bill to the same water service provides, with their 2014 rates escalated by 4% per year.

27. EWW's proposed Water Rates for 2015 will be higher than nine and lower than five other surrounding areas. The variance from areas with lower rates is largely a reflection of the costs associated with significant system upgrades which must be spread over a relatively small customer base in French Creek. As well, EWW notes that it does not have access to grant funding.

**Figure 1.4.1-1
Monthly Bills for Residential Customers
(Comparison of proposed 2015 rates with neighboring communities' 2014 rates)**

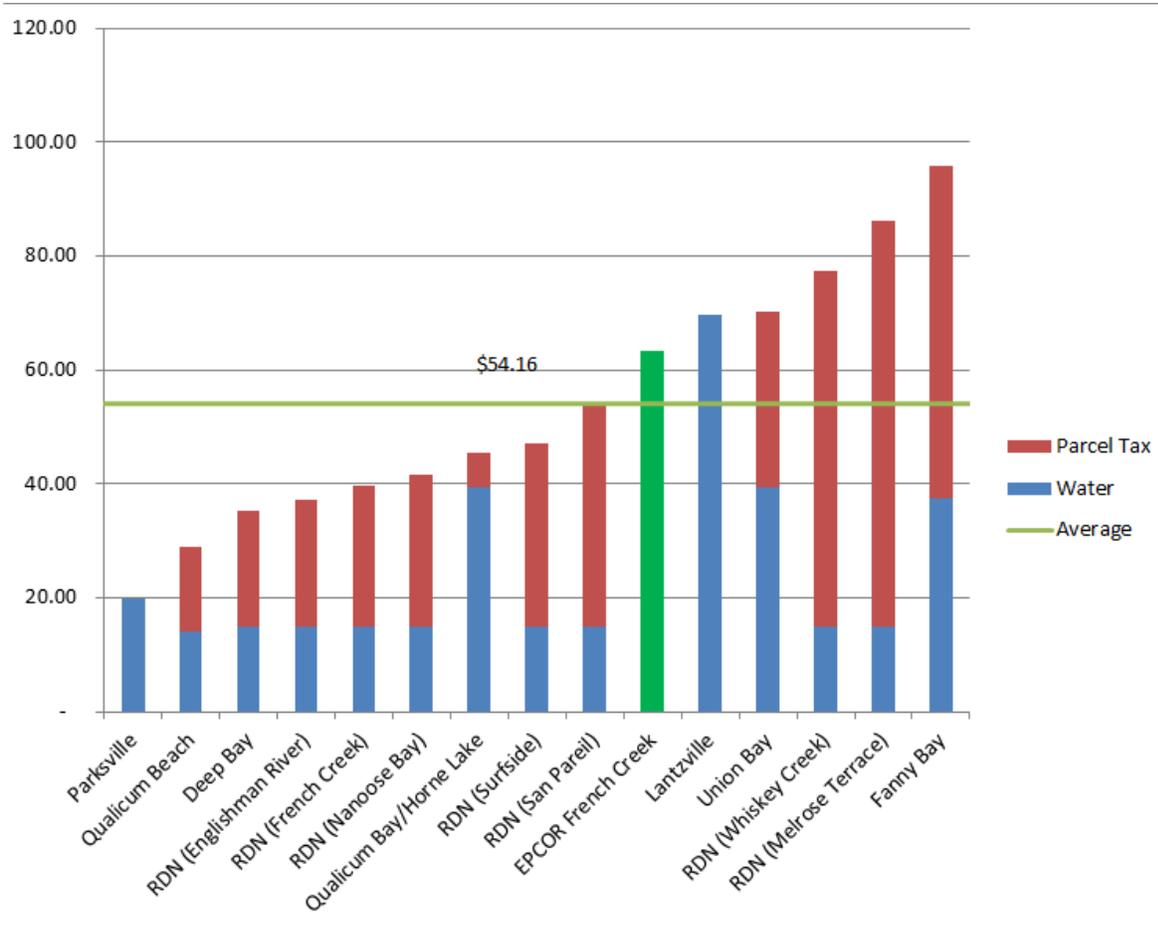


* Based on an average consumption of 20m³/month

Sources:

- Parksville – City of Parksville Current Utility Rates (<http://www.parksville.ca/cms/wpattachments/wpID70atID6398.pdf>)
- Qualicum Beach – Qualicum Beach Bylaw No. 532.11 and Qualicum Beach Bylaw No. 493
- Deep Bay – Deep Bay Improvement District Bylaw No. 212
- RDN Utilities – Regional District of Nanaimo Water User Rates (<http://www.rdn.bc.ca/cms.asp?wpID=915>), parcel taxes received via email from the RDN to EWW, available upon request.
- Qualicum Bay Waterworks - <http://qbhlwater.ca/water-rates>
- Lantzville - District of Lantzville Bylaw No. 85
- Fanny Bay - <http://fannybaycommunity.com/fb-waterworks/>

**Figure 1.4.1-2
Monthly Bills for Residential Customers
(Comparison of proposed 2017 rates with neighboring communities' 2014 rates escalated
by 4% per year)**



1.5 Water Tariff (Terms and Conditions and Price Schedules)

28. EWW is requesting approval of minor changes to its Water Tariff. A copy of the proposed Water Tariff is included as Schedule B-1 of the Application and a copy of a black-lined version of the Water Tariff is included as Schedule B-2. The changes are proposed to add clarity, improve consistency and readability, and to otherwise improve the document. EWW is also requesting revisions to the price schedules to reflect the proposed rate increases. These changes are discussed in further detail in section 9.0 of the Application.

1.6 Comptroller Direction

29. In Order 2310, the Comptroller issued a direction to EWW in relation to its next application. The direction which applies to the Application and the manner in which EWW has responded to this direction is provided in Appendix A.

1.7 Stakeholder Consultation

30. In preparing this Application, EWW has met and consulted with a number of stakeholders. The meetings provided an opportunity for stakeholders to review EWW's proposed rates for the 2015-2017 test period, provide feedback and obtain clarification on any questions they had in advance of EWW filing this Application. As a result of this consultation process, EWW plans to investigate water taste and odour and determine steps to improve this in 2015. To date, EWW has consulted with the following:

- (i) French Creek Community Advisory Panel ("CAP")
 - Meetings held on December 10, 2014. To accommodate the schedules of two members, EWW conducted the meeting twice.

31. The information presented to CAP is provided in Appendix B-1. Meeting notes summarizing stakeholders' questions and comments, as well as EWW's responses, are attached as Appendix B-2. The main issues of concern raised by stakeholder groups include: (i) the large increases in rates for the 2015-2017 test period; (ii) the aesthetic taste of EWW's water in the community; and (iii) some concerns with water pressure in certain zones in EWW's system.

1.8 Organization of Application

32. This Application includes two main components – Revenue Requirement and Water Tariff. For convenience, this Application is organized under the following main topic headings:

Section	Topic
1	Overview
Part A - Revenue Requirement	
2	Operating Plans
3	Capital Projects
4	Methods and Key Assumptions
5	Operating Costs
6	Deferral Accounts
7	Capital Expenditures and Rate Base
8	Return on Rate Base
Part B – Water Tariff	
9	Water Tariff

1.9 Notices

33. All notices and communications with respect to this Application should be addressed to the Applicant as follows:

EPCOR Utilities Inc.
2000 – 10423 – 101 St NW
Edmonton, Alberta T5H 0E8
Attention: Carmen Piercey
Senior Manager, Regulatory

Telephone: (780) 412-8817
Facsimile: (780) 969-8498
Email: cpiercey@epcor.com

EPCOR Utilities Inc.
2000 – 10423 – 101 St NW
Edmonton, Alberta T5H 0E8
Attention: Teresa Crotty-Wong
Legal Counsel

Telephone: (780) 412-3799
Facsimile: (780) 412-3192
Email: tcrotty-wong@epcor.com

PART A – REVENUE REQUIREMENT

2.0 SYSTEM OPERATIONS

34. Since 2012, EWW has continued with its assessment of the system's condition to identify upgrades necessary to operate and maintain the Utility to meet leading water utility standards. EWW has successfully completed a number of system upgrades and operational improvements to improve water quality, enhance system reliability and safety, meet regulatory requirements and improve customer service, including no longer relying on water supply from French Creek. Financial Schedules 2.2 and 2.4 to the Application provide a detailed breakdown of the operating and capital expenditures required to finance these activities for the upcoming three year test period.

35. Operational initiatives and improvements completed during the 2012-2014 test period to ensure efficiency of EWW's processes and procedures are described in section 2.1. Operational initiatives and improvements planned for the 2015-2017 test period are described in section 2.2. Historical and planned capital upgrades are described in section 3.0.

2.1 Operational Programs Completed during 2012-2014

36. EWW continues to ensure its operating processes and procedures meet EPCOR standards for providing water services to its customers. Operational initiatives continue to include:

- optimization of the water treatment plant ("WTP") operations to minimize chemical and waste discharge where possible;
- continual updating of operating procedures for additional asset protection and safety, such as the procedures for loss of power and confined space entry;
- well performance monitoring to ensure the sustainability of its water supply;
- Water Quality Assurance Program:
 - water quality testing of turbidity, pH and temperature and groundwater sampling and water quality testing (increased frequency and additional parameters beyond regulatory minimums). EWW conducts approximately 6,500 tests per year. The results of EWW's water quality testing are summarized in EWW's annual performance reports, available on its website. Water quality assurance audits are conducted annually by EWW's parent company EWSI.
 - annual reporting of water quality and system upgrades to Vancouver Island Health Authority ("VIHA") to comply with provincial regulations in an open

and transparent process with results reported to customers in an annual performance report posted on EWW's website.

- optimization of uni-directional flushing (“UDF”) processes to achieve ongoing improvements in water quality. EWW conducted a UDF audit in 2013 to investigate and further refine the program to determine the best use of resources (time and water) and to document the effect that the program is having on water quality throughout the system.
- annual updating of EWW's site-specific Emergency Response Plan;
- provision of quarterly newsletters, operational updates and water conservation information to customers (mailed with bills). EWW maintains regular communication with its Community Advisory Panel (“CAP”) to provide these groups and their members with operational updates.

37. During 2012 to 2014, EWW's operations also saw the benefits of several new initiatives identified and implemented in the following areas:

- **Customer Satisfaction Survey** - In 2012, EWW conducted a customer satisfaction survey to obtain feedback from its customers and to help EWW to measure its performance. The survey results, provided in Appendix C, showed improvements in customer satisfaction with service from EWW and with water quality. The survey also showed an increase in the number of EWW customers that drink only tap water.
- **New Billing Software** - In 2013, EWW implemented new billing software. EWW's previous billing system had far exceeded its useful life, relied on outdated customized software that had limited upgrade capabilities and was not compatible with EUI's future operating system upgrades. The new billing system is compatible with EPCOR's Oracle financial system and has reduced the level of manual administrative work. It also enables EWW to provide additional information that customers have asked to see on their bills which, previously, was not possible under the old billing system. The additional information includes consumption analysis, consumption trending and a more detailed explanation of bill calculations.
- **2014 Master Plan** - In 2014, EWW worked with engineering consulting firm Kerr Wood Leidal Associates Ltd. (“KWL”) to prepare the 2014 Water System Master Plan (the “2014 Master Plan” attached as Appendix D to the Application), specifically to identify sustaining capital upgrades and improvements to the utility's infrastructure necessary to meet customer needs. The 2014 Master Plan provides an update of the water system model, current and future supply and demand review,

- water conservation study, hydraulic performance analysis and capital plan update including capital project justification and opinion of probable costs.
- **Water Conservation Study** - The 2014 Master Plan also included a Water Conservation Study (section 5 of Appendix D), which looked at EWW's historical water usage since 2004 to establish peak demands and compared EWW's demand levels with other neighboring jurisdictions and with other similarly sized Canadian municipalities. The study also looked at EWW's unaccounted for water and system leakage relative to industry standards. The results of the study indicate that the majority of single-family homes have already been retrofitted with water efficient fixtures and appliances and residents are observing the current sprinkling restrictions. Based on results of the study, KWL does not recommend that EWW start any new projects to reduce water loss, but recommends that EWW complete the projects previously identified – Dalmatian Drive Upgrades, Leak Detection Program, Church Road Reservoir Upgrades, and a Geotechnical Study of the Drew Road Reservoirs. These projects are explained in Sections 2.2 and 3.2.
 - **Wellhead Protection Analysis** - In 2014, EWW retained a hydro-geologist to conduct a wellhead protection analysis study to consider the capture zone that supplies EWW's wells and to identify any items within the capture zone that may impact the water supply. This analysis, which will be completed in early 2015, will help to ensure the sustainability of the aquifers and EWW's source of supply.

38. During 2012-2014, EWW continued to receive administrative, technical and engineering support from EWSI and EUI. EWW benefits from EWSI's expertise in water utility operations, maintenance, safety, training, accounting, operational audit services and regulatory matters.

2.2 2015-2017 Operational Plan

39. During the 2015-2017 test period, EWW will continue with existing operational programs including its quality assurance program and annual quality assurance audits; annual reporting to VIHA on the Utility's operating performance and water quality; well performance monitoring to ensure the sustainability of its water supply; annual UDF program; annual updating of Emergency Response Plans; quarterly newsletters, operational updates and water conservation information provided to customers; and regular communication with its CAP.

40. In addition to these continuing operational programs, EWW is planning a number of new operational initiatives for the 2015-2017 test period.

41. EWW plans to conduct a Leak Detection Program in 2015 to address water losses in the system as recommended in the 2014 Master Plan. In 2006, 60% of the water system was leak tested. The other 40% was not amenable to testing because of insufficient access to the infrastructure. This project will install the required access points and conduct a complete leak detection assessment.

42. In 2016, EWW will also conduct the Model Validation and Rezoning Study. A computer model of a water system is an effective tool for planning and prioritizing improvements however it is important to establish that the model results reflect the reality of the water system. Validation testing involves taking a series of flow and pressure measurements in the field and comparing values to the results predicted in the model under the same flow conditions for each test location. This project includes a study to complete water model validation including a field hydrant flow testing program. Once the model is validated, EWW will be in a position to determine whether the upgrade for Wembley Road Area Pressure Zone Study as identified in the 2014 Master Plan, will be required for future test periods.

43. In 2016, EWW will retain a geotechnical engineering consultant to conduct a geotechnical study on the Drew Road reservoirs. The purpose of this investigation is to examine the aging reservoirs and to determine the extent of the leakage from the reservoirs and provide mitigation options. EWW will also conduct a study to review the existing system instrumentation and operating logic to allow the butterfly valve to remain open while ensuring that sufficient fire storage at the Drew Road Reservoirs is maintained. Completion of this project is required prior to the installation of a new fire pump at the Drew Road reservoir recommended by KWL in the 2014 Master Plan for the next test period.

44. As a result of feedback from the December 2014 Community Advisory Panel (“CAP”) meeting, EWW included \$25 thousand for a limited scope taste and odour study in the operating budget in 2015. The feedback from the CAP highlighted taste and odour issues within the French Creek distribution system but did not outline any specific locations or any specific types of taste and odour. This feedback differs from the information received during the 2013 Customer Satisfaction Survey which suggested that bottled water consumption was dropping, tap water consumption was increasing and four of five (83%) of residents are satisfied with each aspect of their tap water. Only one in five residents were dissatisfied with the taste of their tap water and only one-in six were dissatisfied with the odour.

45. Since the anecdotal evidence provided by CAP differs from the survey results, EWW proposes a limited scope taste and odour study. The first step will be to verify the taste and

odour results by including questions about water aesthetics in the customer satisfaction survey planned for 2015. EWW and the CAP will then validate the results of the survey. The second step will include sampling and testing the water. Water samples will be taken in targeted areas of the distribution system, based on the two aquifers supplying the French Creek system. Should the taste and odour results be within acceptable levels, as measured by the independent taste and odour panel, then the study will be complete and no further study work will be conducted. If the study identifies the presence of taste and odours in the samples, then a rudimentary pilot program will be developed and conducted.

46. In 2017, EWW plans to retain the services of an engineering firm to update its system Master Plan prior to the next RRA. EWW will also be completing a model validation and rezoning study on the Wembley Road area pressure zone in order to verify results and assist in scoping and prioritizing fire flow and pressure improvement projects. This will also assist in the preparation for the recommended upgrades to the Wembley Road area pressure zone for fire flow improvements recommended by KWL in the Master Plan for the next test period.

47. On an ongoing basis, EWW continues to draw technical support from EWSI. EWW will continue to benefit from EWSI's expertise in water utility operations, maintenance, safety, training, accounting and customer support services.

3.0 CAPITAL PROGRAMS

48. In order to maintain leading water utility standards, EWW continues to focus on identifying system upgrades to improve water quality, enhance system reliability and safety, meet regulatory requirements and improve customer service. EWW's capital programs include capital projects required to address one or more of the following items:

System Reliability Risks - Projects which address system reliability risks relate to the need to meet existing customer demand and to the need to plan for greater capacity in the future. These projects are mandatory in the sense that failing to add capacity would result in an inability to meet service requirements.

Regulatory Risks - Projects required to meet regulatory requirements are those projects which are identified by EWW as mandatory to meet provincial or federal standards or requirements, such as the GCDWQ established by Health Canada or VIHA policies.

Adequate Asset Protection and Safety - Projects which ensure asset protection and safety practices are those involving the installation or replacement of infrastructure to ensure the continuation of safe, reliable and cost effective service.

Ongoing Capital Maintenance Requirements - Projects to address ongoing capital maintenance requirements are those projects undertaken to improve functionality, enhance performance, extend the useful life of assets or allow service to be provided at a lower cost. They can either be mandatory or discretionary. For mandatory projects, EWW focuses on minimizing the cost of the additional functionality. For discretionary projects, EWW requires a cost benefit analysis that supports the decision to proceed with the project.

49. Capital upgrades completed during the 2012-2014 test period are described in section 3.1 and capital upgrades planned for the 2015-2017 test period are described in section 3.2.

3.1 2012-2014 Capital Programs

50. During 2012-2014, the focus of EWW's capital program was primarily to address supply issues associated with upgrading aging well infrastructure, replacing water supply from French Creek, developing sufficient supply to reliably meet existing customer demand and preparing for expected future demands. EWW's well program included development and completion of seven new wells, drilled in 2011. Two of these wells are in service, two wells did not meet the

successful criteria and have been converted to monitoring wells (approved by the Comptroller in Order 2310) and three wells have not been completed and are currently pending source water approval from VIHA. During 2012-2014, EWW found that significant and unexpected work was required to complete and tie in these new wells. This additional work ranged from re-routing electrical distribution to the well pumps to installing specialized screens for a well that had to be drilled through three separate aquifers. Section 3.1.1, below, provides a detailed explanation of the additional work associated with the well program.

51. During 2012-2014, EWW also completed a number of other capital projects including the addition of standby generators at both the Drew Road and the Church Road reservoirs, implementation of a new billing system, the addition of annual capital maintenance programs which included the meter replacement program and developer funded projects such as a new filter at the Drew Road Water Treatment Plant, new meter service connections and water main upgrades. Developer funded (or contributed projects) are those paid for by the customer/developer through Contributions in Aid of Construction (“CIAC”), but owned and maintained by EWW. Developer funding is provided through the Deferred Capacity Trust Fund (“DCTF”). Generally, these projects include water service connections, developer-funded hydrants, and water main additions required by private developers to support growth areas. These additional capital projects, completed during 2012-2014, are described in section 3.1.2.

52. In 2012, when EWW determined that the degree of additional work and associated costs for completing its well program was beyond the amounts forecast in the 2012-2014 RRA, it identified certain non-critical projects that could be postponed to the next test period (2015-2017). This would maintain the total capital program costs within a reasonable range of the approved amounts for the 2012-2014 test period. Five non-critical capital projects were deferred consisting of projects funded by both rate base and developer contributions. These five projects were able to be deferred without negatively impacting water quality, reliability, safety, or customer service during 2012-2014. In most cases, service was not impacted during 2012-2014 because there is some flexibility in terms of the timing of when these projects can be completed or, as in the case of Dalmatian Drive upgrades, water main leaks were addressed on an as-needed basis rather than completing the entire project. In other cases, two well projects that were planned for 2012-2014 were cancelled (exploratory borehole and well replacement project) due to higher than expected capacity from existing wells and lower than expected customer growth.

53. The following capital projects were deferred to 2015-2017 or cancelled. Those which are planned for the 2015-2017 period are described in section 3.2 below and further detailed in the 2014 Master Plan.

- **Well Replacement Project** – At the time of preparing the 2012-2014 RRA, it was expected that an eighth well would need to be drilled to replace the unsuccessful wells. However, due to the anticipated high production rate from well RWn2, this project has been cancelled.
- **Well Rehabilitation** – project to extend useful life of aging well infrastructure was deferred to 2015-2017
- **Closure of the Imperial Well** – deferred to 2015-2017
- **Residential Service Replacement Program (Dalmatian Drive Upgrades)** – deferred to 2015-2017
- **Church Road Complex Upgrades** - deferred to 2015-2017
- **Exploratory Borehole Project** – cancelled due to lower than expected customer growth and higher than expected capacity from new wells
- **Drew Road Water Treatment Plant Upgrades** – deferred to 2015-2017 and adjusted scope of this project, now identified as Drew Road Pump Station Upgrades.

54. EWW's forecast capital expenditures for the 2012-2014 test period are summarized in Table 3.1-1, below. Actual and forecast capital additions are presented in detail in Financial Schedule 2.4. Actual capital expenditures includes amounts related to completed projects noted above and well projects which have been started but are expected to carry over into the 2015-2017 test period. Table 3.1-1 categorizes the capital projects into those funded through ratepayers (rate base projects) and those which are fully contributed by developers (contributed projects).

Table 3.1-1
EWW Capital Expenditures
2012-2014
(\$ thousands)

Cost Category	A	B	C	D	E	F	G	H
	2012D	2012A	2013D	2013A	2014D	2014F	2012D- 2014D	2012A- 2014F
1 Total Expenditures – Rate Base	633	1,193	814	851	935	135	2382	2179
2 Total Capital Expenditures – Contributed	872	1,177	1,017	1,016	108	282	1,997	2,475
3 Total Capital Expenditures	1,505	2,370	1,831	1,867	1,043	417	4,379	4,654

Rate Base Capital Expenditures - a decrease of \$203 thousand in capital expenditures from the 2012-2014 Forecast amount to the 2012-2014 Decision amount (row 1, column H minus row 1, column G) primarily reflects the following:

- a decrease of \$1,091 thousand in projects originally planned in 2012-2014 which were deferred to 2015-2017 as explained above.

This decrease was partially offset by:

- a \$789 thousand increase in cost of rate base funded wells due to additional unanticipated work required to complete the projects, as detailed in section 3.1.1.2;
- a \$60 thousand increase in standby generators costs primarily due to seismic requirements for concrete that were not included in the forecast cost; and
- a \$35 thousand increase due to additional meter replacement work which had not been forecast in the 2012-2014 RRA, but was required.

Fully Contributed Capital Expenditures – an increase of \$478 thousand in capital expenditures from 2012-2014 forecast amounts to the 2012-2014 actual amounts for fully contributed projects (row 2, column H minus row 2, column G) is primarily due to the following:

- a \$789 thousand increase in new wells projects due to additional unexpected work required to develop the wells, as detailed in Section 3.1.1.2;
- a \$214 thousand increase in Lundine Lane upgrades due to problems encountered with the project as it progressed that required changes to the initial plan, as detailed in section 3.1.2;
- a \$73 thousand increase in cost for the new reservoir due to project delays causing costs that were incurred in 2012, instead of 2011, as forecast.

These increases were partially offset by:

- a \$189 thousand decrease in the upgrades to Drew Road Water Treatment Plant (New Filter) due to limited information at the time of the last application, as detailed in section 3.1.2;
- a \$139 thousand decrease in metering program costs due to lower than forecast customer growth;
- a \$148 thousand decrease due to the exploratory borehole project being cancelled.

55. Despite the challenges encountered with the well program, EWW has ensured that its overall capital expenditures during 2012-2014 were managed within the amounts approved by the Comptroller in Order 2310. Table 3.1-1 illustrates that overall capital spending for the 2012-2014 period was only about 6% higher than approved by the Comptroller in Order 2310.

3.1.1 2012-2014 Well Projects

56. Section 3.1.1.1 provides a general update on EWW's well projects and developments over the period 2012-2014, section 3.1.1.2 provides a summary of the 2012-2014 well project costs and section 3.1.1.3 provides more detailed explanation of the well cost variances from forecast and the challenges unique to each of the well projects.

3.1.1.1 2012-2014 Well Projects Status Update

57. Well projects are classified as: (i) well rehabilitation to replace existing wells which have reached end of design life or present conclusive evidence of deterioration; (ii) new wells to provide sufficient and reliable supply to existing customers and (iii) new wells to replace unreliable supply from French Creek of 7 L/s in order to meet VIHA's Surface Water Treatment Policy (4-3-2-1); and (iv) new wells to increase production capacity of the utility (funded by developers).

58. During 2012-2014, EWW focused on developing seven new wells. As noted in its 2012-2014 RRA, EWW completed significant work to determine potential well drilling locations during 2010-2011 and identified 18 possible site locations. Of these site locations, EWW selected seven locations at which it completed drilling in 2011. Of these seven wells drilled, two of the wells were not successful (wells RWn1 and TWn3) and were converted to monitoring wells. Five wells were found to be successful and two of these have been placed into service: TWn1 and RWn2. Well No. RWn2 (Oceanside well) was found to have capacity of 10 L/s, more than sufficient to replace the 7 L/s of capacity from French Creek. EWW has completed much of the work necessary to develop the remaining three wells (RWs1, TWs1, ACs1) including site preparation, drilling, well screening and testing, identifying the environmental risk mitigation and application for source water approval to VIHA. EWW expects to receive these approvals early in 2015. The remaining work to place these wells into service is explained in section 3.2 below.

59. Based on the work completed today on the well projects, EWW now has a more accurate estimate of the total additional capacity provided by the five new wells. Given the greater than expected production capacity of RWn2 along with four other successful wells drilled in 2011, these five wells are expected to ensure the reliable source of supply for EWW's customers, to discontinue drawing water from French Creek to meet VIHA requirements and for expected customer growth in French Creek.

60. In 2014, EWW engaged KWL to prepare the 2014 Master Plan, which determined the current rated system supply capacity and compared to peak system demands and future expected peak demands. The 2014 Master Plan determined the current rated supply capacity of the system to be 35.5 L/s.² The three new wells scheduled to be completed during the 2015-2017 test period (RWs1, ACs1, TWs1) will together add an estimated 16.9 L/s of additional capacity, bringing the total available supply capacity to 52.4 L/s.³

61. As explained in the 2014 Master Plan, the supply capacity of a water system, with the largest unit out of service, must exceed the maximum daily demand to avoid water shortages during peak summer demands. The 2014 Master Plan determined existing peak summer demands to be 46.3 L/s.⁴ Given the current rated capacity of 35.5 L/s, an additional 10.8 L/s is required to address existing demands.⁵ Therefore, with the three new wells expected to be in service in 2015/2016 and providing 16.9 L/s, there will be sufficient capacity to meet current maximum day demands with some additional capacity available to supply new customers.

3.1.1.2 2012-2014 Well Projects Cost Summary

62. As EWW noted in its 2012-2014 RRA, development of these groundwater wells has proven to be challenging. EWW's 2012-2014 RRA included a contingency of 10% on well project cost forecasts for the 2012 to 2014 test period. Due to the high degree of uncertainty associated with developing groundwater wells, unanticipated costs have proven to be beyond this 10% contingency level. These unanticipated costs relate to additional work in the areas of compliance with environmental regulations associated with draining into fish-bearing streams under BC Water Act Regulations and the Canadian Fisheries Act, site access issues, and the significant additional work required to meet VIHA requirements for source water approval. These costs to meet VIHA requirements involved unique complications experienced with certain well projects including difficulties with neighboring wells, well screening and water quality testing. For every potential well site, access became a very expensive issue due to access road preparation and forest clearing near highways and/or near established neighborhoods. Environmental regulations required that the water that was produced and used during drilling had to be discharged via nearby creeks. In order to comply with the relevant regulations, EWW had to contract a registered biologist to complete an assessment and to prepare an action report to be used during the drilling and pumping testing. As a result, EWW had to install, for each of the phases, kilometers of pipe to avoid flooding certain areas along the highway and to control the

² 2014 Master Plan, Appendix D, page 8-1.

³ 2014 Master Plan, Appendix D, page 10-1.

⁴ 2014 Master Plan, Appendix D, page 8-2.

⁵ Ibid.

discharged water flow. In addition, EWW had to provide full time monitoring of this water discharge during drilling and pumping tests to ensure compliance. The water was sampled three times a day and turbidity and/or chlorination levels were measured and recorded. All this data was then submitted to an environmental company as proof of EWW's compliance. None of these costs were anticipated at the time of preparing the 2012-2014 RRA, and therefore these unanticipated costs caused each of the well projects to exceed the approved amounts. Some of the unique challenges for each of individual well projects are also captured below in section 3.1.1.3.

63. While the additional expenditures were beyond EWW's forecasts in the 2012-2014 RRA, these expenditures were prudent, reasonable and necessary to properly develop and tie in wells of sufficient capacity; to meet American Water Works Association ("AWWA") guidelines for screening/testing; to comply with environmental regulations associated with draining into fish-bearing streams under the *Fisheries Act*, RSC, 1985, c. F-14 and the regulations to the *Water Act*, RSBC 1996, c 483 ; and to address concerns of nearby landowners. Based on work completed to date, EWW has revised its forecast of total well program costs from a forecast of \$2.4 million in the 2012-2014 RRA to \$4.8 million. This update reflects that the majority of the costs are known costs for completed work (site selection; field program work including site preparation, screening and testing, pump tests; environmental regulatory approvals; and commissioning into the existing infrastructure) and an update of the forecast costs and contingency for remaining work. EWW has included a contingency of 20% on the forecast costs for remaining work to develop the remaining three wells.

64. A comparison of the total well program costs (actual costs to date and forecast) approved in the 2012-2014 RRA with the amounts forecast in this Application 2015-2017 is provided in Table 3.1.1.2-1 below. The table reflects the \$4.8 million total well program cost estimate of which:

- \$0.08 million is for well rehabilitation required to extend the life of a well;
- \$1.3 million is for new wells required to replace French Creek supply to comply with VIHA's surface water treatment policy;
- \$1.1 million is for new wells to reliably meet existing customer demands with largest unit out of service (per 2014 Master Plan); and
- \$2.3 million is for new wells to support growth in the community (developer funded projects). Table 3.1.1.2-1 also includes the source of funding for each of the well projects.

Table 3.1.1.2-1
EWW Wells Projects
Total Forecast Well Project Costs
(\$ thousands)

		A	B	C	D	E	F	G	
		2012-2014 RRA Approved			2015-2017 RRA Proposed				
Project	Wells	Developer	Rate Base	Total	Developer	Rate Base	Total	Var.	
1	Church Rd S Test Well and Lundine Land Well Completion (#20)	TWs1 TWn1	100% \$753	0% \$0	\$753	100% \$1,842	0% \$0	\$1,842	\$1,089
2	Springhill Rd Add'n Capacity Well Completion (#19)	ACs1	100% \$293	0% \$0	\$293	29% \$235	71% \$574	\$809	\$516
3	Springhill Road 2A Replacement Well Completion (#18)	RWs1	20% \$64	80% \$258	\$322	29% \$216	71% \$530	\$746	\$424
4	New Wells to Replace French Creek (Completed)	RWn1 TWn3 RWn2	0% \$0	100% \$539	\$539	0% \$0	100% \$1,318	\$1,318	\$779
5	New Well to Replace French Creek Supply (cancelled)		0% \$0	100% \$383	\$383	0% \$0	0% \$4	\$4	(\$379)
6	Existing Wells - Well Rehabilitation (#21)		0% \$0	100% \$145	\$145	0% \$0	100% \$81	\$81	(\$64)
7	Total		\$1,109	\$1,325	\$2,425	\$2,293	\$2,507	\$4,800	\$2,365

65. Table 3.1.1.2-1 also illustrates that EWW's forecast of well program costs, net of developer contributions, has increased to \$2.5 million from the \$0.9 million estimated in the 2012-2014 RRA. Compared to forecasts in the 2012-2014 RRA, this updated forecast for well costs (net of contributions) reflects (i) known costs based on work completed to date; (ii) an update of the forecast costs including contingency for completing the remaining three wells; and (iii) a higher proportion of new well capacity required to provide a reliable source of supply to existing customers.

66. EWW had originally forecast two of the five producing wells to be rate base funded wells and three to be developer funded wells. This forecast was based on predicted supply capacity of all of the wells, which was uncertain at the time of preparing the 2012-2014 RRA. As explained in the 2014 Master Plan, the current rated supply capacity of the system is 35.5 L/s. Two of the wells scheduled to be completed in 2015 (ACs1 and RWs1) will together add an estimated 15.3 L/s of additional capacity. Of the 15.3 L/s, 10.8 L/s is required to address existing demands; the remaining (4.5 L/s or 29%) will provide supply capacity for future developments. Therefore, EWW proposes to recover 71% of the costs for these two wells through rate base and 29% from developers.

3.1.1.3 Explanation of Individual Well Projects

67. Costs associated with the well program encompass the following four main phases of work: (i) site selection; (ii) field program work including site preparation, screening and testing, pump tests; (iii) environmental regulatory approvals; and (iv) commissioning into the existing infrastructure. Over the course of the well drilling process, EWW found that the scope of work at each of these stages was greater than expected due to the nature of site conditions surrounding the well, the aquifer conditions and test results as work progressed through the various phases.

68. The following points highlight the degree of risk and uncertainty associated with a well project of the magnitude that EWW undertook over the past two test periods:

- The selected well locations may not be on flat, clear land that is easily accessible.
- Well locations may not be on public lands near existing infrastructure and easy to tie in.
- Well locations may not be on sites where water produced during screening and testing would drain to environmentally safe areas.
- Aquifer configuration may be different to that encountered in nearby existing wells may need to drill through more than 1-2 aquifers.
- Wells may be unsuccessful or not able to provide the necessary volumes. The probability of a successful well that is typically seen in the industry is 50%.

69. Each of the individual well projects in Table 3.1.1.2-1 are described in further detail below including explanations of unanticipated costs and the developments which led to additional work being required to complete these wells. EWW submits that none of these additional expenses could have been anticipated at the time forecasts were prepared for the 2012-2014 RRA.

Church Rd S Test Well and Lundine Lane Well Completion (TWs1 and TWn1) (Project #20)

70. For this developer funded well project, one well (TWn1) was put into service in May 2014 and the other well (TWs1 – or Church Road) is waiting source water approval from VIHA. The approved cost of this well project was \$753 thousand. The forecast cost is \$1,842 thousand. The \$1,089 thousand variance was due to environmental costs of water removal during drilling, explained above. In addition, the Church Road well (TWs1), when drilled, hit three aquifers. BC legislation does not allow the water from one aquifer to mix with another one; therefore, EWW

had to purchase a much more expensive, custom-built water screen which would correctly seal off between aquifers. This screen was very complex and required additional installation time at a cost of thousands of dollars per day.

71. Another challenge with the Church Road well (TWs1) was that it is an artesian well, and required a special, more expensive wellhead seal. Water removal during drilling and pump testing, presented unique challenges because of the artesian well. A regular discharge of drilling and testing water would have flooded the creeks beyond an environmentally acceptable level. EWW had to rent a large water storage container at a much higher cost to store and control the discharge of water. An additional drilling person had to be paid to control the discharge of water from the container during the drilling activity.

72. There were also significant additional costs associated with site access to the two wells in this project. Because of the location, EWW was forced to build an access road, requiring approval from the Ministry of Transportation.

73. Finally, EWW learned that there are three more non-conforming wells in the proximity of the new drilled wells. In the next test period, EWW will have to resolve the repair of these non-conforming wells in order to obtain source water approval from VIHA.

Springhill Rd Additional Capacity Well Completion (ACs1) (Project #19)

74. The approved cost of this well project was \$293 thousand. The forecast cost is \$809 thousand and the well is expected to be in service in mid-2015 following source water approvals from VIHA. The \$516 thousand variance was due to challenges encountered as explained below. When EWW applied for approval from the Ministry of Transportation before drilling, there were not enough monitoring sites in the area to build the case for source water approval. In order to obtain source water approval, an additional small well had to be drilled beside the commercial well. This monitoring well will be used for ongoing monitoring and data collection required by VIHA to consider source water approval. This monitoring well is necessary because the ACs1 is located downhill from a bus depot where busses are washed and contaminants can enter the aquifer. As part of this additional monitoring well, there were also additional costs for overhead BC Hydro power lines extension, well drilling and construction complete with monitoring devices and additional consulting time for data collection, testing and analysis. These additional requirements added to the original scope of work and budget.

75. In addition, during mapping and assessment of the condition of the neighboring wells, it was discovered that the School District's well, located in the bus parking lot, is non-conforming and will need repairs estimated at \$25-30 thousand.

76. Additional costs were incurred to pay for laboratory services and improvements to a nearby private well in exchange for permission to monitor this private well for data collection required by EWW to obtain source water approval for ACs1.

77. Additional costs were incurred for environmental measures taken to divert the pumping water during well drilling and pump testing. These environmental measures are identical to those taken for all the other wells in the south (RWs1 and TWs1).

78. The original budget did not include the site access improvements which consisted of culverts installation, leveling site and building vehicle access over the ditch to reach the well.

Springhill Road No. 2A Replacement Well Completion (RWs1) (Project #18)

79. In EWW's 2009-2011 capital plan, EWW identified a project to replace the two Springhill Road wells that have limited production levels due to significant deterioration of screens and/or casings with a single high-capacity well. During 2011, EWW drilled the high capacity replacement well and anticipates that it will be in-service by the end of 2015. The well is completed, and EWW is waiting for source water approval from VIHA before it can be tied into the existing system. A portion of the funding (29%) will be provided from developer's fund based on the proportion of production above existing approved withdrawal levels and the remaining portion (71%) will be included in rate base. The approved cost of this well was \$322 thousand. The current forecast cost is \$746 thousand. The \$424 thousand variance was due to environmental costs of water removal during drilling explained above. In addition, once the well was drilled, BC Hydro informed EWW that the electricity had to be brought in through a different route than anticipated, costing significantly more than forecast. For this well, as for the other ones, EWW had to complete an unanticipated lengthy monitoring data collection from neighboring wells in order to obtain source water approval from VIHA. This process proved to be costly due to negotiations with private well owners and device monitoring installation.

New Wells to Replace French Creek Supply (RWn1, TWn3, RWn2) (Completed)

80. In its 2009-2011 capital plan, EWW included the drilling of two new wells in order to replace the unreliable French Creek surface water supply and to meet VIHA's new Surface Water Treatment (4-3-2-1) policy that requires EWW to implement additional treatment of its

surface water supply for disinfection by the end of 2012. EWW determined that a more prudent and cost-effective strategy was to replace surface water with additional groundwater supply. EWW drilled two wells in 2011 which turned out to be unsuccessful (RWn1 and TWn3). These wells were converted to monitoring wells. In its 2012-2014 RRA, EWW proposed to drill two new wells to replace the French Creek surface water. However, when the new Oceanside well (RWn2) was completed later in 2011, its production capacity level turned out to be greater than the expected replacement capacity of 10 L/s. This is adequate to replace the French Creek source which was 7 L/s. The approved cost of this well project was \$539 thousand. The forecast cost is \$1,318 thousand. The \$779 thousand variance was due to environmental costs of water discharge during drilling and testing as explained above.

81. In addition to these environmental costs, EWW faced problems with the location of the Oceanside well (RWn2) which lead to additional work to tie the well into the Drew Road raw water system. EWW had to make a determination between locating the tie-in through an existing strata development or through a golf course. The route through the golf course was determined to be the less expensive option due to the significant additional work and cost to go through the strata development. EWW worked with the owner of the neighboring golf course to build the tie-in via a right-of-way agreement. This option was less expensive and provided much more flexibility for future maintenance.

82. Once this work began, a few other problems emerged. The golf course had two wells supplying water for irrigation from the same aquifer as the new EWW well. The golf course's two wells were non-conforming, meaning that the well heads were too low and damaged and in the rainy season surface water could flow and enter the aquifer directly. EWW received source water approval for the new well on the condition that the two golf course wells be repaired and brought up to the current standard. The complaint process against the golf course owner to make the wells conforming would have taken at least two years, and would have sacrificed good will with the owner, essential to finalizing the right-of-way agreement to construct the tie in for new well over the golf course. Therefore, EWW chose to repair the golf course's non-conforming wells. It should also be noted that EWW was facing a very serious time constraint on this well project in order eliminate reliance on water supplies from French Creek to meet the VIHA 4-3-2-1 policy.

Existing Wells - Well Rehabilitation

This project consisted of rehabilitating existing wells. Recommendations from BC Groundwater Consulting Services Ltd. (hydro-geologist) indicate that wells should be rehabilitated every 5-10 years to extend their useful life. Some of the existing wells have not been rehabilitated in over

that period of time. This project is described in section 3.2 below. As a result of the additional unanticipated work required to develop the new wells, EWW elected to defer this project to the 2015-2017 test period.

83. Table 3.1.1.3-1 below shows a breakdown in actual costs up to October 31, 2014, broken down by well project and cost category.

Table 3.1.1.3-1
EWW Well Projects
Actual Capital Expenditures 2008- October 31, 2014
(\$ thousands)

Project	A 070997	B 070998	C 870997	D 870998	E Total
New Wells Costs by Cost Category	ACs1	RWn1 TWn3 RWn2	TWs1	RWs1	
1 Well Drilling	289	793	740	263	2,085
2 Engineering and Consulting	113	279	440	142	974
3 Internal and Financing	157	247	343	174	921
4 Total to Oct 31, 2014	559	1,319	1,523	579	3,980

84. Of the capital expenditures to date shown in Table 3.1.1.3-1, the majority of the cost for well drilling (row 1) was known at the time of filing the 2012-2014 application, however the majority of the remaining costs (rows 2 and 3) are for the additional work required to complete the wells and deal with the many unexpected challenges that are discussed in detail above.

3.1.2 Other Projects Completed in 2012-2014

85. Below, EWW provides a status update on other projects approved and completed during the 2012-2014 test period.

Standby Generators – The project, originally planned for 2010, was completed in 2013. Prior to this, EWW had no stand-by generators. EWW added standby generators at both the Drew Road Reservoir and the Church Road Reservoir. The back-up power provided by these generators provides an increased factor of safety for the operation of the water distribution system during power outages. Back-up power supply is a requirement to ensure fire protection capabilities are not compromised. The approved cost of this project was \$259 thousand. The actual cost was \$319 thousand. The \$60 thousand variance was due to additional seismic requirements for the concrete which were not anticipated.

86. **Drew Road Water Treatment Plant Upgrades (New Filter) (Contributed)** – As a result of the introduction of additional supply wells, a series of upgrades were required and approved for development for both the Drew Road water treatment plant and for pumping redundancies. The former greensand filtration units treated groundwater high in manganese and iron upon which the system is becoming increasingly reliant, as EWW replaced the French Creek surface water supplies with new groundwater supply in order to meet VIHA's Surface Water Treatment (4-3-2-1) Policy. The greensand filtration system is set up for the installation of a fourth sand filtration unit; the additional sand filtration unit was required in advance of full production of new supply wells described above. Additional upgrades were also required to eliminate some hydraulic restrictions, such as the restricted incoming supply main diameter between the water treatment plant and reservoirs, and the remediation of pumping operations to remove a hydraulic restriction caused by an existing pressure recirculating valve with a variable frequency drive operation. This project was completed in 2013. The approved cost of this project was \$412 thousand. The actual cost was \$223 thousand. The \$189 thousand variance was due to limited availability of information at the time of the last application. When EWW contacted the supplier and received the quote, it was much lower than anticipated.

87. **Vehicle Replacement** – This was a life cycle replacement project. The former vehicle exceeded its original useful life and replacement of this service vehicle is more cost-effective than maintaining this aging asset. The approved cost of this project was \$52 thousand. The actual cost was \$59 thousand.

88. **New Billing Software** – This was a life cycle replacement project. The former billing software was implemented over 18 years ago and had far exceeded its original useful life. Additional benefits with the new billing software include tie-ins to EPCOR's Oracle financial system to reduce the level of manual administrative work and to provide additional information that customers have requested to see on the bill which was not possible under the existing billing system. The additional information includes consumption analysis, consumption trending and more detailed explanation of bill calculations. Some of these items were identified during customer consultation meetings for the conservation rate structure design. The new billing program is to be used across several of EPCOR's sites and EWW will therefore benefit from shared learning/support. The approved cost of this project was \$99 thousand.

89. **Lundine Lane Upgrades (contributed)** – As a result of Oceanside Well which was connected to the Lundine Lane supply main, the additional flows using the existing 100mm diameter main have increased the velocity of water in the pipe above maximum design standards. The increased flow and subsequent increased velocities will push the supply well pumps further back on their pump curve resulting in reduced supply. The upgrade to a 150mm diameter water

main is required to decrease velocities and reduce pipe head loss. The project is scheduled to be completed in 2015. The approved cost of this project was \$345 thousand. The forecast cost is \$559 thousand. The \$203 thousand variance is due to problems encountered with the project as it progressed that required changes to the initial plan. EWW had initially planned to install the new well and simply tie it into the existing infrastructure. However, at that point, EWW realized that if it did that, the existing pipes would cause hydraulic issues in the future and would be much more costly to correct. Therefore, EWW determined it would be prudent to install the new pipes correctly at this time. In order to do this, however, EWW had to negotiate an easement through the golf course because the new water line had to be laid directly under the golf course. While these changes required additional costs, the costs over the long-term have been significantly reduced through responsible management.

90. **Ongoing Capital Maintenance Programs** – During 2012-2014, EWW continued to invest in the annual meter replacement program and in new water service connections.

3.2 Capital Programs Planned for 2015-2017

91. Planned projects for 2015-2017 are summarized below with additional details in the 2014 Master Plan (Appendix D). The project ID # noted below provides a reference to the 2014 Master Plan. As explained in section 3.1, some of these projects were deferred from the 2012-2014 period. Projects planned for 2012-2014 but were deferred to the 2015-2017 test period include well rehabilitation, Drew Road pumping plant upgrades, residential service upgrades (Dalmatian Drive), Church Road complex upgrades, and well decommissioning. The total annual forecast capital additions for each year of the 2015-2017 test period is presented in Financial Schedule 2.4 and is discussed in further detail in section 7.0.

Well Tie-Ins (Projects # 18, 19, 20) – The three wells currently waiting source water approval from VIHA (RWs1, TWs1, and ACs1) will need to be tied into the system. The work remaining to be completed after regulatory approval from VIHA includes mechanical infrastructure, electrical installation and costs to BC Hydro, rehabilitation of non-conforming neighboring wells (as described in Section 3.1.1.3), lab testing, and additional engineering work. A portion of these costs are developer-funded and relate to additional supply for new customers.

Drew Road Pump Station Upgrades (Project #3) – This project consists of various necessary upgrades to the water treatment plant and pump station. This project is required to improve safety and efficiency and to accommodate the additional water supply wells that have been constructed. This project includes additional ventilation, additional SCADA work, installation of

variable frequency drives and isolation valves, increasing plant discharge header to 150 mm diameter, elimination of pressure reducing piping, security and fencing, repairs and replacement of piping. This project was deferred from the 2012-2014 test period and involved some change in scope, reducing project costs from \$499 thousand (developer funded) to \$268 thousand (rate base funded). The 2014 Master Plan reflects KWL's assessment of the condition and nature of the assets being replaced, showing that the majority of the work on this project is required to provide service to existing customers, rather than to support customer growth, as had been assumed in the 2012-2014 RRA.

Residential Service Upgrades (Dalmatian Drive) (Project #4) - EWW identified 50 service connections along the Dalmatian Drive that are disintegrating due to corrosion and service line pitting. Possible reasons behind this pipe pitting are the type of service line and soil condition. Four of the services have already been replaced. The project consists of replacing the existing corroded and pitted water service lines (located between 541 and 1606 Dalmatian Drive) with new PE service lines. Some soil consolidation might be required to avoid the current problem of line pitting.

Well Decommissioning (Project #29) – Section 9 of the *Ground Water Protection Regulation* states that a well must be closed if it has not been used in 10 years. The Oceanside 1, Imperial and Lornedunn wells are no longer in use and EWW plans to decommission these wells. EWW has originally forecast \$85 thousand to complete this project in 2013. However, in 2012 EWW determined that it would be prudent to defer this project as the scope of wells projects became evident. This project is forecast to be completed over two years and includes three wells. This project is forecast to cost \$91 thousand.

Well Rehabilitation (Project # 21) - Recommendations from BC Groundwater Consulting Services Ltd. (hydro-geologist) indicate that wells should be rehabilitated every five to 10 years to extend their useful life. Well rehabilitation provides the following: restores lost capacity; extends the working life of the well asset; allows for inspection of down-hole components such as well pump, motor, check valve, and instrumentation, and allows for replacement / rebuild on a structured basis; may provide information on additional work that is required. This project includes a rehabilitation program to maintain well performance. This project allows for rehabilitation of three wells during this three year period. Typical rehabilitation includes removal of the pump, video inspection, motor inspection, mechanical cleaning of the casing and screen to remove deposits and redevelopment of the screen to remove fines and precipitates trapped behind the screen. Forecast project costs have been reduced from \$145 thousand to \$81 thousand due to only rehabilitating three wells instead of five. In its maintenance work on the

wells scheduled for rehabilitation, EWW determined that two of the wells would only yield very limited results from rehabilitation due to their condition. Therefore, the scope of this project was reduced to only include the three wells which will have the most positive impact from rehabilitation work.

System Balancing Storage Control (Project #27) - To improve system fire flows, pressure, and redundancy, it is recommended that the butterfly valve under French Creek normally remain open. A study to review the existing system instrumentation and operating logic is required to allow the butterfly valve to remain open while ensuring that sufficient fire storage at the Drew Road Reservoirs is maintained. The butterfly valve on the 250 mm diameter water main that runs under French Creek from Drew Road to Miller Road has historically been closed to balance usage between the Church Road and Drew Road reservoirs. This project includes a review of the existing system instrumentation and operating logic including recommendations to allow the butterfly valve to remain open while ensuring that sufficient fire storage at the Drew Road Reservoirs is maintained. Cost of this project is estimated at \$27 thousand.

Church Road Complex Upgrades (Project #31) - This project consists of various necessary upgrades to the Church Road Complex site. The upgrades include a magnetic flow meter located on the well supply outlet to measure ground water supply production and additional booster pump station controls. Installation of the magnetic flow meter on the well supply line will provide information required for ongoing well capacity analysis.

Church Road Reservoir Upgrades (Project # 32) – This project consists of the installation of flexible liners for Church Road Reservoir #3 and #4. The existing concrete reservoirs at Church Road have been cracking over the years such that water pooling on the top of the reservoirs can leak inside. In the past, Xypex grout products have been used every few years to mitigate leaks. Installing the liners will provide a more durable, long term solution.

Ongoing Capital Maintenance Programs (Project ID# 1, 2) - Water utilities undertake a number of capital maintenance projects on an annual basis to keep the system operating reliably and efficiently. Over the next three years, EWW will increase its hydrants by six hydrants per year to improve the hydrant coverage toward the design guidelines. In addition, 400-500 meters still require replacement because they are near or have reached their 20 year life cycle. EWW will replace 100 meters per year over the next three years.

4.0 METHOD AND KEY ASSUMPTIONS

92. The following is an overview of the methods and key assumptions used in developing EWW's forecast revenue requirement for the 2015-2017 test period.

4.1 Customer Count and Consumption Forecast Process

93. The total consumption volume forecasts are a product of customer count and consumption per customer forecasts. EWW developed a forecast of consumption per customer and customer counts for the purpose of determining its consumption forecast for the 2015-2017 test period. Any variances between the forecast consumption and customer counts and the actual consumption and customer counts are reconciled through the Consumption Deferral Account, as described in section 6.0 below.

94. EWW's customer count and consumption forecast for the 2015-2017 test period was developed using the following sources of information:

- historical consumption and customer information for the Utility for the period from 2010 to 2014;
- the French Creek 2014 Master Plan prepared by KWL.;
- consultations with local area developers.

4.1.1 Customer Count Forecast

95. The customer growth forecast was primarily based on historical growth trends, consultations with local area developers and information obtained from development applications.⁶ Currently, there is one 54 parcel development pending approval, anticipated in 2015. Assuming this development is approved, EWW forecasts 14 new lots for each of the test years for a total of 42 new residential customers. This growth rate is consistent with the customer growth over the last five years (2010 – 2014). EWW is not forecasting any customer growth for multi-residential or commercial customers, as EWW is not aware of any such developments planned for the test period. This is consistent with the customer growth over the last five year period. EWW's forecast customer count for the 2015-2017 test period is provided in Table

⁶ In its 2014 Master Plan, a long term demand forecast is provided for the utility. On page 6-1 of the 2014 Master Plan. Three growth scenarios are presented. EWW's forecast customer growth for the 2015-2017 test period is consistent with the low growth scenario..

4.1.1-1 below. The 2010 - 2013 Actual, and 2014 forecast customer counts are provided for comparison purposes.

**Table 4.1.1-1
EWW Customer Count Forecast
2010-2017**

	A 2010A	B 2011A	C 2012A	D 2013A	E 2014F	F 2015F	G 2016F	H 2017F
Residential								
1 Customer Count	1,643	1,659	1,675	1,691	1,718	1,732	1,746	1,760
2 Growth		0.97%	0.96%	0.96%	1.60%	0.80%	0.80%	0.80%
Multi-Residential								
3 Customer Count	268	247	247	242	248	248	248	248
4 Growth		-7.84%	0.00%	-2.02%	2.48%	0.00%	0.00%	0.00%
Commercial								
5 Customer Count	47	49	50	50	47	47	47	47
6 Growth		4.26%	2.04%	0.00%	-6.00%	0.00%	0.00%	0.00%
Fire Hydrants								
7 Count	131	139	149	151	153	159	165	171
8 Growth		6.11%	7.19%	1.34%	1.32%	3.92%	3.77%	3.64%
Standpipes								
9 Count	21	21	15	15	15	15	15	15
10 Growth		0.00%	-28.57%	0.00%	0.00%	0.00%	0.00%	0.00%

96. In the last test period, EWW forecasted residential growth of about 50 customers per year. This was based on the plans of local area developers. Although EWW did experience growth in residential customers, it was not as high as expected, due in part to changing economic conditions. This led to a deficit in the consumption deferral account as explained below in Section 6. As noted above, EWW expects only modest residential customer growth over the 2015-2017 test period.

97. The forecast growth in the number of fire hydrants of six new hydrants per year is based on a current deficiency of fire hydrants identified in Section 8.5 of the 2014 Master Plan.⁷

4.1.2 Consumption per Customer Forecast

98. The trend of declining water consumption per customer, seen in recent years, reflects the increase in installations of water efficient home appliances, water conservation, and the impact

⁷ The 2014 Master Plan identifies a deficiency of 47 fire hydrants, based on an engineering guideline. EWW's proposal of 18 new hydrants is reasonable over the upcoming test period, and will move EWW toward achieving the recommended engineering standard, without undue upward pressure on rates.

of water efficient fixtures in new homes and retrofits. As a base for the 2015 consumption forecast for the residential customer class, EWW used a five-year average for residential consumption per customer. The use of a five-year average is intended to normalize the impacts from the year-over-year variations in weather to reflect the appropriate starting point as the basis for the 2015 consumption forecast.

Table 4.1.2-1
EWW Average Consumption per Customer
2010-2017
(Cubic meters per customer per month)

	A	B	C	D	E	F	G	H	I
	2010A	2011A	2012A	2013A	2014F	2015F	2016F	2017F	2010A to 2014F
1 Residential	20.7	19.1	19.9	18.0	18.9	19.4	19.4	19.4	19.4
2 Multi-Residential	16.9	14.5	19.3	16.6	18.0	17.1	17.1	17.1	17.1
3 Commercial	120.9	102.2	87.5	81.6	107.6	100.0	100.0	100.0	100.0

4.1.3 Consumption by Rate Class

99. Water consumption over the 2015-2017 test period was determined based on the customer count forecast and the average consumption per customer. The consumption forecast is shown in Table 4.1.3-1 below.

Table 4.1.3-1
EWW Consumption by Rate Class
2012-2017
(Cubic meters)

	A	B	C	D	E	F
	2012A	2013A	2014F	2015F	2016F	2017F
1 Residential	400,889	366,144	390,128	402,398	405,650	408,903
2 Multi-Residential	57,140	48,308	53,485	50,789	50,789	50,789
3 Commercial	52,514	48,965	60,713	56,396	56,396	56,396
4 TOTAL CONSUMPTION	510,543	463,417	504,326	509,583	512,835	516,088

4.2 Accounting Policies

100. Since January 1, 2011, EUI has prepared its corporate financial information in accordance with International Financial Reporting Standards (“IFRS”) as required for Canadian publicly accountable enterprises. While EWSI and EWW have implemented IFRS to support the

public external financial reporting requirements of its parent company EUI, there are certain IFRS requirements which are not consistent with the accounting treatment historically applied for rate-making and rate-regulated reporting requirements (referred to herein as “regulatory accounting”).

101. The most significant difference between IFRS and regulatory accounting relates to property, plant and equipment, deferral accounts and financial statement disclosure. For example, IFRS does not permit the recording of regulatory deferral accounts but this is accepted practice by rate regulated utilities and their regulators. Consequently, following the implementation of IFRS, EWW now maintains two complete sets of ledgers, one for external IFRS reporting and one for regulatory reporting.

102. EWW prepared its 2015 – 2017 forecast financial information in accordance with regulatory accounting, which is the previously approved regulatory treatment of assets, liabilities, revenues and expenses. These accounting standards are consistent with those applied by EUI’s other rate-regulated utilities for purposes of preparing regulatory applications.

103. In this Application, EWW is applying for Allowance for Funds Used During Construction (“AFUDC”). AFUDC is the amount that a rate-regulated enterprise may be allowed to earn, if approved by its regulator, to recover its cost of financing assets under construction. This regulatory treatment, used by most regulated utilities in Canada, is equal to the average cost of Construction Work in Progress (“CWIP”), times a financing rate, being the weighted average cost of capital. In the past, due to its small size, EWW applied for Interest During Construction (“IDC”), as this was consistent with IFRS treatment and because few, if any, capital projects had any significant CWIP that carried over a year. However, commencing in 2015, EWW is proposing to apply AFUDC to be consistent with both common regulatory practice and with EUI’s other rate-regulated subsidiaries. The primary difference between the AFUDC and IDC is IDC only considers the cost of debt, while AFUDC considers the weighted cost of both debt and equity. Like IDC, AFUDC is included in the cost of related assets and recovered in future periods through the depreciation charge.

4.3 Escalation Factors

104. EWW’s forecasts of operating costs over the 2015-2017 test period were developed in 2015 dollars. EWW’s forecasts for capital costs were developed using 2014 construction costs as developed in EWW’s 2014 Master Plan. These forecasts were then escalated by applying an appropriate escalation factor depending on the type of cost. EWW retained Dr. David Ryan, professor of economics, who has previously provided expert evidence supporting escalation factors for EPCOR’s other regulatory applications, to provide estimates of appropriate escalation

factors for wages and salaries and capital/construction costs. Dr. Ryan’s written evidence entitled, “Forecast Values of Escalators for 2014 – 2017” dated September 2013 (the “2014-2017 Escalators Report”) is included as Appendix E. This report was prepared for the EPCOR White Rock Water Inc. 2014-2017 Revenue Requirement and Rates Application. EWW submits that this report is also applicable to this Application because it reflects the BC labour market and construction costs for the years 2015-2017.

105. Table 4.3-1 below summarizes the escalation factors applied to the forecast amounts.

**Table 4.3-1
Escalation Factors**

	Source	A 2015	B 2016	C 2017
1 Wages and Salaries	2014-2017 Escalators Report		2.7%	2.7%
2 Power	10 Year Plan for BC Hydro		3.0%	3.4%
3 Other Operating Costs	BC Ministry of Finance Feb 2014 Budget Update – 2014/15 – 2016/17		2.0%	2.0%
4 Capital/Construction	2014-2017 Escalators Report	3.9%	3.9%	3.6%
5 Consumer Price Index	BC Ministry of Finance Budget and Fiscal Plan 2014/15 – 2016/17, page 73		2.0%	2.0%

106. EWW’s escalation factor for wages, salaries and benefits costs proposed in the 2014-2017 Escalators Report is derived from the Conference Board of Canada forecast of two data series – wages and salaries per employee and Average Weekly Wages and Salaries per employee.

107. The power cost escalation factor is based on the 10 Year Plan for BC Hydro,⁸ with the annual power rate increases for 2015, 2016 and 2017.

108. The escalation factor for all other operating costs, including inter-corporate service costs, is based on the forecast Consumer Price Index (“CPI”) as published in the BC Ministry of Finance Budget and Fiscal Plan 2014/15 – 2016/17.⁹

109. EWW used a capital/construction cost escalation factor for determining its capital costs. Dr. Ryan derived the capital/construction cost escalator from the Conference Board of Canada forecasts of the Implicit Price Deflator, Business Gross Fixed Capital Formation, Non-Residential Structure, for B.C. The construction cost escalation factor is higher than CPI, recognizing the tightening labour and contractor markets and rising material costs in BC.

⁸ British Columbia Ministry of Energy and Mines: “10 Year Plan for BC Hydro” <http://www.newsroom.gov.bc.ca/downloads/Presentation.pdf>, (accessed November 27, 2013).

⁹ British Columbia Ministry of Finance, “Budget and Fiscal Plan 2014/15 – 2016/17,” February 18, 2014, http://bcbudget.gov.bc.ca/2014/bfp/2014_budget_and_fiscal_plan.pdf, page 73, (accessed November 19, 2014).

4.4 Operating Cost Forecasting Process

110. Operating costs for the 2015-2017 test period were forecast with reference to EWW's 2012 and 2013 actuals and 2014 forecast operating costs. A cost forecast for the 2015 test year was prepared by first using a combination of a "bottom up" approach and a cost trend analysis. The 2015 forecast operating costs were then adjusted, on a cost category by cost category basis, to take into account the impacts of forecast capital-related expenditures (i.e., both capital projects and changes in operating activities) that will occur in each of the subsequent test years to arrive at forecast costs for those years. Forecast costs for the 2015-2017 test period were prepared in 2015 dollars. Escalation factors were then applied to determine EWW's forecast operating expense for each of the future 2015-2017 test years. The escalation factors are described in section 4.3 above.

4.5 Capital Planning and Capital Cost Forecasting Process

111. EWW follows a comprehensive set of processes for identifying, evaluating, approving and executing capital projects.

112. In 2014, EWW worked with engineering consulting firm KWL to prepare the 2014 Master Plan specifically to identify sustaining capital upgrades and improvements to the Utility's infrastructure necessary to meet customer needs. EWW used KWL as its primary engineering firm due to their knowledge of waterworks systems. KWL has the experience and knowledge to analyze the French Creek system, including maintaining the hydraulic model and undertaking development reviews.

113. The 2014 Master Plan provides an update of the water system model, a current and future supply and demand review, a water conservation study, and a hydraulic performance analysis and capital plan update, including capital project justifications and opinions of probable costs.

114. The 2014 Master Plan highlights the areas within the system that require attention and recommends projects that would address these system needs. EWW management, with input from EWSI's technical experts and management, reviews these proposed projects and decides on specific project priorities.

115. The 2014 Master Plan considers a long term planning horizon to ensure the waterworks' infrastructure supports the existing and future water demands and needs for the French Creek service area and focuses on capital projects needed within a three to five year period. The 2014

Master Plan includes an assessment on the basis of projected growth and demand patterns and identifies areas such as system integrity and water sources to address capital infrastructure requirements.

116. Based on the needs and priorities identified in the 2014 Master Plan, EWW identifies capital projects by completion of a project charter that outlines scope, project costs, risk assessment and financial benefit analysis and submits these projects for management approval. Upon approval of the annual capital budget, a second management approval is required for release of project funds by updating the project charter for changes from the initial approval.

117. The capital projects identified in EWW's 2015-2017 capital plan address one or more of the following: (i) system reliability risks; (ii) regulatory requirements; (iii) adequate asset protection and safety; and (iv) ongoing capital maintenance requirements.

118. EWW's capital cost estimates for the 2015-2017 test period are summarized in Financial Schedule 2.4. Through the process described above, EWW first determined the capital projects required for 2015 to 2017 based on the 2014 Master Plan to support ongoing operations, customer growth and regulatory requirements. Capital cost estimates for each project are identified in the 2014 Master Plan using 2014 construction costs. The escalation factors, as described in section 4.3, were applied to the 2014 amounts to arrive at EWW's capital expenditure forecast for 2015 to 2017. A more detailed discussion of the capital additions forecast for the 2015-2017 test period is provided in section 7.1.

4.6 Inter-Corporate Services

119. As a member of the EPCOR group of companies, EWW obtains certain services from EUI and EWSI (referred to as inter-corporate service) which are necessary to enable EWW to carry on business as the owner and operator of the Utility. This structure allows EWW to focus on its core business of water operations and meeting customer needs while reducing administrative and shared-services costs compared to that of a stand-alone utility. Furthermore, this structure allows EWW to benefit both from the extensive experience and expertise that resides within other members of the EPCOR group and from economies of scale and scope that arise from the EPCOR group's inter-corporate services approach to its business operations.

120. The inter-corporate services are provided pursuant to an inter-corporate services agreement between EWW and EWSI, a copy of which is attached as Appendix F-1 to this Application. In return for these services, EWW pays inter-corporate service charges to EWSI in accordance with the terms of the agreement.

121. The inter-corporate service charges are either directly assigned to EWW or determined based on a logical and appropriate allocation methodology. The allocated inter-corporate service charges are in the form of an annual fee, as shown in Financial Schedule 2.3. The allocated inter-corporate charges are described in section 5.6 below and are comprised of (i) the allocated charges to EWW for corporate services provided by EUI and (ii) the allocated charges to EWW for shared support services provided by EWSI. Direct assigned inter-corporate charges for support services provided by EWSI are included in EWW's operating costs if those costs are incurred solely for the benefit of EWW rather than being a shared service cost.

122. EWW's 2015 forecast inter-corporate service charges are based on the cost forecasts in EUI's and EWSI's respective 2015 forecasts. Further details on the incremental increases for inter-corporate service charges for the test period are provided in section 5.6 below.

123. The specific services that are provided by EUI and EWSI and the methodologies used to determine the inter-corporate service charges to EWW are described in detail in Appendices F-2 and F-3.

4.7 Depreciation and Amortization

124. Utility assets are depreciated over the shorter of the assets' physical, technological, commercial or legal lives. The depreciation rates used by EWW in each year are provided in Financial Schedule 2.5.

125. EWW conducted a review of its depreciation rates with reference to the recommended depreciation rates issued by the Comptroller in the "Financial Guidelines for Certificate of Public Convenience and Necessity Application", dated May 2010 (Schedule A).

126. In its review, EWW compared the Comptroller-recommended depreciation rates with the rate previously used for EWW and with those of other EPCOR-owned utilities. Based on these reviews, EWW is proposing to adopt the depreciation rates approved by the Comptroller for EPCOR White Rock Water Inc. in Order 2394 commencing on January 1, 2015.

4.8 Capital Structure and Cost of Capital

127. For the 2015-2017 test period, EWW has prepared its Application maintaining a capital structure of 60% debt and 40% equity as approved by the Comptroller in Order 2310 for the 2012 to 2014 period. Furthermore, EWW has applied a 130 basis points equity risk premium above the return on equity ("ROE") set by the BC Utilities Commission ("BCUC") for the low risk benchmark utility (BCUC Order G-158-09), consistent with the basis for ROE approved by

the Comptroller for EWW for the years 2013 and 2014 in Order 2386, issued March 20, 2014. As explained in section 8.0, EWW proposes that its rate of return on equity for the 2015-2017 test period continues to be subject to changes in the BCUC approved benchmark utility return on equity set through its automatic adjustment mechanism.

5.0 OPERATING COSTS

128. Table 5.0-1 below summarizes the forecast operating costs of EWW over the 2015-2017 test period. The 2012 actual, 2013 actual, 2014 decision and 2014 forecast amounts are provided for comparison. A detailed breakdown of forecast operating costs over the 2015-2017 test period is provided in Financial Schedule 2.2.

Table 5.0-1
Operating Costs
2012-2017
(\$ thousands)

Cost Category	A 2012A	B 2013A	C 2014D	D 2014F	E 2015F	F 2016F	G 2017F
1 Salaries and Benefits	377	434	405	492	485	498	517
2 Power and Other Utilities	57	56	69	61	66	68	71
3 Chemicals	21	25	52	33	33	33	34
4 Operations and Maintenance	27	163	179	152	278	185	228
5 Property Taxes	35	35	36	34	36	37	38
6 Subtotal	517	713	741	771	898	821	888
7 Inter-Corporate Service Charges	167	172	179	179	195	199	203
8 Total Operating Costs	684	884	920	950	1,093	1,020	1,091

129. The \$30 thousand increase in operating costs from the 2014 decision to the 2014 forecast amount is primarily due to:

- an \$87 thousand increase in labour and salaries largely related to senior management and oversight services provided to EWW from EWSI senior management that were inadvertently omitted from the 2012-2014 RRA as well as lower than forecast salary transfers to capital;

130. These increases in operating costs are partially offset by:

- a \$19 thousand decrease in chemical costs due to lower than forecast water consumption and the success of efforts to optimize the use of chemicals in water treatment;
- an \$8 thousand decrease in power and other utilities due to lower than forecast power costs; and
- a \$26 thousand decrease in operations and maintenance primarily due to a one-time recovery from the Deferred Capacity Trust Fund for the 2011 Growth Assessment Study.

131. The \$143 thousand increase in operating costs from the 2014 forecast to the 2015 forecast amount is primarily due to the following:

- a \$126 thousand increase in operations and maintenance primarily due to the leak detection program and model validation and rezoning study identified as Projects 24 and 5 respectively in the 2014 Master Plan, as well as a water aesthetics study;
- a \$17 thousand increase in inter-corporate service charges primarily due to the addition of asset usage fees further explained in section 5.6 below;
- forecast annual increases in costs for each category based on escalators described in section 4.3; and
- a \$7 thousand decrease in salaries and benefits due to lower forecast costs for the short term incentive program.

132. The \$73 thousand decrease in operating costs from the 2015 forecast to the 2016 forecast amount is primarily due to the following:

- a \$70 thousand decrease in operations and maintenance primarily due to completion in 2015 of the leak detection program and model validation and rezoning study described above and higher capital overhead transfers in 2016; and
- a \$4 thousand decrease in operations and maintenance due to repair and roofing costs being completed in 2015 and the leak detection program being completed in 2015.

133. This decrease is partially offset by \$20 thousand for the geotechnical study and annual increases in each category by the escalators described in section 4.3.

134. The \$71 thousand increase in operating costs from the 2016 forecast to the 2017 forecast amount is primarily due to the following:

- a \$19 thousand increase in salaries and benefits primarily due to the escalation factor;
- a \$44 thousand increase in operations and maintenance costs due to an update to the 2014 Master Plan to be completed in 2017 and costs associated with preparing the next rate application; and
- annual increases in each category by the escalators described in section 4.3.

135. The sections that follow provide a more detailed explanation of each of the operating cost categories and provide year-over-year variance explanations. Explanations for the differences between the 2012 and 2013 actual amounts and the 2012 and 2013 decision amounts are provided Appendices G-2 and G-3.

5.1 Salaries and Benefits

136. The salaries and benefits cost category is comprised of the salaries and benefits associated with EWW's employees (four full time equivalents) as well as direct EWSI support services and EWSI management oversight costs, less cost recoveries related to operations staff time spent on and directly charged to capital projects. EWSI support service costs reflect technical services provided by EWSI employees in areas including water distribution and system maintenance support, engineering support, quality assurance monitoring, and project management support. Management oversight refers to the time spent by EWSI senior management specifically on EWW tasks and activities. The personnel in these positions are not assigned exclusively to EWW as they have other responsibilities in other EWSI areas and are not considered EWW staff, but they provide necessary services and support. These direct charges for management and technical services to EWW are described in further detail in the Service Level Agreement in Appendix F-1.

137. Fluctuations in salary and benefits costs when comparing year-over-year, are generally due to increased capital work where time and expenses would be transferred to capital projects. EWW forecasts that salary transfers to capital (i.e. credit to salary expenses) will go down in the test period as compared to the previous test period due to less capital work being completed by EWW staff. Salary transfers to capital can fluctuate significantly from one year to the next. This is primarily due the nature of a small utility like EWW. The few staff that operate the Utility may spend time on capital projects, but when the operating requirements of the Utility demand their time and energy, outside contractors are often engaged to complete capital work, which, in turn, will reduce the amount of salary transfers to capital. EWW submits that this is the most responsible use of its resources and will continue to operate in this highly efficient manner.

138. Table 5.1-1 below summarizes the forecast salaries and benefits costs of EWW for the 2015-2017 test period. The 2012 and 2013 actuals, 2014 decision and 2014 forecast amounts are provided for comparison purposes.

Table 5.1-1
Salaries and Benefits
2012-2017
(\$ thousands)

Cost Category	A	B	C	D	E	F	G
	2012A	2013A	2014D	2014F	2015F	2016F	2017F
1 Labour and Salary	358	371	369	429	424	435	447
2 Benefits	62	74	79	96	94	97	100
3 Salary Transfers to Capital	(44)	(11)	(43)	(33)	(34)	(35)	(29)
4 Total Salaries and Benefits	377	434	405	492	485	498	517

139. The \$87 thousand increase in salaries and benefits (net of recoveries) from the 2014 decision to the 2014 forecast amount is primarily due to:

- a \$60 thousand increase in labour and salaries primarily due to management and oversight services provided to EWW by EWSI senior management that were inadvertently omitted from the 2012-2014 Decision amounts;
- a \$17 thousand increase in benefits associated with the labour and salary as noted in Table 5.1-1; and
- a \$10 thousand decrease in salary transfers to capital projects due to lower levels of capital work.

140. The \$7 thousand decrease in salaries and benefits (net of recoveries) from the 2014 forecast to the 2015 forecast amount is primarily due to lower forecast costs for the short term incentive program in 2015.

141. The \$13 thousand increase in salaries and benefits (net of recoveries) from the 2015 forecast to the 2016 forecast amount is due to annual increases due to wage and salary escalations of 2.7% explained in section 4.3.

142. The \$19 thousand increase in salaries and benefits (net of recoveries) from the 2016 forecast to the 2017 forecast amount is due to:

- a \$6 thousand decrease in salary transfers; and
- annual increases due to wage and salary escalations of 2.7% explained in section 4.3.

5.2 Power and Other Utilities

143. Power and other utilities costs are comprised of EWW's power costs associated with pumping and general plant operations, as well as other expenses related to sewage costs.

144. EWW's 2014 forecast power and utilities costs are forecast to be \$8 thousand lower than the 2014 decision amount due to lower-than-forecast utility cost increases. The 2014 decision amount contained anticipated increases related to higher sewage costs due to the new Drew Road Water Treatment Plant ("WTP") that did not result in actual expenses being realized as high as was forecast. EWW is charged for sewage based on the amount of metered water that enters the sewer as a result of backwashing and rinsing the filters. Sewage costs were reduced as EWW achieved some savings through optimizing the backwashing of the filters and through lower-than-projected growth which also decreased the amount of backwash entering the sewers.

145. Power costs increases year-over-year for 2015 to 2017 reflect forecast annual increases in power consumption and forecast power rates in accordance with the power cost escalation factors as described in section 4.3, above.

5.3 Chemicals

146. Chemicals are used in the water treatment process to treat the raw water for harmful contaminants that may be present in the supply, making it fit for human consumption.

147. The 2014 forecast chemical costs are expected to be \$20 thousand lower than the 2014 decision due to lower costs associated with no longer treating the surface water taken from French Creek since June 2013.

148. Increases in chemical costs year-over-year for 2016 and 2017 reflect forecast annual increases based on BC CPI as described in section 4.3, above.

5.4 Operations and Maintenance

149. Operations and maintenance expenses are comprised of the following costs:

- Contractor and consultant costs includes costs associated with services provided by engineering consultants to review and consult on water system requirements;
- Other costs in this category include materials and supplies (i.e., parts for water main breaks, hydrant, valve and meter repairs and the unidirectional flushing

program for water mains), travel, rent, insurance, vehicle costs, computer charges, training, office supplies, telephone expenses and capital overhead recoveries.

150. The \$27 thousand decrease in operations and maintenance costs from 2014 decision to 2014 forecast is primarily due to:

- a \$22 thousand decrease in contractors and consultants due to a one-time cost recovery from the Deferred Capacity Trust Fund for the Growth Assessment Study;
- a \$13 thousand decrease in materials and supplies due to lower than forecast costs in this category;
- a \$6 thousand increase in travel due to two leased vehicles from January – August, which were subsequently purchased in August; and
- a \$5 thousand increase in rent due to a requirement to rent an additional bay;

151. The \$126 thousand increase in operations and maintenance costs from the 2014 forecast to the 2015 forecast is primarily due to:

- a \$92 thousand increase in contractors and consultants primarily due to the Leak Detection Program and the Model Validation and Rezoning Study, identified as Project 24 and 5 respectively in the 2014 Master Plan, as well as the Aesthetic Study;
- a \$10 thousand increase in materials and supplies to repair aging assets;
- a \$10 thousand decrease in capital overhead transfers due to less capital work forecast for 2015; and
- a \$7 thousand increase in advertising for a customer survey.

152. The \$93 thousand decrease in operations and maintenance costs from the 2015 forecast to the 2016 forecast amount is primarily due to:

- A \$69 thousand decrease in contractors and consultants due to the completion of the two programs identified above, partially offset by a \$20 thousand increase to conduct the Geotechnical Study for Drew Road Reservoirs identified as Project 34 in the 2014 Master Plan; and
- an \$18 thousand increase in capital overhead due to higher forecast capital work in 2016;

153. The \$44 thousand increase in operations and maintenance from the 2016 forecast to the 2017 forecast amount is primarily due to:

- a \$7 thousand increase in contractors and consultants primarily due to \$25 thousand to complete the Master Plan update for the next test period, partially offset by completion of the Geotechnical Study for Drew Road Reservoirs in 2016;
- a \$30 thousand decrease in capital overhead administration allocation due to lower forecast capital work during 2017; and
- a \$6 thousand decrease in advertising following the completion of the customer survey in 2016.

5.5 Property Taxes

154. The 2014 forecast property tax costs are expected to be slightly lower than the 2014 decision amount.

155. For the 2015-2017 test period, EWW is projecting only modest increases in property taxes at the BC CPI inflation index because no significant increases in assessed value or property tax rates are expected.

5.6 Inter-Corporate Service Charges

156. As noted above in section 4.6, inter-corporate service charges are comprised of allocated charges to EWW for corporate services provided by EUI, and allocated charges to EWW for shared services provided by EWSI. The services provided and the allocation methods used to determine the corporate service charges to EWW are described in Appendices D-2 and D-3.

157. Table 5.6-1 below provides the forecast inter-corporate services which are comprised of costs allocated from EUI and EWSI.

Table 5.6-1
Inter-corporate Service Charges
2012-2017
(\$ thousands)

Cost Category	A	B	C	D	E	F	G	H	I
	2012D	2012A	2013D	2013A	2014D	2014F	2015F	2016F	2017F
1 EUI Corporate Services	75	75	77	77	98	98	114	116	118
2 EWSI Shared Services	92	92	95	95	81	81	81	83	85
3 Total	167	167	172	172	179	179	195	199	203

158. Financial Schedule 2.3 provides the detailed summary by corporate and shared services groups for the 2015-2017 forecast allocated costs. EWW submits that for the reasons outlined below, EWW's applied-for corporate service charges for the 2015-2017 test period, including the derivation of escalation factors described below, are both reasonable and prudent.

159. The \$16 thousand increase in corporate service charges from the 2014 forecast to the 2015 forecast is primarily due to a \$21 thousand charge for corporate asset usage fee. In error, this charge was not previously allocated to EWW. EWW should have been charged this fee as it benefits from the services which the corporate asset usage fee covers. This oversight has been corrected and the corporate asset usage charge has been included in the 2015-2017 test period. The explanation of the methodologies to allocate the corporate asset usage fees to EWW is provided in Appendix F-2 and F-3. This increase is partially offset by a \$5 thousand decrease in allocated charges resulting from the re-organization of numerous corporate services groups in 2013.

6.0 DEFERRAL ACCOUNTS and 2014-2016 RATE RIDER

160. An overview of each of the deferral account balances for 2012-2014 is provided in section 6.1. Section 6.2 summarizes the outstanding balances in the deferral accounts as at December 31, 2014 and provides an explanation of the amounts proposed to be recovered through a rate rider charged to customers during the 2015-2017 test period. Section 6.3 includes a discussion of the deferral accounts in place for the 2015-2017 test period.

6.1 Deferral Account Balances for 2012-2014

161. Order 2310 approved four deferral accounts for the 2012-2014 test period: (i) consumption deferral account; (ii) property taxes deferral account; (iii) interest deferral account; and (iv) hearing cost deferral account. By that same Order, the income tax deferral account was discontinued.

162. The calculation of each deferral account balance for the years 2012, 2013 and 2014 is shown in Financial Schedules 3.1 and 3.2 and a summary is shown in Table 6.1-1.

Table 6.1-1
Deferral Account Balances and Disposition through 2015-2017 Rate Riders
2012-2017
(\$ thousands)

Deferral Account Balances And Disposition	A 2012A	B 2013A	C 2014D	D 2014F	E 2015F	F 2016F	G 2017F
1 Deferral Accounts							
2 Balance, Beginning of Year	173	244	40	310	349	244	133
3 Current Year Deferrals							
4 Consumption	120	117	-	96	-	-	-
5 Property Taxes	1	0	-	(2)	-	-	-
6 Interest	(9)	(14)	-	(20)	-	-	-
7 Hearing Costs	6	13					
8 Current Year Deferrals	117	116		75	-	-	-
9 Amounts Refunded through (Recovered from) Rate Rider	(46)	(50)	(40)	(36)	(105)	(111)	(118)
10 Balance, End of Year	244	310	-	349	244	133	16
11 Carrying Charges							
12 Balance, Beginning of Year	19	22	9	29	48	27	6
13 Current Year Carrying Charges							
14 Mid-Year Deferral Account Balance	209	277	20	330	297	189	75
15 Weighted Average Cost of Debt	6.38%	6.01%	6.47%	5.89%	5.88%	5.92%	5.94%
16 Current Year Carrying Charges	13	17	1	19	17	11	4
17 Amounts Refunded through (Recovered from) Rate Rider	(10)	(10)	(10)		(39)	(33)	(26)
18 Balance, End of Year	22	29	-	48	27	6	(16)
19 Disposition of Deferral Accounts							
20 Deferral Accounts	244	310	-	349	244	133	16
21 Carrying Charges	22	29	-	48	27	6	(16)
22 Total	266	339	-	397	271	139	-

163. For the 2012-2014 test period, the differences in the deferral account balances results in a net collection from customers of \$349 thousand at December 31, 2014 (line 10 of Table 6.1-1). This balance is primarily driven by lower than forecast consumption. Explanations of the 2012-2014 deferral account balances are provided in EWW's 2012 and 2013 Results, which are attached as Appendices G2 and G3. Each of the deferral accounts as well as the requirement for an additional rate rider adjustment is explained below.

6.1.1 Consumption Deferral Account

164. A consumption deferral account was continued for the test period 2012-2014 to record the difference in revenues based on forecast consumption volumes approved by the Comptroller in Order 2310 and revenue based on actual consumption volumes. During 2012-2014, EWW's

actual consumption volumes were lower than the amounts approved in Order 2310. These differences result in a balance owing to EWW of \$333 thousand in the consumption deferral account as at December 31, 2014.

165. The lower than forecast consumption during the 2012-2014 test period was primarily driven by two factors: (i) residential customer growth was lower than forecast; and (ii) consumption per customer was lower than forecast for residential customers. Actual residential customer growth for the 2012-2014 period averaged 1.2% per year compared to the approved average growth rate of 2.9% per year.

166. Actual consumption volumes per customer for the 2012-2014 test period were lower than forecast in the residential customer category. In the 2012-2014 Revenue Requirement and Rates Application, EWW had assumed that consumption per customer would be equal to the five-year historical average. Actual results have shown that consumption per customer volumes in the 2012-2014 test period were lower than forecast on average by 8.07% for the residential class, 17.60% for the commercial class, and higher than forecast on average by 15.74% for the multi-residential class. This general decline in consumption levels is attributed to increased use of water efficient appliances, consumption-based water rates with individual metering, demographic shifts, smaller households and changing societal attitudes toward water consumption.

6.1.2 Property Taxes Deferral Account

167. EWW continued its property taxes deferral account for the period 2012-2014 to record the difference between forecast property taxes approved by the Comptroller in Order 2310 and actual property taxes. During 2012-2014, EWW's actual property taxes were very similar to the amounts approved in Order 2310. These differences result in a balance owing to EWW customers of approximately \$1 thousand in the property taxes deferral account as at December 31, 2014.

6.1.3 Interest Deferral Account

168. EWW continued its interest deferral account for the period 2012-2014 to record the difference between forecast interest expenses approved by the Comptroller in Order 2310 and actual interest expenses on external and deemed inter-company debt. During 2012-2014, EWW's actual interest charges were lower than the amounts approved in Order 2310. These differences result in a balance owing to EWW customers of \$43 thousand in the interest deferral account as at December 31, 2014.

6.1.4 Hearing Cost Deferral Account

169. EWW established a hearing cost deferral account to record expenses incurred in relation to the 2012-2014 Revenue Requirement and Rates Application. These expenses include legal fees, stakeholder consultation and other expenses incurred by EWW as well as any stakeholder costs approved by the Comptroller for recovery in relation to the regulatory proceeding. During 2012-2014, EWW's actual hearing costs resulted in a balance owing to EWW of \$19 thousand in the hearing cost deferral account as at December 31, 2014.

6.2 Disposition of Charges through 2015-2017 Rate Rider

170. For the 2015-2017 test period, EWW proposes that the total net balance of \$349 thousand in the four deferral accounts as at December 31, 2014, including applicable carrying costs, be recovered from customers through a rate rider for the years 2015 through 2017. EWW has adopted standard utility practices whereby it excludes deferral accounts from the revenue requirement, and utilizes a rate rider for recovery or refund of balances. Carrying costs are applied based on EWW's cost of debt. The disposition of the deferral account balances is presented on line 20 of Table 6.1-1. Associated carrying costs are shown on line 21 of Table 6.1-1.

171. In determining the appropriate time period in which to discharge the deferral account balances, EWW considered the following objectives: (i) recover operating costs as close as possible to the period in which they are incurred; (ii) provide for relatively stable rates; and (iii) minimize the risk and cost to the utility of carrying deferral accounts. In this Application, EWW proposes to recover the deferral account balances over the years 2015, 2016 and 2017.

172. Financial Schedule 4.0 provides the calculation of the proposed rate riders effective January 1, 2015 to December 31, 2017 for each rate class.

6.3 Deferral Accounts for the 2015-2017 Test Period

173. In this Application, EWW proposes to continue the four previously approved deferral accounts for the 2015-2017 test period: (i) consumption deferral account; (ii) property taxes deferral account; (iii) interest deferral account; and (iv) hearing cost deferral account. EWW proposes to continue to calculate and include carrying costs in its deferral account balances for the 2015-2017 test period. More specifically:

- i) The consumption deferral account will record the difference in revenues associated with variances in customer counts as well variances in consumption volumes, to recognize variances in both the base and in excess of base revenue amounts.
- ii) The property taxes deferral account will record the difference in property taxes between the forecast property taxes and the actual property taxes for each year.
- iii) The interest deferral account will record the difference in interest expense between the forecast interest charges and the actual interest charges incurred. The actual interest charges are determined based on the interest rate for EWW at its BBB rating at the date of issuance. This actual interest rate is equal to the sum of the 20-year Government of Canada rate plus the risk premium for EUI plus the risk premium for EWW (relative to EUI) plus a transaction premium (0.05%). The justification for this interest rate calculation is explained in section 8.3 below.
- iv) The hearing cost deferral account will record the expenses incurred in relation to a written or oral proceeding for this Application. These expenses include legal fees, stakeholder consultation and other expenses incurred by EWW or the Comptroller as well as any intervener costs that may be approved by the Comptroller for recovery in relation to the regulatory proceeding.

174. EWW will provide a status report on the deferral accounts as part of its annual compliance reporting to the Comptroller.

7.0 CAPITAL EXPENDITURES AND RATE BASE

7.1 Capital Expenditures

175. This section describes in further detail EWW's capital projects planned for the 2015-2017 test period and the corresponding annual forecast capital expenditures, summarized in Table 7.1-1 below. Capital expenditures for 2012 actual, 2013 actual and 2014 forecast are provided for comparison. A detailed summary of EWW's annual capital expenditures is provided in Financial Schedule 2.4

Table 7.1-1
EWW Capital Expenditures
2012-2017
(\$ thousands)

Cost Category	A	B	C	D	E
	2012-2014F	2015F	2016F	2017F	2015-2017F
1 Well Rehabilitation	325	118	81	-	199
2 New Wells - Replace French Creek Supply	1,344	181	-	-	181
3 Standby Generators	319	-	-	-	-
4 Plant Upgrades – Church Road	(2)	-	84	160	244
5 Plant Upgrades - Drew Road	-	-	268	-	268
6 Transmission and Distribution Upgrades	-	38	40	41	119
7 Dalmatian Drive Upgrades	-	-	26	27	53
8 System Balancing and Storage Control	-	-	27	-	27
9 Vehicle Replacement	59	-	-	-	-
10 New Billing Software	99	-	-	-	-
11 Meter Replacement Program	35	67	70	73	210
12 Decommission Abandoned Wells	-	52	-	39	91
13 Total Expenditures – Rate Base	2,179	456	596	340	1,302
14 Well Rehabilitation	133	47	-	-	47
15 New Wells to Support Growth	1,306	78	337	-	415
16 Plant Upgrades – Drew Road	223	-	-	-	-
17 Exploratory Boreholes	1	-	-	-	-
18 Metering Projects	179	43	44	46	133
19 Transmission and Distribution Upgrades	559	-	-	-	-
20 New Reservoir	73	-	-	-	-
21 Total Capital Expenditures – Contributed	2,474	168	381	46	595
22 Total Capital Expenditures	4,653	624	977	386	1,987

176. The total forecast for capital expenditures is \$1,987 thousand for the 2015-2017 test period of which \$595 thousand is comprised of contributions and \$1,392 is for rate base

expenditures. As described in section 3.0, EWW's capital upgrades are required to address system reliability risks, regulatory requirements, asset protection and cost control and ongoing capital maintenance requirements.

177. Capital additions planned for the 2015-2017 test period are summarized in Table 7.1-2 below. Capital additions for 2012 actual, 2013 actual and 2014 forecast are provided for comparison.

Table 7.1-2
EWW Capital Additions
2012-2017
(\$ thousands)

Cost Category	A	B	C	D	E
	2012-2014F	2015F	2016F	2017F	2015-2017F
1 Source of Supply	1,826	1,618	1,434	39	3,091
2 Water Treatment Plant	223	-	268	160	428
3 Pumping Plant	336	-	-	-	-
4 General Plant	64	-	83	-	83
5 Transmission & Distribution Plant	705	148	207	187	542
6 Software	93	-	-	-	-
7 Capital Additions	3,247	1,766	1,992	386	4,144
8 CIAC	(1,414)	(500)	(1,397)	(46)	(1,943)
9 Capital Additions, net of CIAC	1,833	1,266	595	340	2,201

178. As discussed in section 3.2, capital expenditures for rate base projects for the 2015-2017 test period include several projects carried over from 2012-2014 and forecast to be completed in 2015-2017 and projects initiated during 2015-2017. These projects are as follows:

- i) Completion of the 2012-2015 wells tie-in (\$772 thousand), partially developer funded;
- ii) Projects initiated in 2015-2017 include:
 - Drew Road Water Pump Station upgrades (\$268 thousand);
 - Residential Service Replacement Program (\$53 thousand);
 - System balancing and storage control (\$27 thousand)
 - Decommission existing abandoned groundwater wells (\$91 thousand); and
 - Church Road complex upgrades (\$243 thousand);

7.2 Depreciation

179. EWW's depreciation expense is summarized in Table 7.2-1 below. The detailed calculation of EWW's depreciation expense is provided in Financial Schedule 2.5. EWW's utility assets continue to be depreciated over the shortest of the assets' physical, technological, commercial or legal lives. As explained in Section 4.7, EWW conducted a review of its depreciation rates, and compared the Comptroller recommended depreciation rates with those previously used by EWW and is proposing to adopt the depreciation rates recommended by the Comptroller commencing on January 1, 2015 with the exceptions of reservoirs and equipment.

**Table 7.2-1
Depreciation
2012-2017
(\$ thousands)**

Cost Category	A 2012A	B 2013A	C 2014F	D 2015F	E 2016F	F 2017F
1 Depreciation	145	182	224	246	298	333
2 CIAC Amortization	(54)	(50)	(61)	(109)	(133)	(152)
3 Write-offs and adjustments	4	1	12			
4 Net Depreciation	95	132	175	137	165	181

7.3 Working Capital

180. Forecast working capital requirements are based on the expected timing of EWW's cash flows and represent 45 days of operating expenses. A summary of EWW's working capital allowance is provided in Table 7.3-1 below. The detailed calculation of EWW's working capital is shown in Financial Schedule 2.6.

**Table 7.3-1
Working Capital Allowance
2012-2017
(\$ thousands)**

Cost Category	A 2012A	B 2013A	C 2014F	D 2015F	E 2016F	F 2017F
1 Total Operating Expenses	684	884	950	1,092	1,020	1,091
2 Less: Municipal Taxes	(35)	(35)	(34)	(37)	(37)	(38)
3 Total Eligible Expenses	649	849	916	1,057	983	1,053
4 Total Working Capital Allowance (Line 3 x 45/365)	80	105	113	130	121	129

7.4 Rate Base

181. EWW's net rate base is summarized in the Table 7.4-1 below. The detailed calculation of EWW's net rate base is provided in Financial Schedule 2.6.

Table 7.4-1
Net Rate Base
2012 - 2017
(\$ thousands)

Cost Category	A 2012A	B 2013A	C 2014F	D 2015F	E 2016F	F 2017F
1 Mid-Year Gross Property, Plant & Equipment	5,660	6,767	8,337	9,787	11,666	12,854
2 Less: Mid-Year Accumulated Depreciation	(590)	(756)	(946)	(1,168)	(1,440)	(1,756)
3 Mid-Year Net Property, Plant & Equipment	5,069	6,011	7,391	8,619	10,226	11,098
4 Add: Working Capital Allowance	80	105	113	130	121	129
5 Mid-Year Rate Base	5,149	6,116	7,504	8,749	10,347	11,228
6 Less: Mid-Year CIAC, Net of Accumulated Amortization	(2,607)	(2,721)	(3,326)	(4,031)	(4,859)	(5,439)
7 Net Rate Base	2,542	3,395	4,178	4,718	5,488	5,789

182. EWW's net rate base increased by \$1,636 thousand from 2012 to 2014 primarily due to standby generators, completion of Oceanside well (RWn2) and the two monitoring wells, and implementation of the new billing software.

183. EWW's net rate base is forecast to increase by \$540 thousand from 2014 to 2015 primarily due to completion of two wells (ACs1 and RWs1).

184. EWW's net rate base is forecast to increase by \$770 from 2015 to 2016 primarily due to completion of the last well project (TWs1).

185. EWW's net rate base is forecast to increase by \$301 thousand from 2016 to 2017 primarily due to upgrades to the Drew Road Pump Station.

8.0 RETURN ON RATE BASE

8.1 Capital Structure

186. For the 2015-2017 test period, EWW is proposing a common equity ratio of 40% and an equity risk premium of 1.3% (130 basis points) above the return on equity (“ROE”) adopted by the BC Utilities Commission (“BCUC”) for the low risk benchmark utility, as approved by the Comptroller in Order 2310.

187. EWW reflects new debt issuances through deemed inter-company loans from its parent company, EUI. The cost of debt for this inter-company loan is described in section 8.3 below.

188. To maintain its capital structure at 60% debt and 40% equity and to meet its capital expenditure needs, EWW requires an increase of \$967 thousand in deemed intercompany debt over the 2015-2017 test period. EWW’s debt schedule is provided in Financial Schedule 2.7.

8.2 Rate of Return on Equity

189. EWW has applied a 130 basis points equity risk premium, as approved by the Comptroller in Order 2310, above the ROE for 2014 set by the BCUC for the low risk benchmark utility (BCUC Order G-158-09). The BCUC approved a ROE of 8.75% for the benchmark BC utility for 2014 on May 10, 2013.¹⁰ On January 10, 2014, the BCUC issued Letter L-1-142 confirming that the Benchmark ROE for 2014 remains at 8.75%.¹¹

190. The BCUC also approved reinstating an Automatic Adjustment Mechanism (“AAM”) to set the ROE for the benchmark BC utility commencing in 2014. The AAM will change the allowed ROE for the benchmark BC utility by 50% of the change in the forecast long-term Government of Canada bond yield and 50% of the change in the spread between long-term A-rated utility and Government of Canada bond yields. The BCUC has confirmed that AAM will operate for 2015. The AAM will not operate until the actual long-term Government of Canada bond yield equals or exceeds 3.8%.

¹⁰ British Columbia Utilities Commission, Generic Cost of Capital Proceeding (Stage 1) Decision, May 10, 2013.

¹¹ British Columbia Utilities Commission, Letter L-1-14, Re: Return on Common Equity for the Benchmark Utility for the Year 2014, January 10, 2014.
(http://www.bcuc.com/Documents/Orders/2014/DOC_39682_L-1-14-2014-Benchmark-ROE.pdf)

191. For the 2015-2017 test period, EWW proposes to set its ROE based on the BCUC benchmark ROE of 8.75%, approved for 2014, plus 1.3% equity risk premium as approved for EWW in Order 2310. If the BCUC adjusts the benchmark ROE for 2015, EWW proposes to update its ROE in its refiling accordingly. If the BCUC continues its use of the AAM beyond 2015 and adjusts the benchmark ROE for 2016 or 2017, EWW proposes that its ROE be adjusted accordingly, and EWW will refile its rate schedules with the Comptroller for approval.

8.3 Cost of Debt

192. EWW reflects new debt issuances from EUI through deemed inter-company loans. The cost of inter-company debt for EWW is determined to be equal to the long-term cost of debt applicable to its parent company, EUI (rated A(low) by DBRS and BBB+ by Standard & Poor's) plus an EWW risk premium (based on a BBB rated company) and a transaction premium. The cost of inter-company debt and use of the BBB rating to determine EWW's risk premium was approved as part of the 2012-2014 Revenue Requirement and Rates Application. The weighted average cost of debt is summarized in Table 8.3-1 below.

Table 8.3-1
Weighted Average Cost of Debt
2012-2017

	A 2012A	B 2013A	C 2014D	D 2014F	E 2015F	F 2016F	G 2017F
1 Weighted Average Cost of Debt	6.38%	6.01%	6.47%	5.89%	5.88%	5.92%	5.96%

193. The cost of debt in the table above reflects the weighted average of the cost of debt for prior years' debt issues and a forecast cost of debt for new issues of inter-company debt based on published long term bond yields and spreads as of October 2013. On this basis, EWW forecasts cost of new debt issues of 5.84% for 2015, 6.17% for 2016 and 6.61% for 2017. These forecasts are based on the following:

- 20 year Government of Canada ("GOC") bond benchmark yield of 3.77% in 2015, 4.10%, in 2016 and 4.54% in 2017; plus
- EUI's cost of a new 20-year debt issue spread of 1.55% above GOC bond yields; plus
- a risk premium for EWW of 0.48% over EUI cost of debt; plus
- a transaction cost of 0.05%.

194. The EWW risk premium of 0.48% represents the spread between the cost of a new 20-year debt issue of EUI and the cost of the same issue to a BBB rated company.

195. As indicated in section 6.3 above, EWW proposes to continue the interest rate deferral account for the 2015-2017 test period to reflect the differences between forecast and actual interest rates.

8.4 Weighted Average Cost of Capital

196. Based on the above, EWW's forecast weighted average cost of capital reflected in this Application is 7.55%, 7.57% and 7.60% for 2015, 2016 and 2017 respectively. This translates into a forecast return on rate base of \$356 thousand, \$416 thousand and \$440 thousand for 2015, 2016 and 2017 respectively, as shown in Table 8.4-1 below.

Table 8.4-1
Return on Mid Year Rate Base
2012-2017
(\$ thousands)

	A 2012A	B 2013A	C 2014D	D 2014F	E 2015F	F 2016F	G 2017F
1 Debt	97	122	167	147	166	195	207
2 Equity	381	189	101	74	190	221	233
3 Total	478	311	268	221	356	416	440

197. Further details of EWW's forecast weighted average cost of capital and return on rate base are provided in Financial Schedule 2.6.

PART B – WATER TARIFF**9.0 WATER TARIFF**

198. The proposed Water Tariff for EWW is attached as Schedule B-1. EWW requests approval of the following changes to the Water Tariff:

- (i) Changes to the Terms and Conditions as noted in section 9.1 below; and
- (ii) Changes to the Price Schedules as noted in section 9.3 below.

199. A black-lined version of the Water Tariff noting all of the proposed changes is attached as Schedule B-2.

9.1 Terms and Conditions of Service

200. EWW proposes to make two changes to the Terms and Conditions to add clarity for customers and to be consistent with the practices of the Comptroller. EWW proposes to amend Schedule G to add language that clarifies the applicability of the Availability of Service charge. The additional language also allows EWW to impose an interest charge for arrears and clarifies the availability of refunds. Related to this proposed change is the addition of a definition of “Single Family Residential Equivalent” as a new defined term within the Terms and Conditions.

9.2 Water Sustainability Act

201. On April 29, 2014 the British Columbia Legislature gave third and final reading to Bill 18-2014, the Water Sustainability Act (the Act). It is expected that the Act will come into force in April of 2015. It is anticipated that the Act will impose licensing requirements on EWW. In the event that EWW is required to incur costs associated with the new requirements of the Act, EWW will seek approval for a future adjustment.

9.3 Price Schedules

202. EWW has also revised its Price Schedules to reflect the following:

- (i) the proposed Water Rates as noted in section 1.1 of the Application.