

A G E N D A

SPECIAL MEETING OF COUNCIL MONDAY, JULY 28, 2014 AT 3:00 PM IN THE CITY HALL COUNCIL CHAMBERS

PRESENT:

A. APPROVAL OF AGENDA

1. Call to Order and Adoption of Agenda.

B. DELEGATION

1. **JP Joly, Econics**

In attendance to present a review of 2015 Utility Rates.

C. QUESTION PERIOD

An opportunity for the public or press to ask questions of the Mayor and Council.

D. OTHER COMPETENT BUSINESS

E. ADJOURNMENT

That the meeting adjourn at pm.

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Water Rate Review Update 2014

City of Port Alberni

June 2014 (DRAFT V4.1)



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Contributors to the Project

Econics would like to thank City staff for assistance and support with this project: Director of Financial Services, Accounting Clerk, City Engineer, as well as Engineering Consultants Koers and Associates.



Econics uses a powerful proprietary modeling tool called WaterWorth™ to analyze, forecast and develop rate structures. Find out more on our website at Econics.com.

1.0 OVERVIEW

1.1 OBJECTIVES

1.2 METHODOLOGY

1.3 TERMINOLOGY

1.4 SCALE OF WATER

1.0 Overview

1.1 Objectives



Revenue Sufficiency A prime objective of a rate structure is to ensure that revenue sufficiency is maintained.



Revenue Stability Rate structures with a variable component gives customers more control over their costs. However, this results in revenue variability as demand fluctuates year to year with variances in climate.



Equity & Fairness A rate structure should aim to allocate to the customer groups the costs of providing water services, commensurate with their demand characteristics.



Resource Conservation Promotion of water conservation is a desirable goal and pricing signals can be used to encourage economy in certain instances of water use.






Public Acceptability Any proposed changes in the rate structure should be undertaken in steps, keeping affordability in mind and ensuring a smooth transition to avoid rate shock to the customers.

Easy to Understand A rate structure should aim to be easy to understand and send a clear and strong price signal to customers. This means that the price structure should empower customers to make decisions about water usage that are in line with the goals of the organization. Typically this is aimed at resource conservation and reducing excess water usage.

1.0 Overview

1.2 Methodology

The process of reviewing and setting rates can be described using the analogy of a pie. The first step is to determine how big the pie should be. Next is to determine how to cut the pie into equitable slices representing the customer categories. Step 3 is to determine how to design a rate structure to achieve the required objectives for each slice.

Best Practice	Analogy	Benefits
<p>1 Full Cost Recovery</p>		<ul style="list-style-type: none"> • Revenue Sufficiency • Long Term Sustainably • Supports Political Stability
<p>2 Establish Cost of Service & Equity</p>		<ul style="list-style-type: none"> • Establishing Fairness • Public Acceptability
<p>3 Design Rates to Meet Objectives</p>		<ul style="list-style-type: none"> • Promote Conservation • Reduce Revenue Volatility • Minimize Billing Impacts

1.0 Overview

1.3 Terminology

Definitions for some technical terms and acronyms used in this report.

Cost of Service: this term means how much it costs to deliver a service, and more specifically, how much it costs to deliver the service to a particular group of customers.

Cost Responsibility Redistribution: this term means making adjustments to rates and charges so that one customer category will pay less while another category will pay more. The net effect on overall revenues is typically nil.

Full Cost Recovery: this term means that the sources of revenues to the service are fully covering the costs of owning, maintaining and operating the service, particularly the costs of renewing infrastructure.

LCD: Litres per capita per day. This unit is used to measure consumption on a per person basis. While overall demand may be increasing with population, the LCD is typically decreasing as water efficiencies are gained.

Meter Equivalency ratio: a numerical comparison of different meter sizes with the smallest available meter typically having a value of 1 and larger meters being equivalent to so many base meters. Eg: a 2” meter is equivalent to 8 5/8” meters. CWWA and AWWA provide guidelines for Meter Equivalency ratios.

1.0 Overview

1.4 Scale of Water

The Cubic Meter

1,000 Litres = 1 cubic meter (m³)



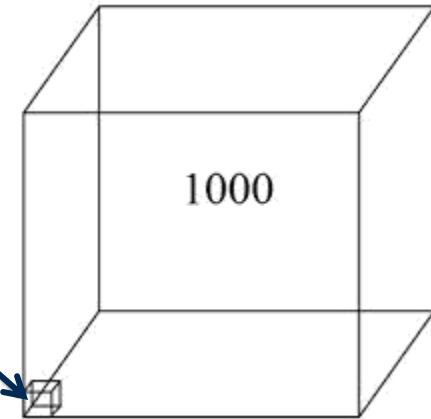
These 5 rain barrels add up to a cubic meter



Five bath tubs full of water is equal to a cubic meter.

One Megalitre

1,000 cubic meters



Olympic Size Pool

2.5 ML = 2,500 m³ or 2.5 million Litres



2.0 BASELINE WATER USE

2.1 CUSTOMER CATEGORIES

2.2 POPULATION

2.3 CUSTOMER SUMMARY

2.4 BILLABLE CONSUMPTION

2.5 REVENUES

2.6 REVENUE STABILITY

2.7 PERFORMANCE - EQUITY

2.8 PERFORMANCE - FIXED CHARGE

2.1 Customer Categories

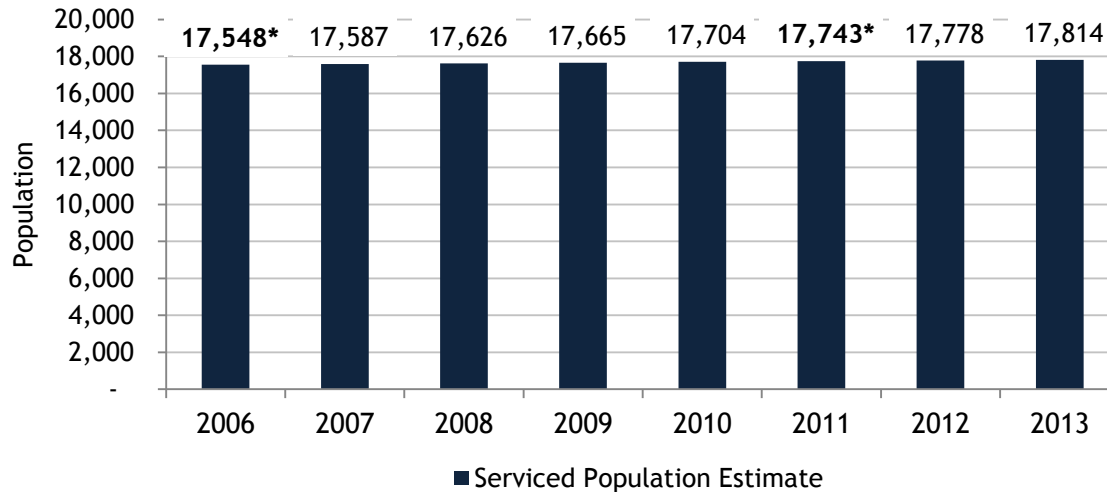
The following list identifies the different customer categories and provides a brief description for the category.

Customer Category Name	Details
Single Family Residential	Any service to a single family dwelling unit is billed at the residential unit rate
Multifamily Residential	Any service that is shared by two or more single family dwelling units, including duplexes, apartments and condos, is billed at the multifamily rate.
Commercial	This category also includes commercial and light industrial use.
Industrial	This category is for specific high use customers including Western Forest Products and Catalyst Paper.
City	Water used by the City is metered but not billed.
Outside Res	Outside single family residential retail.
Hupacasath	Bulk provision to Hupacasath via several connections and according to a special agreement.
Tseshaht	Bulk provision to Tseshaht First Nation via 2 connections.
Beaver Creek	Bulk provision to the Beaver Creek community via a single 10” connection.

2.2 Population

2.2.1 Historic Population

City of Port Alberni population has grown at an average annual rate of 0.2% between the two census years 2006 and 2011. The 2012 and 2013 population estimates assume a similar growth rate.



* Statistics Canada Census Population

Figure 1: Historic Serviced Population

2.2 Population (continued)

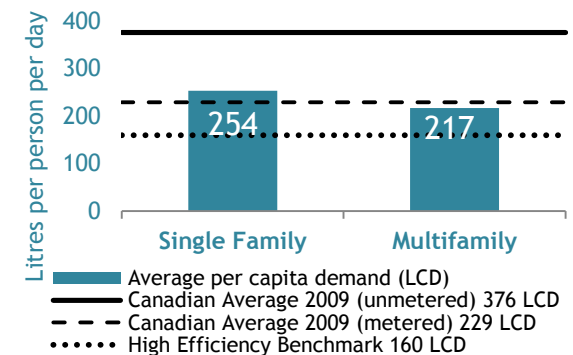
2.2.2 Population Calibration

Table 1 below proposes how the estimated 2013 population is apportioned between Single Family and Multifamily residential customer categories. These were calculated by multiplying the number of domestic units in the water billing data by the estimated dwelling density for each housing type.

Table 1: Serviced Population Estimates 2013

Customer Class	Services		Population		Water Demand	
	Total Service Connections	Domestic Units	Density	Population	Annual Water Use (ML)	Average per capita demand (LCD)
Single Family	6,015	6,011	2.33	14,024	1,299	254
Multifamily	166	1,995	1.90	3,791	300	217
total	6,181	8,006		17,814	1,599	

Figure 2: Average Daily Per Capita Demand 2013



As a verification, the average per-capita demand for each residential category is evaluated. The Single Family and Multifamily average per capita consumption figures are shown here to be comparable to the 2009 Statistics Canada reported averages across Canada for metered and unmetered communities.

2.3 Customer Summary

Table 2 below provides a summary of information from the billing system relating to each customer class.

Table 2: Customer Summary (2013)

Customer Class	Total Service Connections	Annual Water Use (m3)	Variable Revenues	Fixed Revenues	Total Revenues	Average Sector Price (\$/m3)	% revenue contribution	% water consumption	% total fixed revenues	Average per capita demand (LCD)	Average Day Demand (m3/day)
Single Family	6,015	1,299,000	541,356	849,478	1,390,834	\$1.07	66.3%	44.4%	61.1%	254	3,556
Multifamily	166	300,400	116,545	49,314	165,859	\$0.55	7.9%	10.3%	29.7%	217	822
Commercial	454	440,800	167,708	115,857	283,565	\$0.64	13.5%	15.1%	40.9%	68	1,207
Industrial	10	638,100	154,418	13,597	168,016	\$0.26	8.0%	21.8%	8.1%	98	1,747
City	28	53,800						1.8%		8	147
Hupacasath	7	10,700	3,581	10,050	13,631	\$1.27	0.6%	0.4%	73.7%	2	29
Outside-Res	48	11,800	6,557	9,110	15,667	\$1.33	0.7%	0.4%	58.1%	2	32
Tseshah	4	169,900	57,021	3,832	60,853	\$0.36	2.9%	5.8%	6.3%	26	465
Beaver Creek	1										
Total	6,731	2,924,500	\$1,047,185	\$1,051,240	\$2,098,425	\$0.72	100.00%	100.00%	50%	450	8,007

2.4 Billable Consumption

2.4.1 Historic Residential Consumption

The historical water use by the Single Family Residential customer class from 2009 to 2013 is shown below.

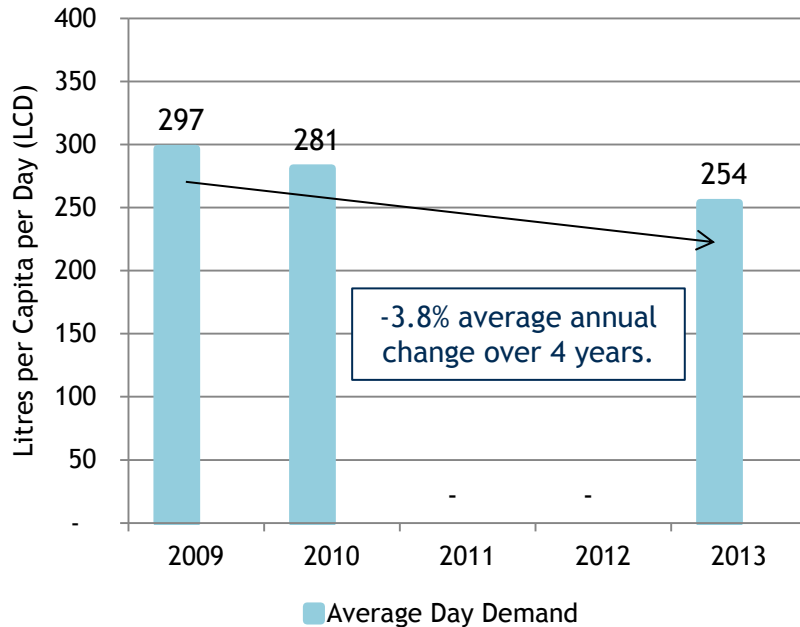


Figure 3: Single Family Residential Annual Per Capita Demand (2009-2013)

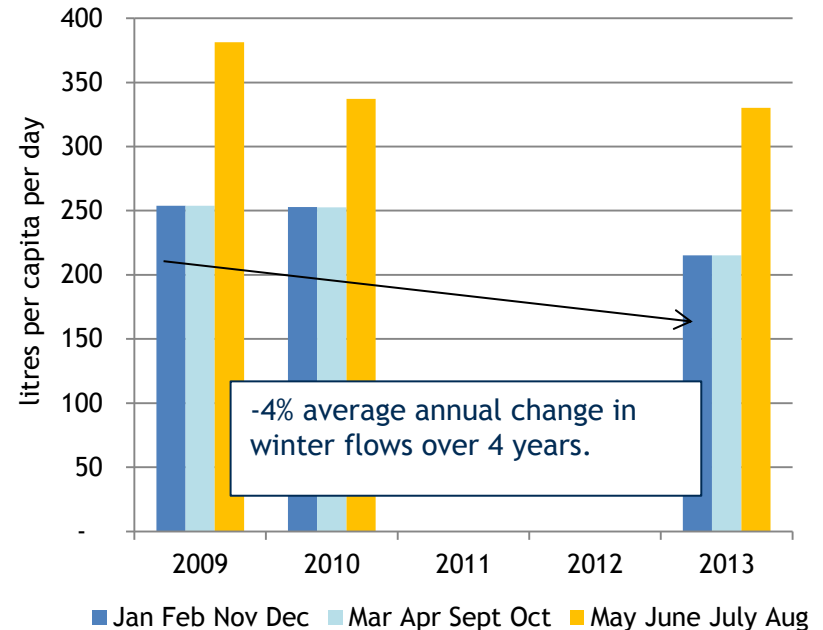


Figure 4: Single Family Residential Demand During Winter, Shoulder and Summer Seasons (2009-2013)

2.4 Billable Consumption (continued)

2.4.2 Historic Multifamily Consumption

The historical water use by the Multifamily customer class from 2009 to 2013 is shown below.

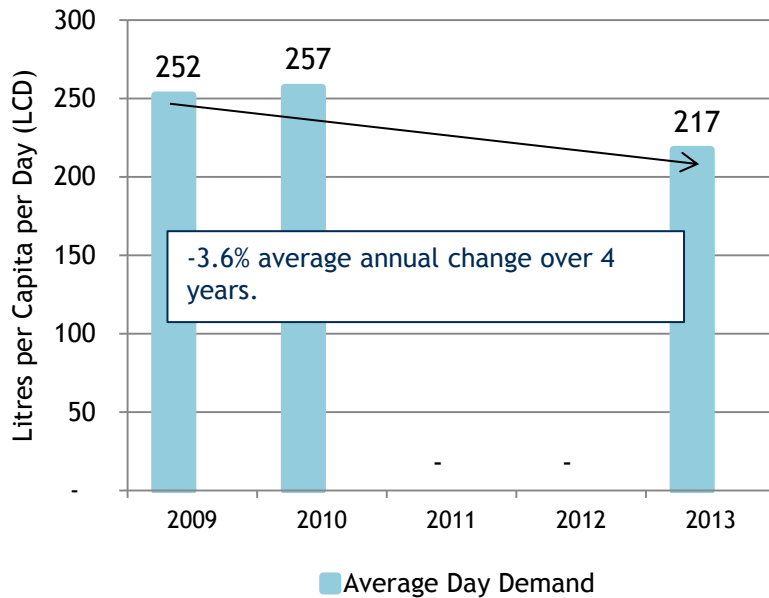


Figure 5: Multifamily Residential Annual Per Capita Demand (2009-2013)

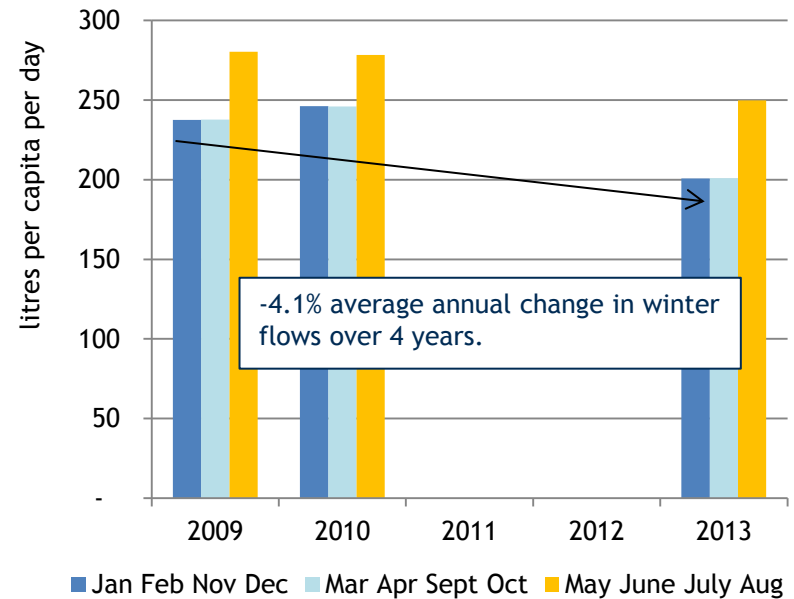


Figure 6: Multifamily Residential Demand During Winter, Shoulder and Summer Seasons (2009-2013)

2.4 Billable Consumption

2.4.3 Historic Commercial Consumption

The historical water use by the Commercial sector 2009 to 2013 is shown here.

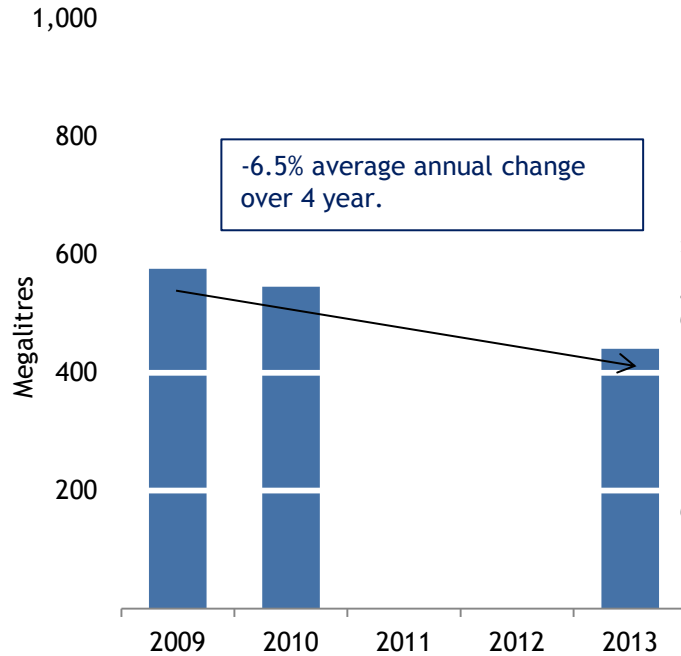


Figure 7: Total Commercial Consumption (2009-2013)

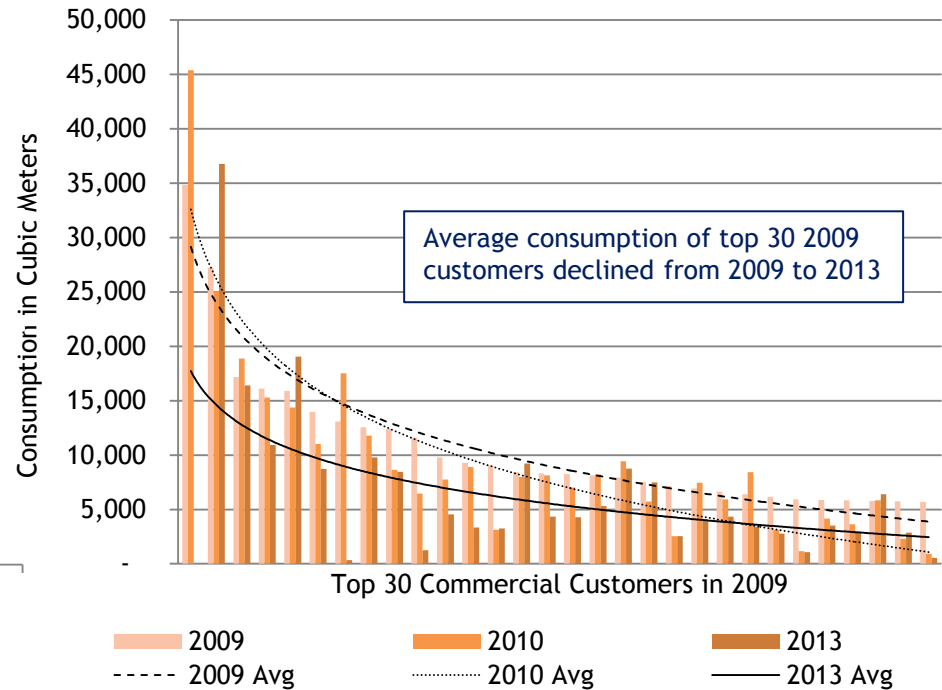


Figure 8: Consumption of Top 30 Commercial Customers (2009-2013)

2.4 Billable Consumption

2.4.3 Historic Industrial Consumption

The historical water use by the Industrial sector 2009 to 2013 is shown here.

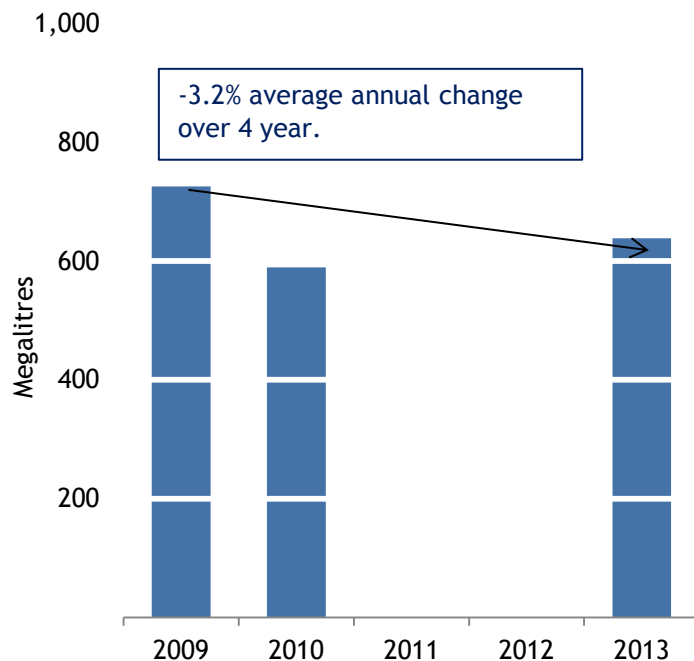


Figure 9: Total Industrial Consumption (2009-2013)

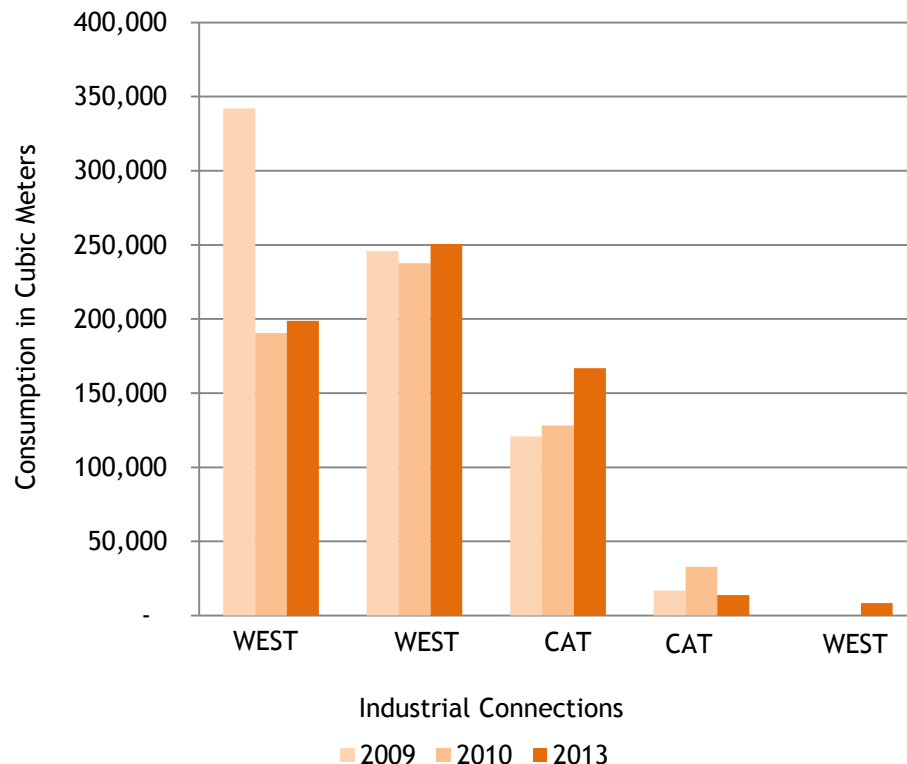


Figure 10: Consumption of Industrial Customers (2009-2013)

2.4 Billable Consumption

The breakdown of water use by each customer class in 2013 is shown below.

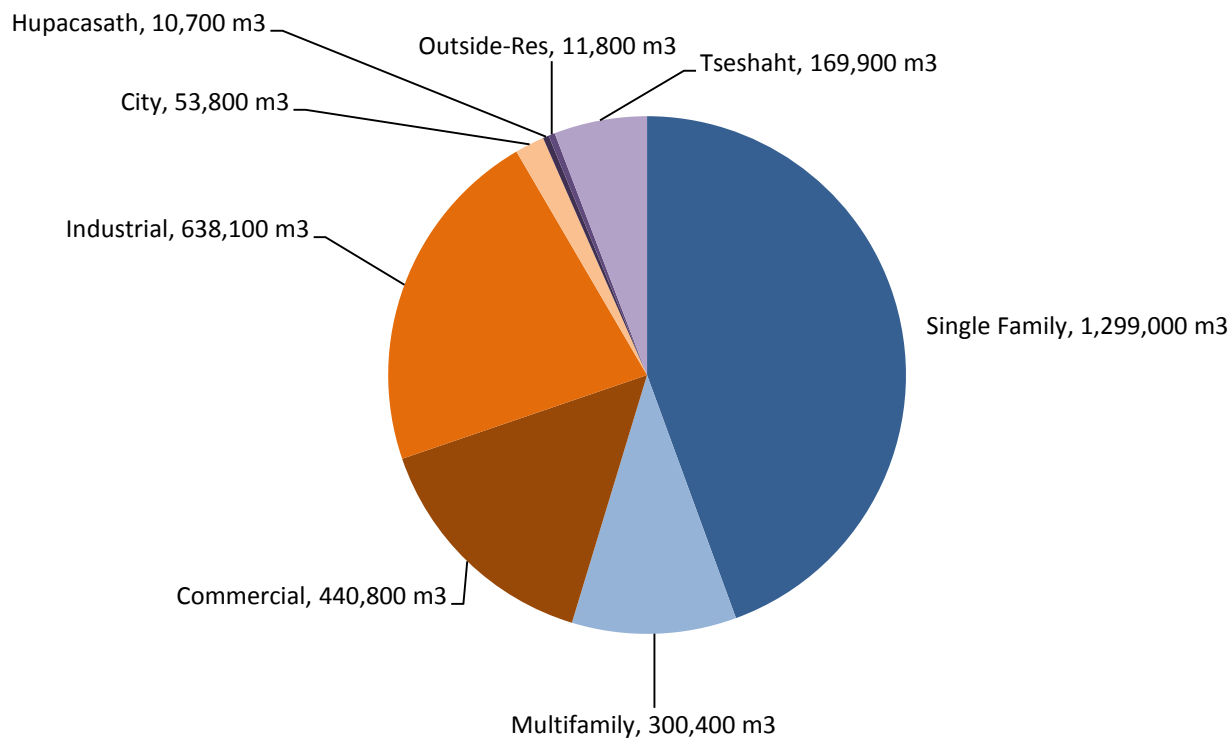


Figure 11: Billable Water Consumed by Customer Class (2013). Total Consumption: 2,924,500 m3

2.5 Revenues

The breakdown of revenues from tolls and taxes in 2013 is shown below.

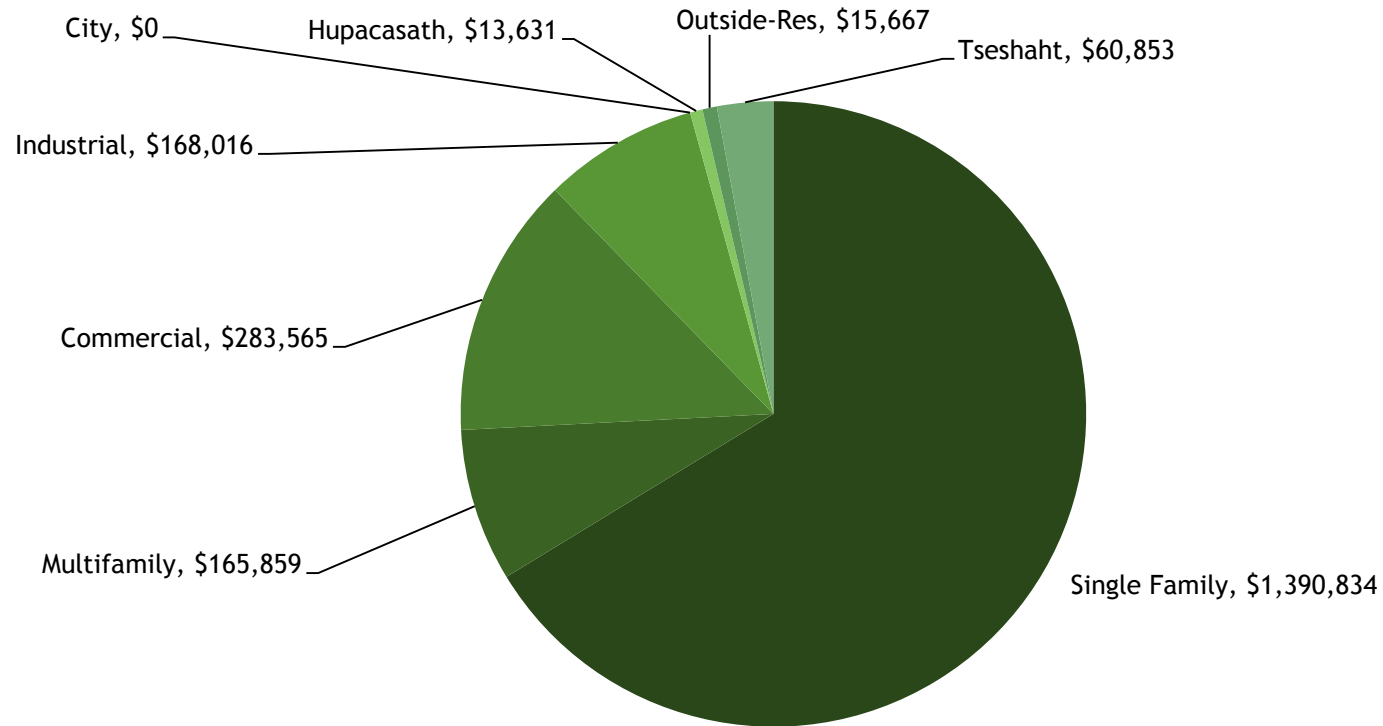
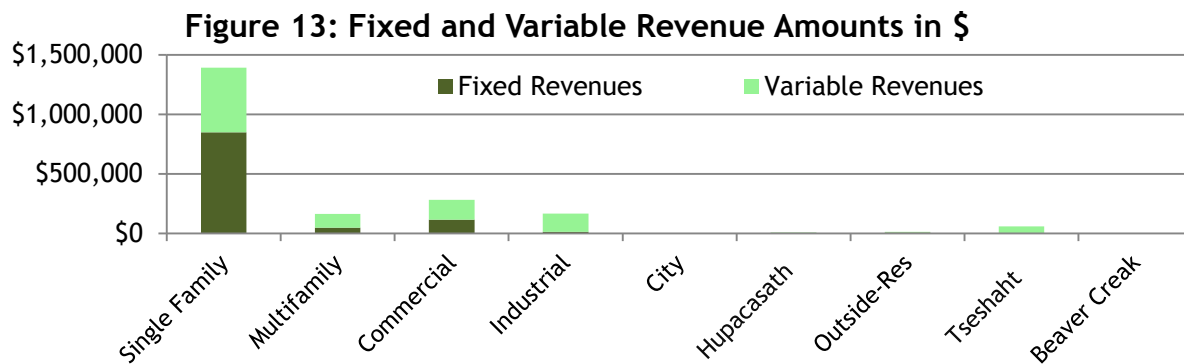


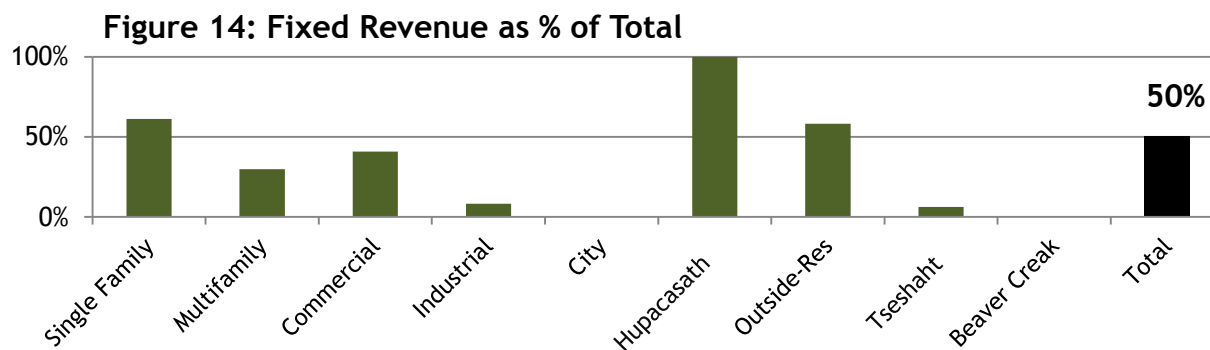
Figure 12: Revenues by Customer Class (2013). Total Revenues: \$2,098,425

2.6 Revenue Stability

The figures below compare the fixed and variable portion of revenues by customer class. A high portion of fixed revenues contributes to greater revenue stability. A high portion of variable revenues contributes to greater conservation as customers have more control over their costs.



This chart shows us the extent of fixed and variable revenues in dollars contributed towards the total. Note: a certain portion of variable revenues can be viewed as being “as good as fixed” because a minimum amount of usage is non-discretionary (cooking, cleaning, drinking).



This chart shows that overall fixed revenues are about 50%. This is generally viewed as reasonable degree of revenue stability; increasing fixed component for Multifamily, Commercial and Industrial would further increase revenue stability.

2.7 Rate Performance - Equity

These figures provide simplified indicators of equity comparing water demand with revenue contributions, and comparing average cost of water to total system average cost.

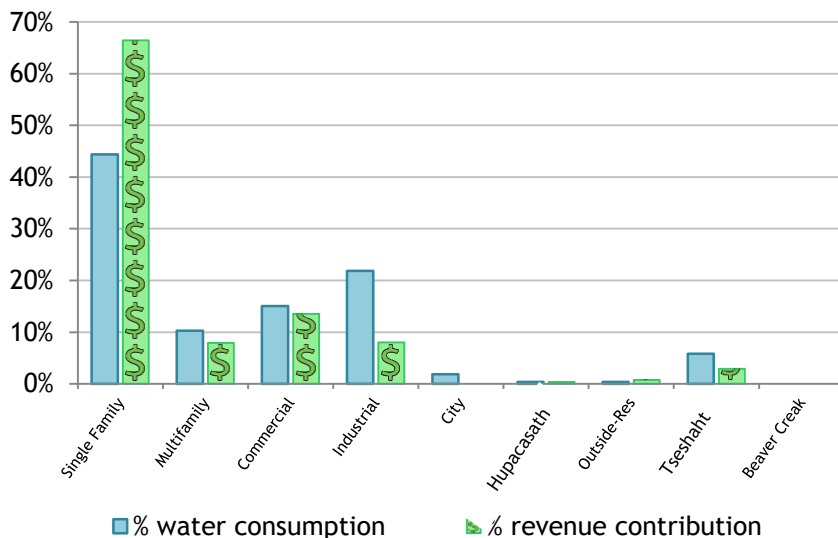


Figure 15: Comparison of Water Use and Revenue Contribution (2013)

The difference between the percentage of water consumed (blue bar) by a customer category and the percentage of revenue contributed (green bar) may indicate inequities in the price structure.

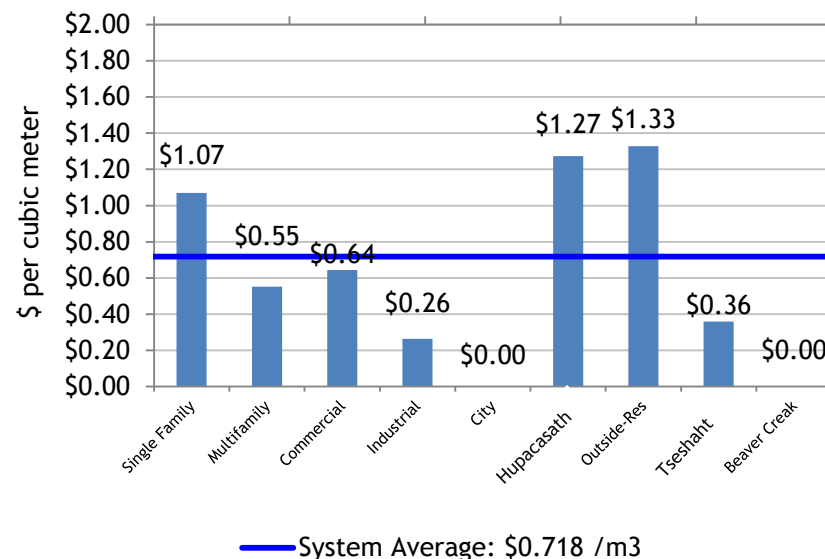


Figure 16: Average Price of Water by Category (2013)

The average price of water for each sector is calculated by dividing the revenue collected from that sector by the volume of water delivered to customers in that sector.

2.8 Performance - Fixed Charge

This table compares the Meter Equivalency (ME) ratio of the current monthly fixed charge with the ME ratio recommended by the CWWA and AWWA.

Table 3: Comparison of Meter Equivalency Ratios (2013)

Typical Customers	Meter/ Service Connection Size		# Meters and Services	Water Meter Equivalency (ME) Ratios		
	Imperial	Metric		Current Implied ME Ratios	CWWA/AWWA Recommended ME Ratios	Proposed ME Ratios
Residential Sm.	5/8"	16 mm	794	1.0	1.0	
Multifamily & Sm. Commercial	3/4"	19 mm	5592	1.0	1.5	
	1"	25 mm	86	2.0	2.5	
Sm. Commercial & Multifamily, City Industrial	1.5"	38 mm	81	2.4	5.0	
	2"	50 mm	123	3.0	8.0	
	3"	75 mm	31	4.4	15.0	
Industrial & Bulk	4"	100 mm	10	5.9	25.0	
	6"	150 mm	11	9.2	50.0	
	8"	200 mm	3	12.6	80.0	
	10"	250 mm	2	15.9	115.0	
total			6,731			

2.8 Performance - Variable Charge

2.8.1 Residential Consumption

This figure shows the distribution of Residential billings. In the Summer of 2013, 50% of customer bills were charged for consuming 72 m³ of water or less.

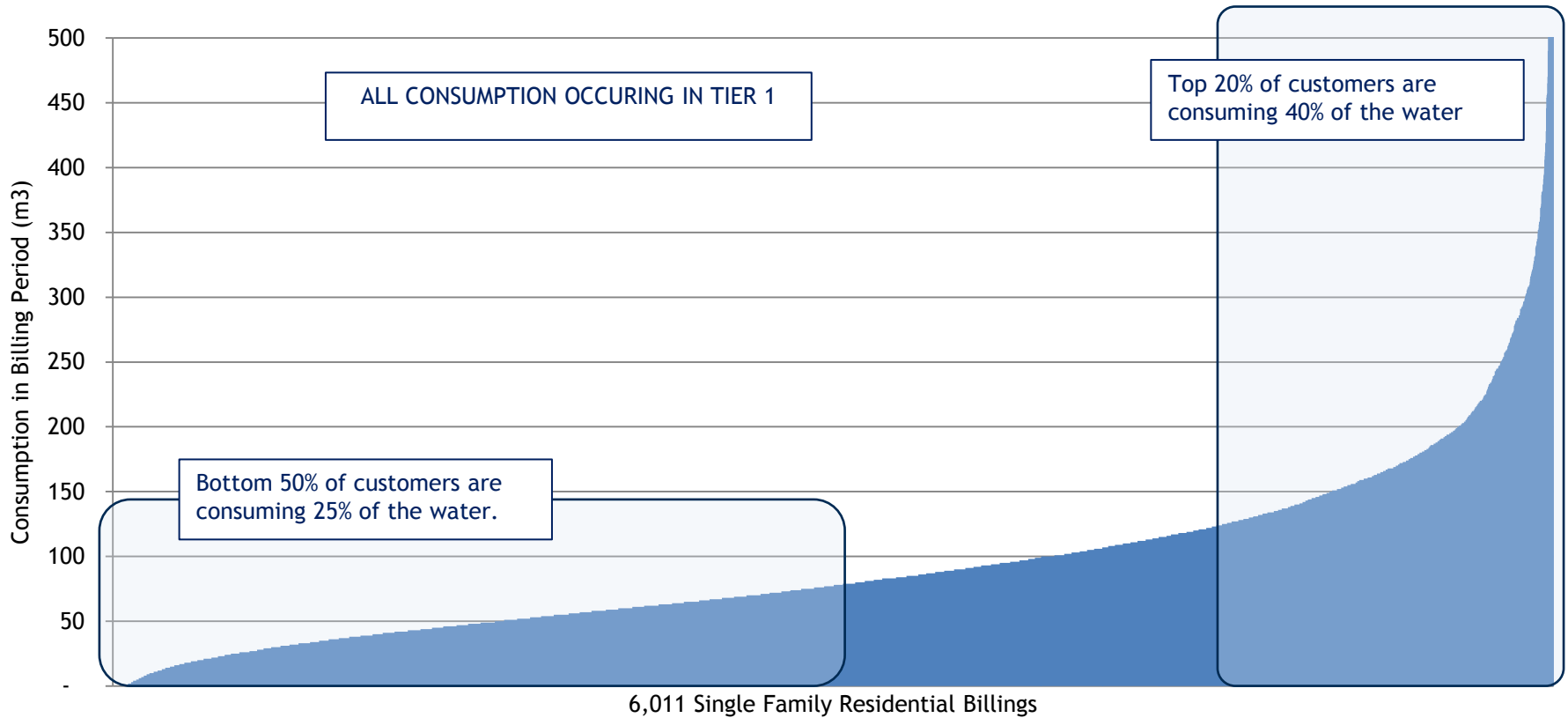


Figure 17: Residential Bill Tabulation - Summer 2013

2.8 Performance - Variable Charge

2.8.1 Commercial Consumption

This figure shows the distribution of Commercial billings.

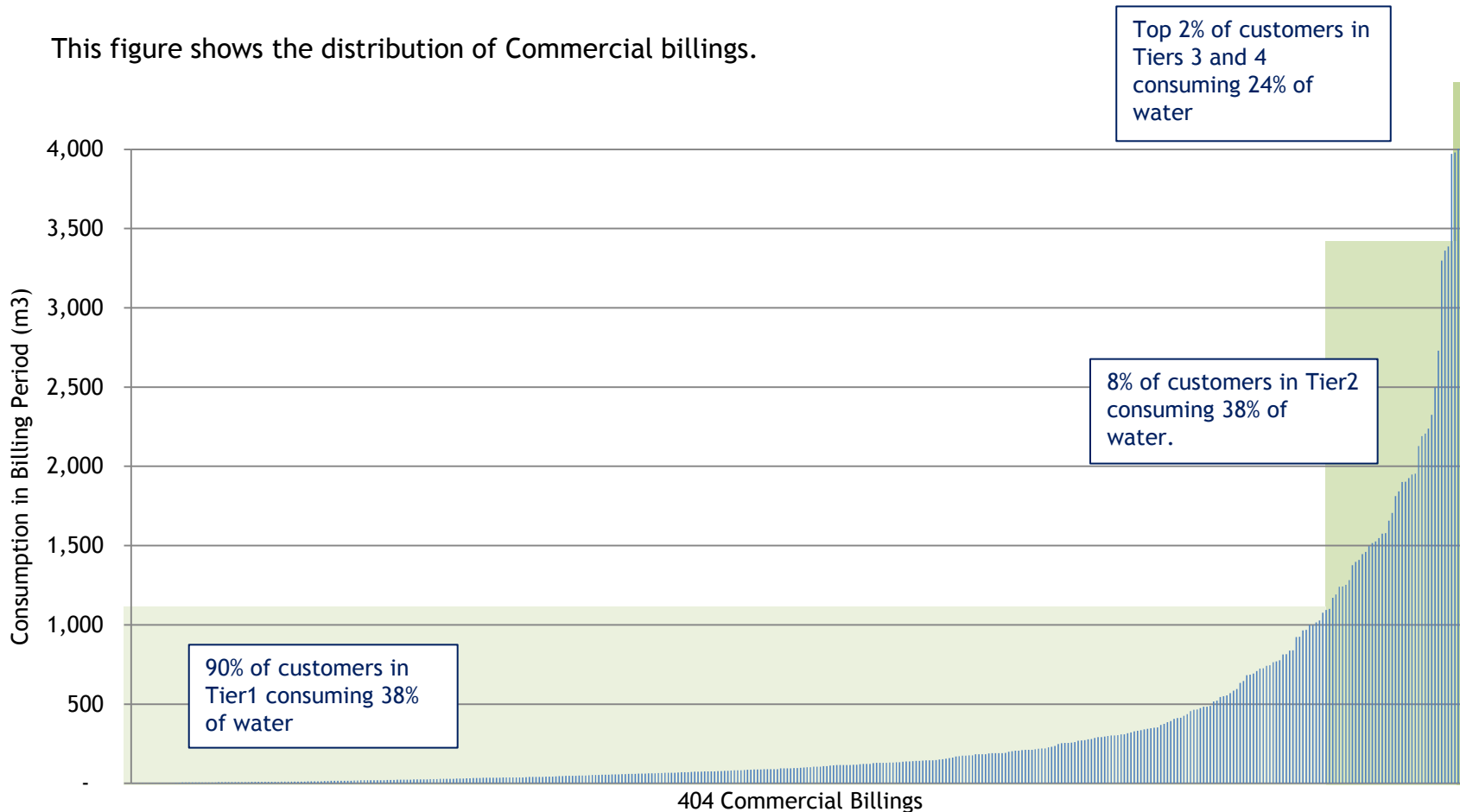


Figure 18: Commercial Bill Tabulation - Summer 2013

3.0 POPULATION & DEMAND PROJECTIONS

3.1 POPULATION FORECAST

3.2 DEMAND FORECAST 2014

3.3 PER CAPITA 20 YEAR DEMAND FORECAST

3.4 SECTORAL AND TOTAL 20 YEAR DEMAND FORECAST

3.1 Population Forecast

Population growth in the City is expected to be in the range of 0.2% to 0.5% in the near future. For purpose of developing a 20 year rate model, population growth rate of 0.2%*.

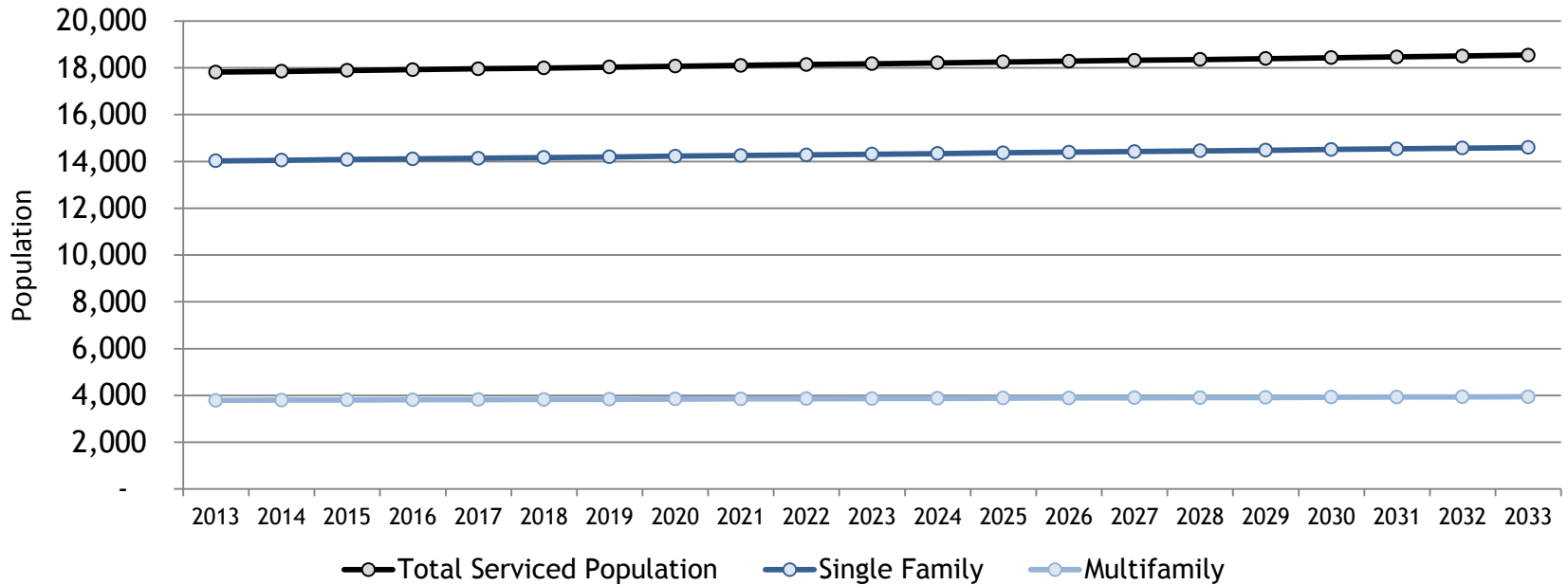


Figure 19: Serviced City Population Forecast (2013-2033)

* Population projections in other documents, such as the OCP or Master Water Plan may use higher population growth rates since they are concerned about reaching capacity limits. For the purposes of setting rates, a lower rate is used to be more conservative with pricing.

3.2 Demand Forecast 2014

Billable demand for 2014 will increase due to addition of Beaver Creek. Baseline demand from 2013 expected to decrease somewhat due to trends in declining demand.

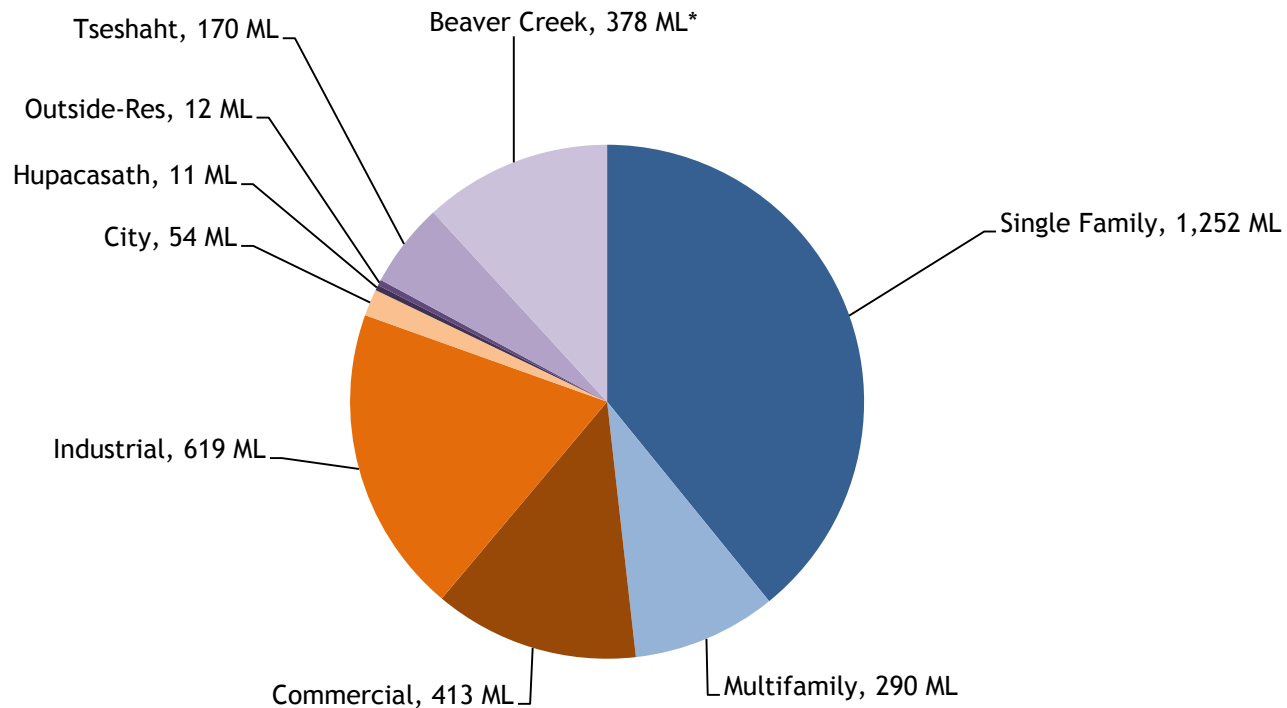


Figure 20: Projected Billable Demand for 2014 (Total 3,199 Megalitres)

* Beaver Creek actually came online in June of 2014. Amount shown includes consumption from Jan through May as well although source of supply was not from City for these months.

3.2 Per Capita 20 Year Demand Forecast

Per capita consumption trends in each customer category are shown below. Per capita demand has decreased in recent years mainly across residential customer categories as a result of changes in controls such as fixture efficiency, user behaviour change, and local regulations. These factors will likely continue to reduce per capita demand (albeit at a slower rate as time progresses) as demonstrated by the gradually decreasing per capita demands.

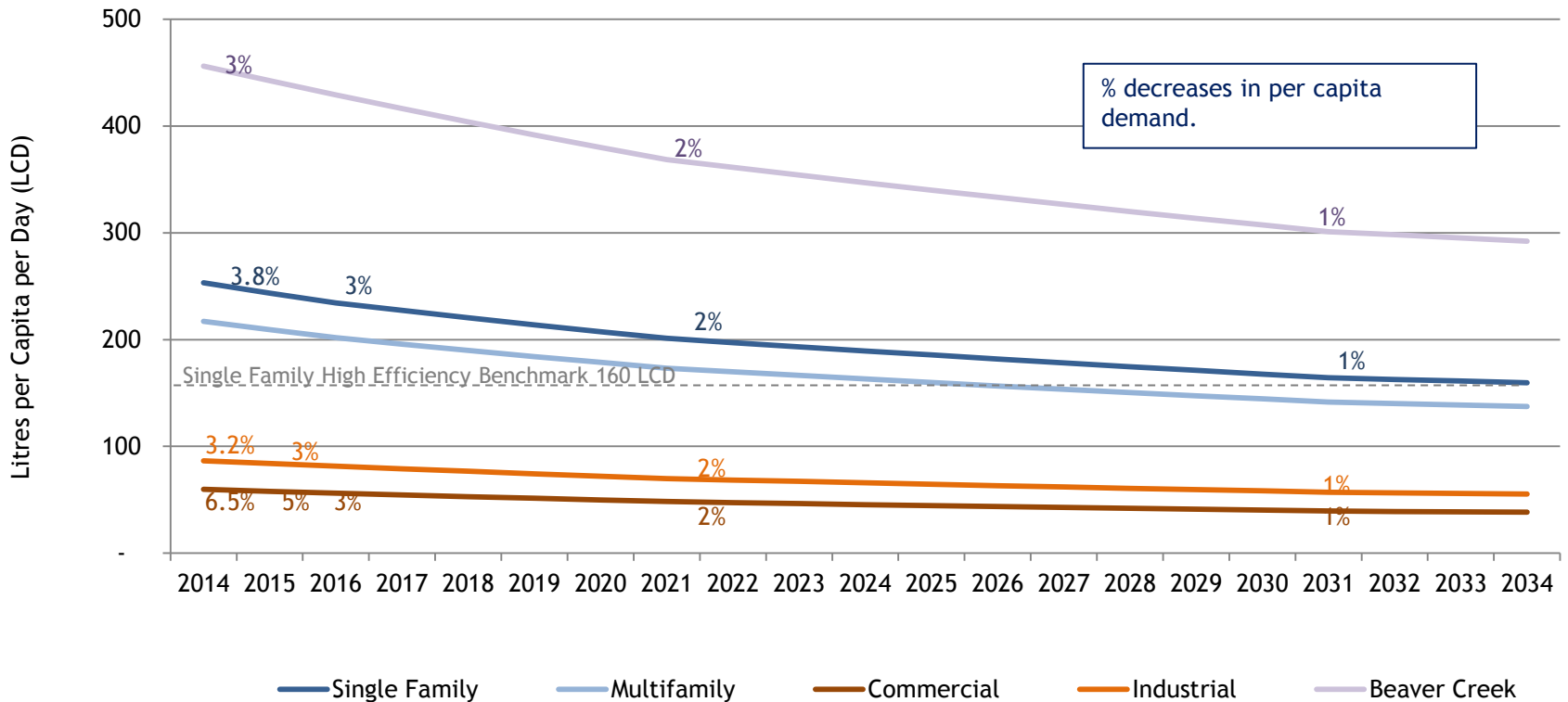


Figure 21: Customer Category per Capita Demand Forecast (2013-2033)

3.3 Sectoral and Total 20 Year Demand Forecast

The forecasted billable demand shown in Figure 11 is developed using population and per capita demand forecasts. Total demand is forecasted to decline steadily over the 20 year time horizon.

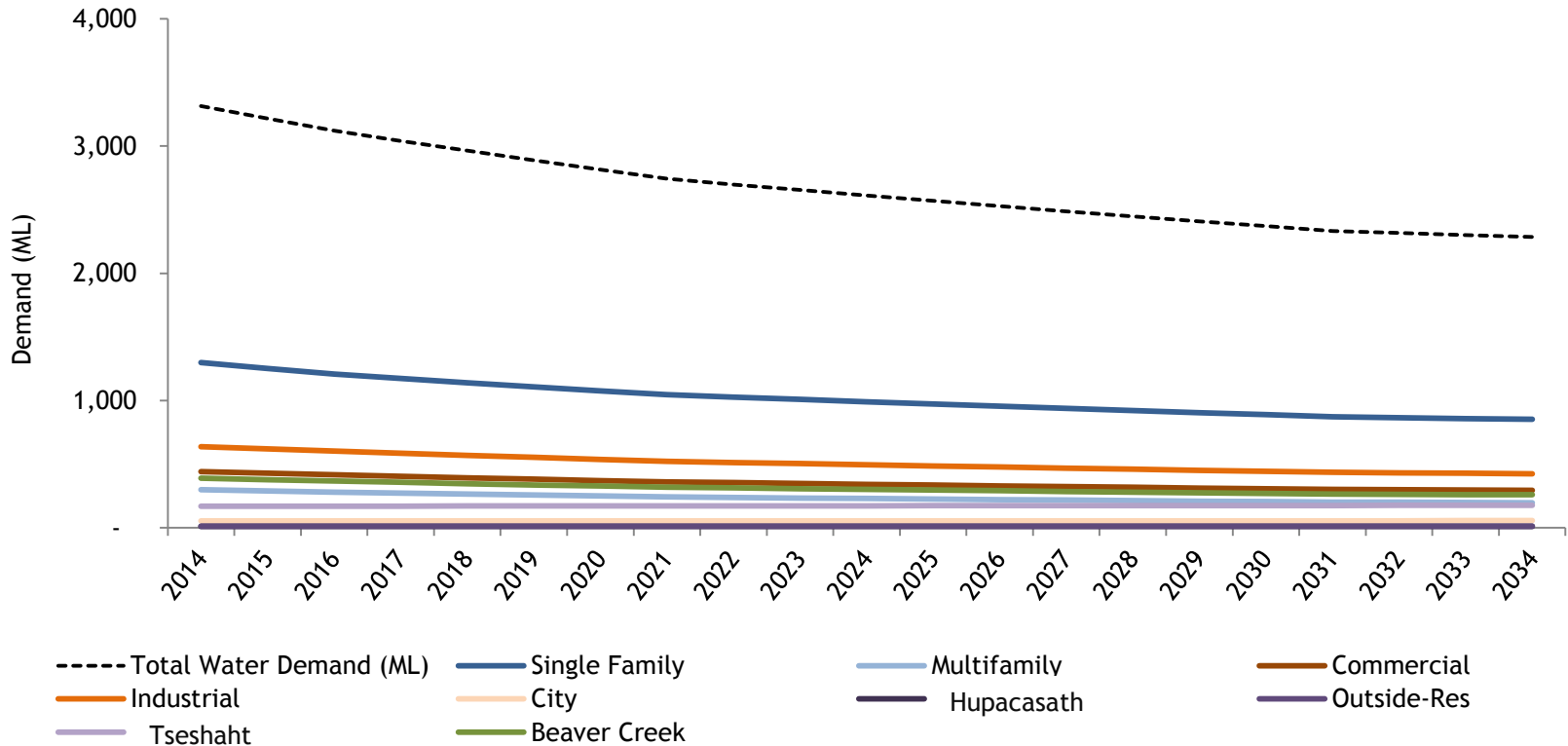


Figure 22: Customer Category and Total Demand Forecast (2013-2033)

4.0 LONG TERM FINANCIAL MODEL

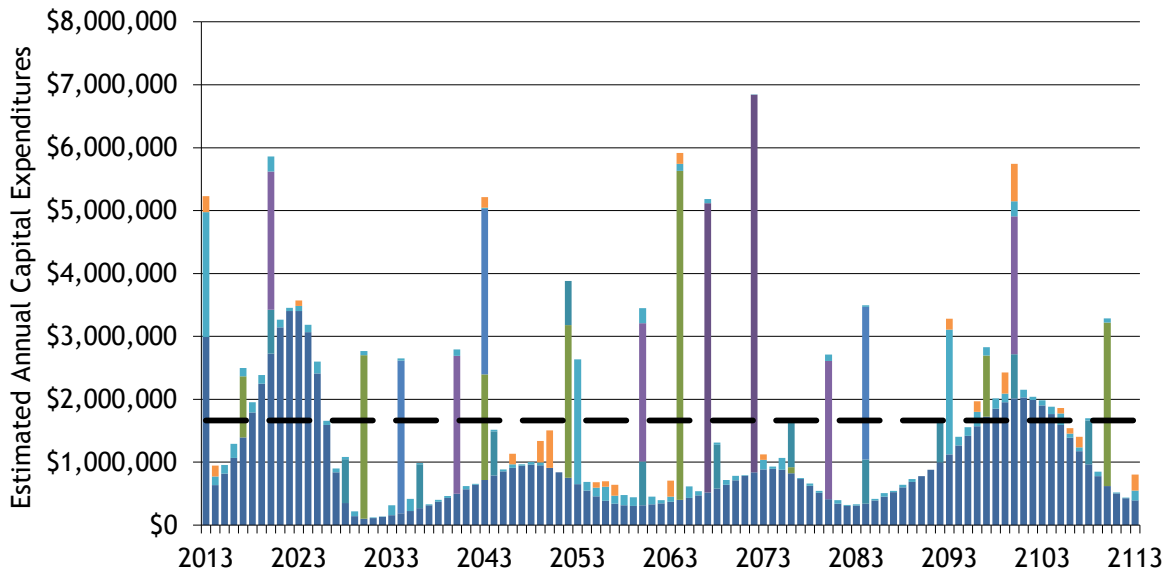
4.1 ANNUAL CONTRIBUTIONS FOR ASSET REPLACEMENT

4.2 GENERAL WATER FUND ANALYSIS

4.0 Long Term Financial Model

4.1 Annual Contribution for Asset Replacement

This chart shows anticipated infrastructure expenditures over the next 100 years. The average annual cost in current dollar terms is shown by the dashed line and is equal to \$1,66m per year. This amount is termed the Annual Cost of Sustainable Ownership (ACSO). The actual amount budgeted and allocated towards asset renewal is termed the Annual Contribution for Asset Replacement (ACFAR). ACFAR should match ACSO. Presently and over the past few years ACFAR has been about \$600,000.



Figures are in 2013\$ and not adjusted for inflation.

Figure 23: Annual Cost of Sustainable Ownership (ACSO)

Table 4: Asset Replacement Value

Asset Type	Replacement Value in \$2013 \$
Pipes	62,140,386
Reservoirs	13,013,500
New Treatment Plant	10,600,000
SCADA	700,552
Pump Stations	5,055,492
Meters	2,196,675
Hydrants	4,925,484
Pressure Reducing Stations	2,125,000
	\$ 100,757,089

- Equipment
- PRV
- Hydrant
- Meter
- Service
- Pumping
- Building
- SCADA
- Treatment
- Storage
- Supply
- Linear
- • 100 year average

4.0 Long Term Financial Model

4.2 General Water Fund Analysis

This chart compares operating revenues and operating expenses over the next 20 years. The proposed increases are shown in Table 2. These increases will ensure that the Net Balance of Fund maintains the current balance.

Table 5: Recommended Annual Increases to Operating Revenues

Year	Revenue Increase
2014	8%*
2015	10%
2016	10%
2017	10%
2018	5%
2019	5%

* 10% increase applied to only 2 of 3 billings

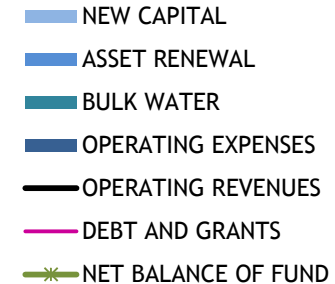
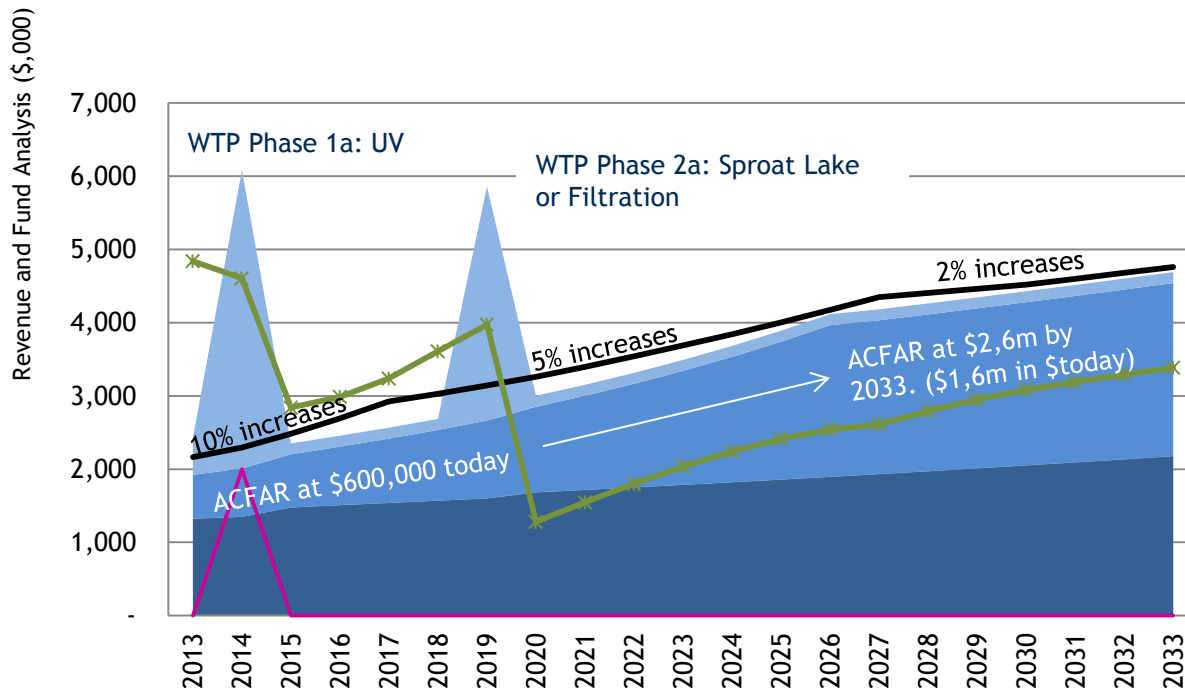


Figure 24: Revenues and Expenditures with Annual Increases as shown in Table 5.

5.0 COST OF SERVICE ANALYSIS

- 5.1 LEVELS OF SERVICE**
- 5.2 COSTS OF SERVICE**
- 5.3 COST ALLOCATION**
- 5.4 CROSS SUBSIDY ANALYSIS**

5.0 Cost of Service Analysis

5.1 Levels of Service

The water service can be subdivided into several subset components as shown in the table below. The Level of Service provided through each component is described in the table and the Units of Service shown. The Costs apportioned to each service component is shown and the total adds up to the total expected revenues for the year shown. The Cost of Service divided by the Units of Service gives the Unit Cost of Service. These Unit Costs will be applied to each customer category depending on their portion of Units of Service “consumed”.

Table 6: 2014 Levels of Service

Service	Description	Units of Service	Cost of Service	Unit Cost of Service
Administration	Administrative and customer support services to customers including: management, planning, call support, billing, and other administrative functions.	6,657 bills	\$200,381	\$30.10 per bill
Service Connections	Maintenance of service connections and meters. Meter Equivalency (ME) ratio based on CWWA/AWWA recommendations.	12,571 equivalent meters	\$366,177	\$29.13 per equiv. meters
Base Service	Basic operations: supply, treatment, storage, and distribution.	3,313,590 m3	\$1,160,102	\$0.35 per m3
Max Day Extra Capacity	Extra capacity provided during peak periods.	4,913 m3/day	\$547,965	\$111.54 per m3/day
Total Cost			\$2,274,625	

5.0 Cost of Service Analysis

5.2 Cost of Service

The cost of service is re-calculated separately for each year throughout the 20 year time horizon so that inflation, population growth and per-capita demand changes are taken into consideration in each year.

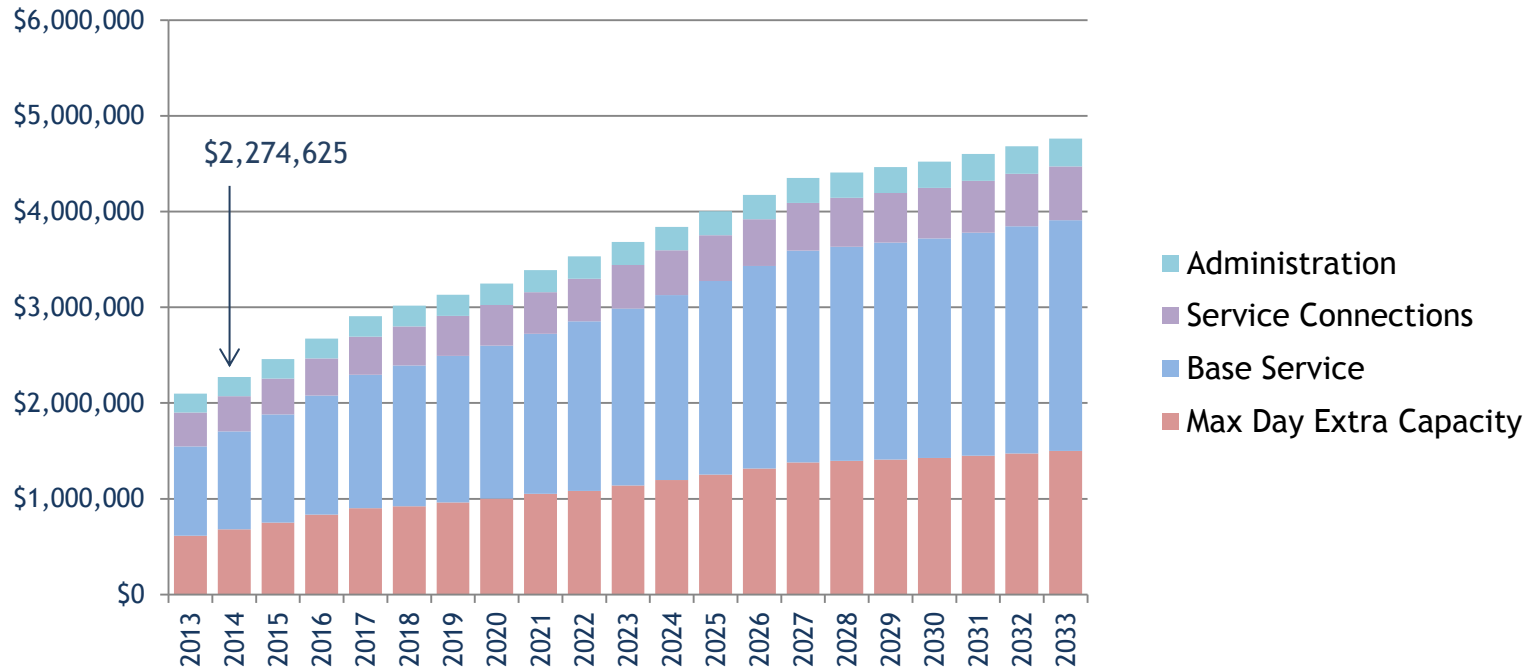


Figure 25: Cost of Service Components over 20 Years.

5.0 Cost of Service Analysis

5.3 Cost Allocations

The units of service shown in the table at the left are “consumed” in varying amounts by the different customer classes. The chart at the right shows the proportion of each service that is “consumed” by each customer class.

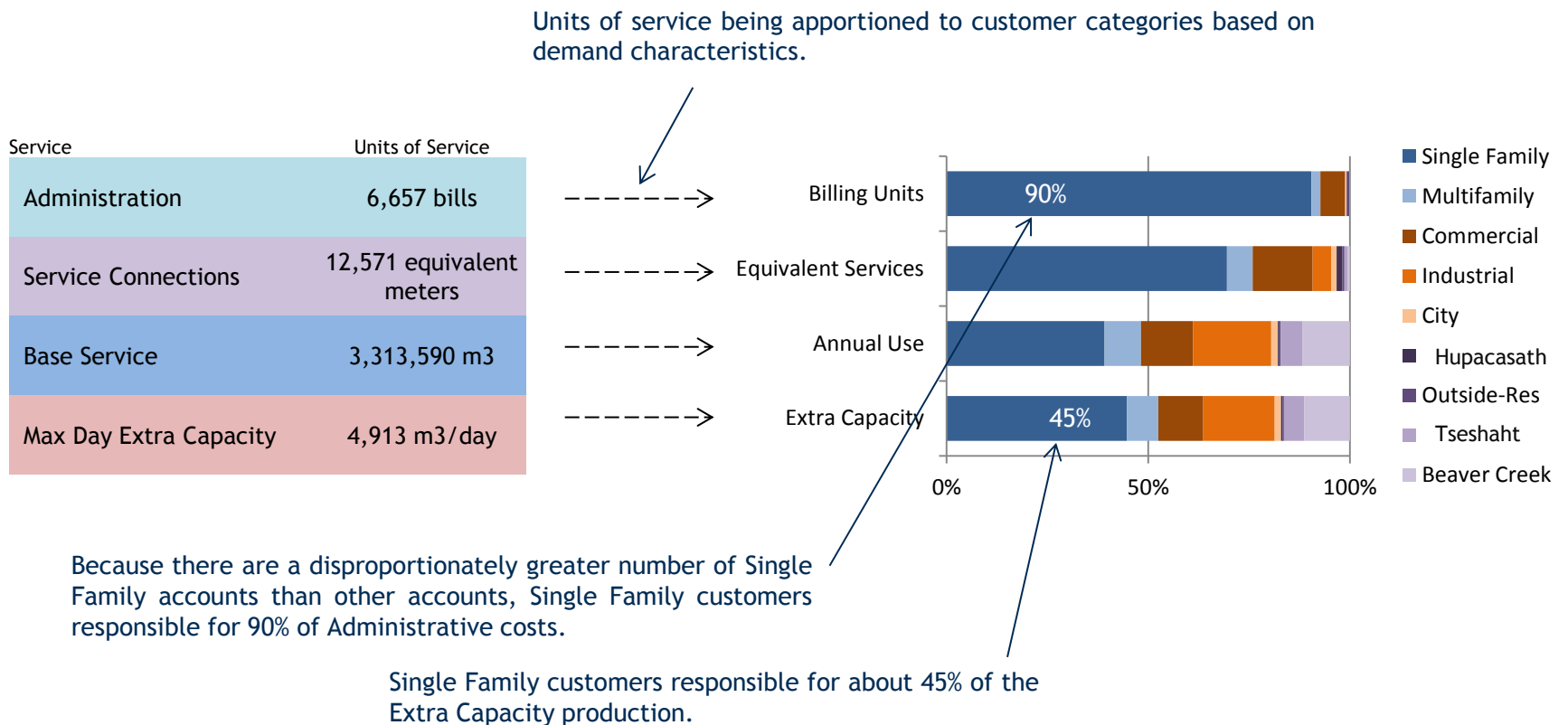


Figure 26: Apportioning Costs to Customers using Units of Service and Unit Costs.

5.0 Cost of Service Analysis

5.3 Cost Allocations

The customer-category-specific Cost of Service is determined by “multiplying” a 20 year projection of service costs to the customer demand characteristics matrix.

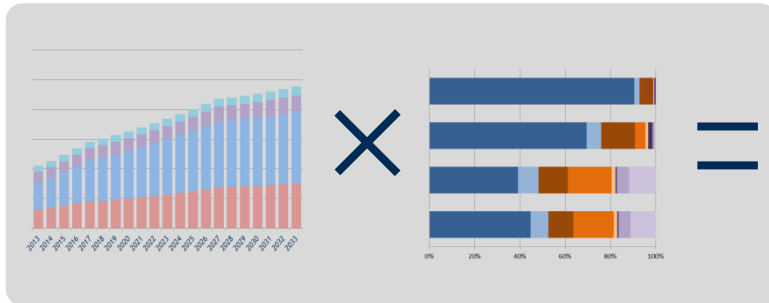
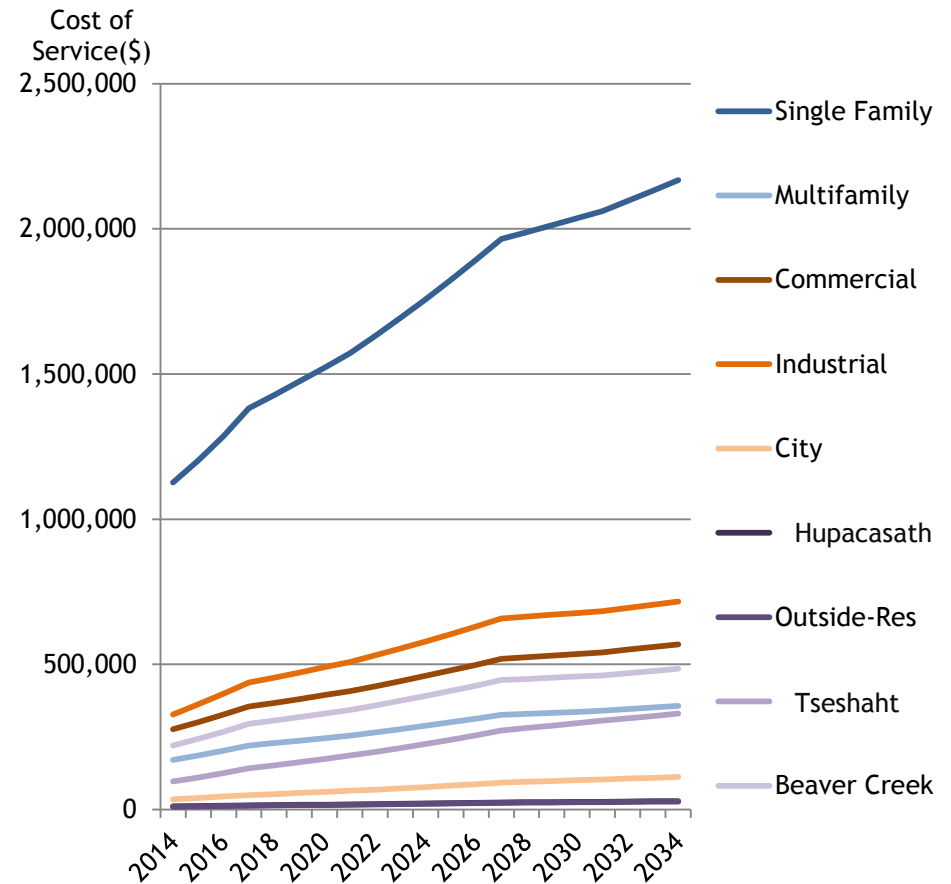


Figure 27: Allocation of 20 year costs to customer categories.



5.0 Cost of Service Analysis

5.4 Cross-Subsidy Analysis

The following graph shows for each customer category, how much their contribution towards revenues matches to the cost of service for the category. Assumes that revenue increases are applied equally to all categories over the next 20 years.

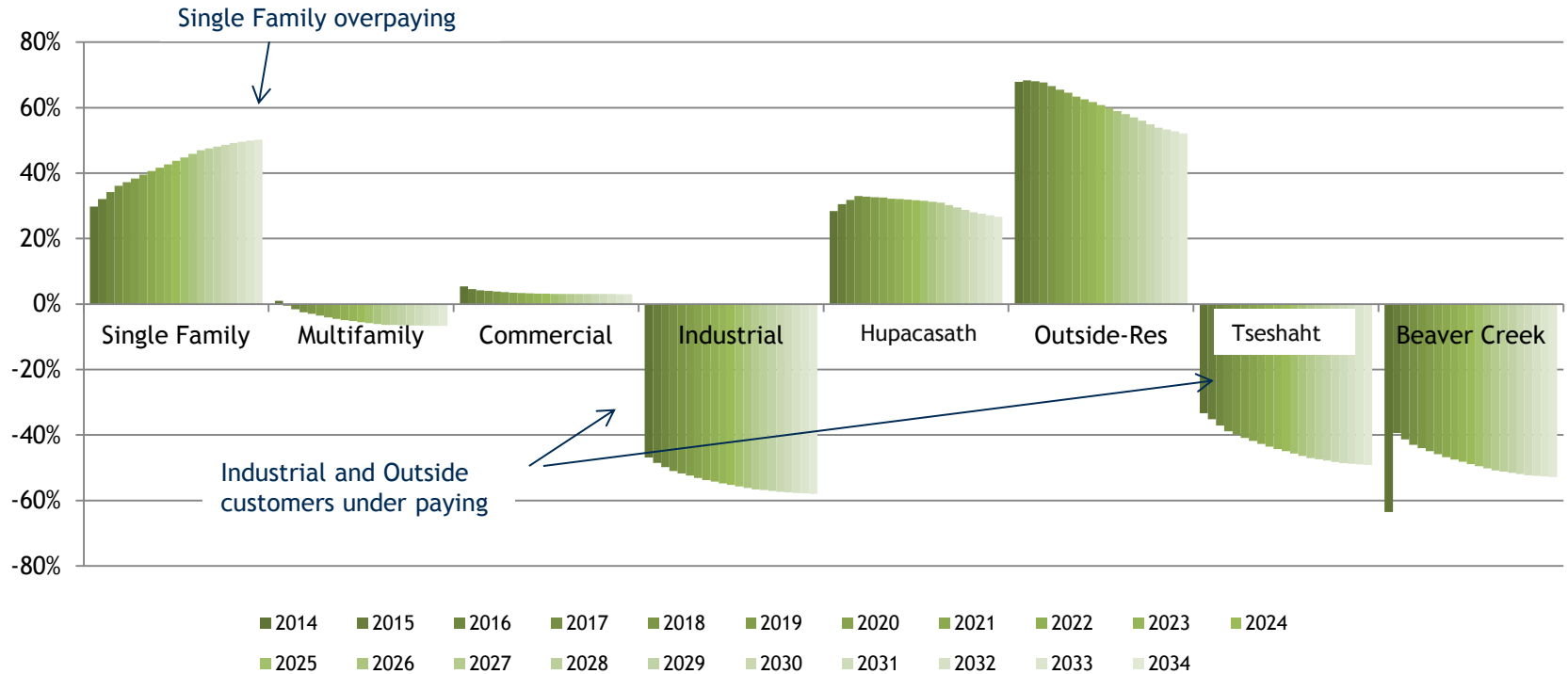


Figure 28: Comparison of over/under Contributions (cross subsidies) by Customer Class.

6.0 RATE STRUCTURE SCENARIOS

6.1 SCENARIO 1

6.0 Rate Structure Scenarios

6.1 Scenario 1

Methodology:

1. Add Beaver Creek Service Area to rate model. Rate at 75% of Single Family Residential Tier 1 Rate.
2. First step in rebalancing Equity.
3. Increase fixed charge component to bring meter-based fixed charges half-way towards AWWA/CWWA recommendations.
4. Different variable charges for each customer category allows flexibility in achieving objectives. Inclined block rate structure for Single Family Residential, Outside-Res; uniform charge for all other categories.
5. Adjust variable charges to ensure total revenues lines up with planned revenues from long term financial plan.
6. Adjust variable charges differently to maximize equity.
7. Hupcashth agreement remains.

6.0 Rate Structure Scenarios

6.1 Scenario 1

The two charts below show the effects on average cost of water of applying the recommended updates to the rate structure under scenario 1 as compared with the status quo.

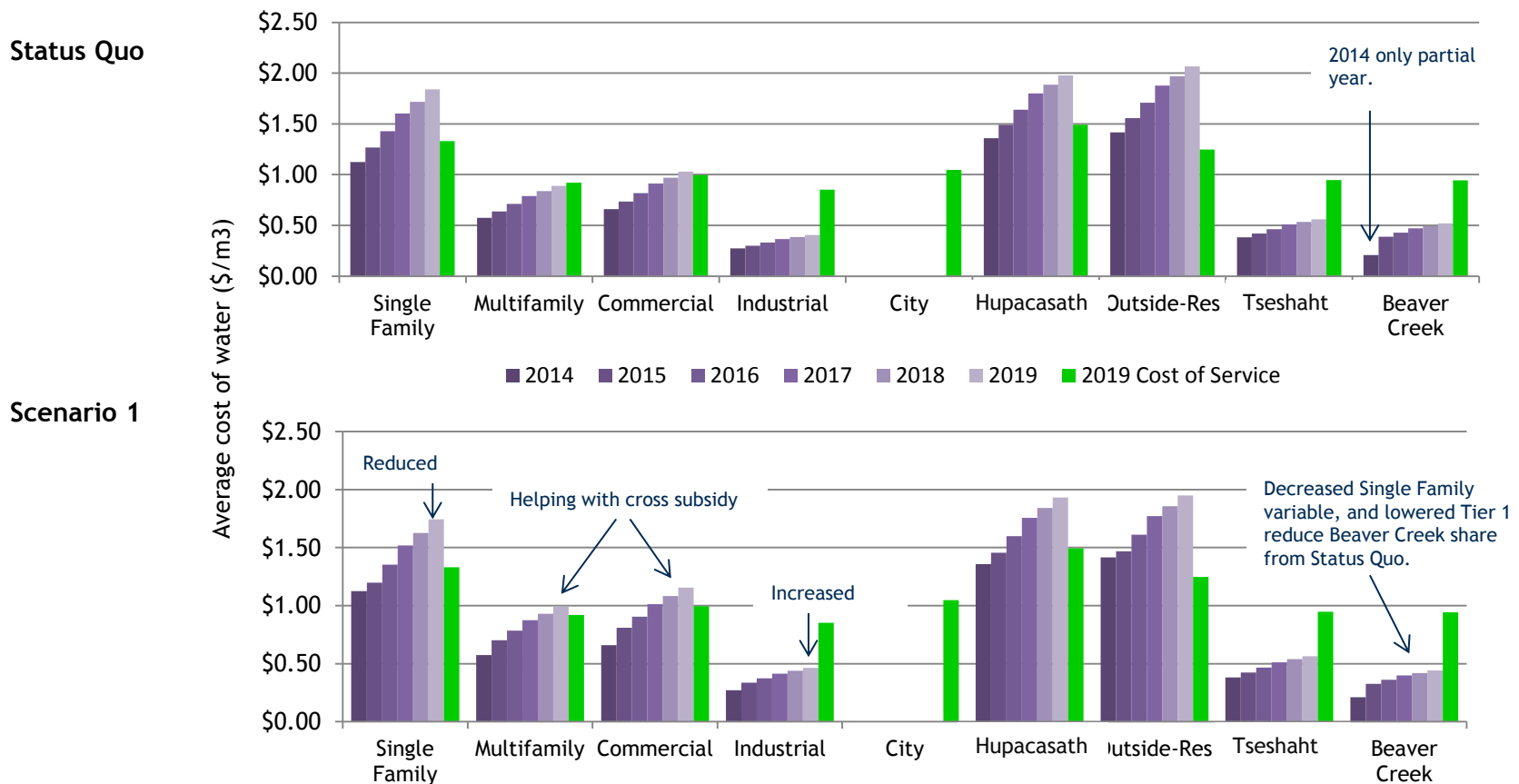


Figure 29: Average cost of water by customer category over next 5 years.

6.0 Rate Structure Scenarios

6.1 Scenario 1

The two charts below show the effects on percent subsidy of applying the recommended updates to the rate structure under scenario 1 as compared with the status quo.

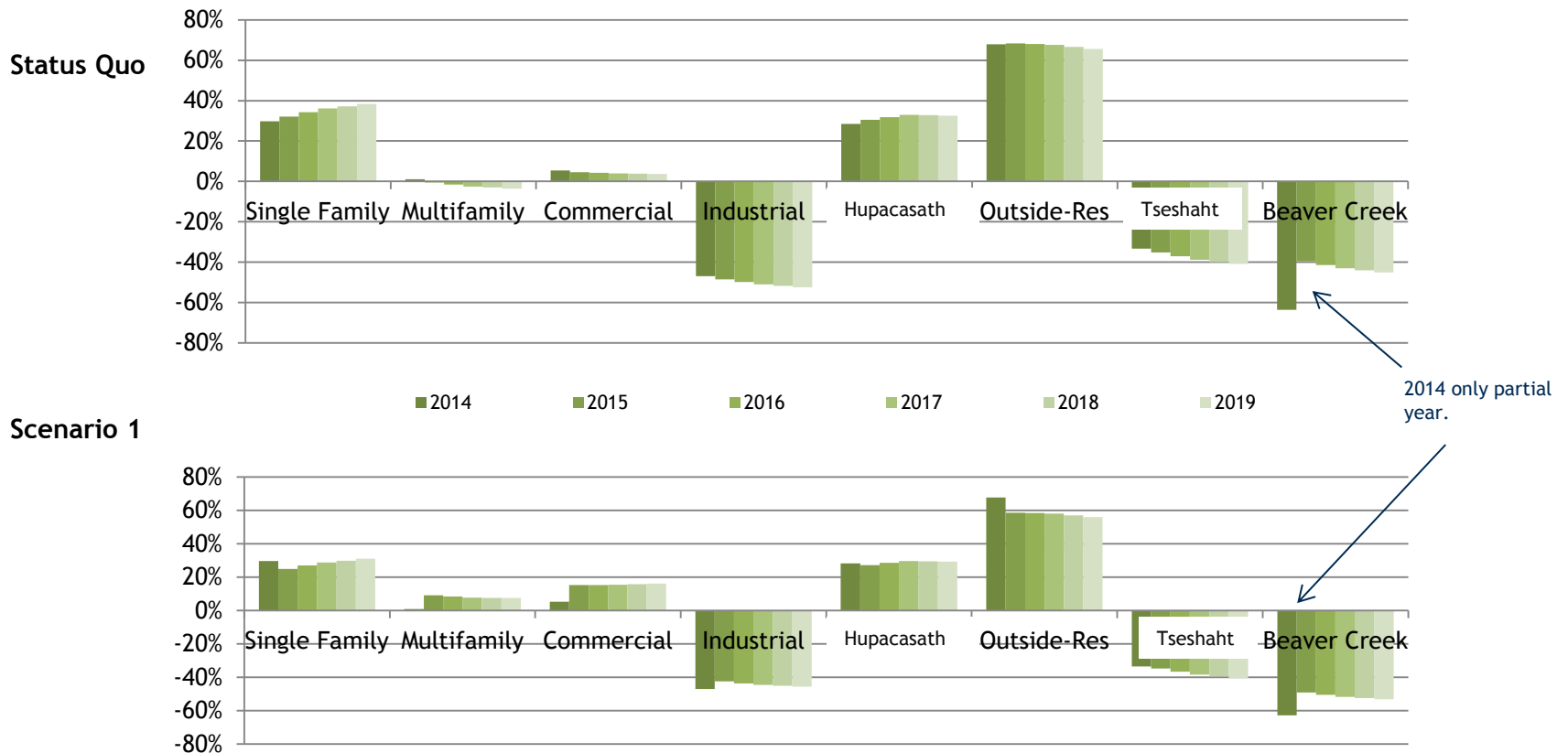


Figure 30: Percent over/under payment (cross subsidies) from cost of service.

6.0 Rate Structure Scenarios

6.1 Scenario 1

The two charts below show the effects on fixed portion of revenues of applying the recommended updates to the rate structure under scenario 1 as compared with the status quo.

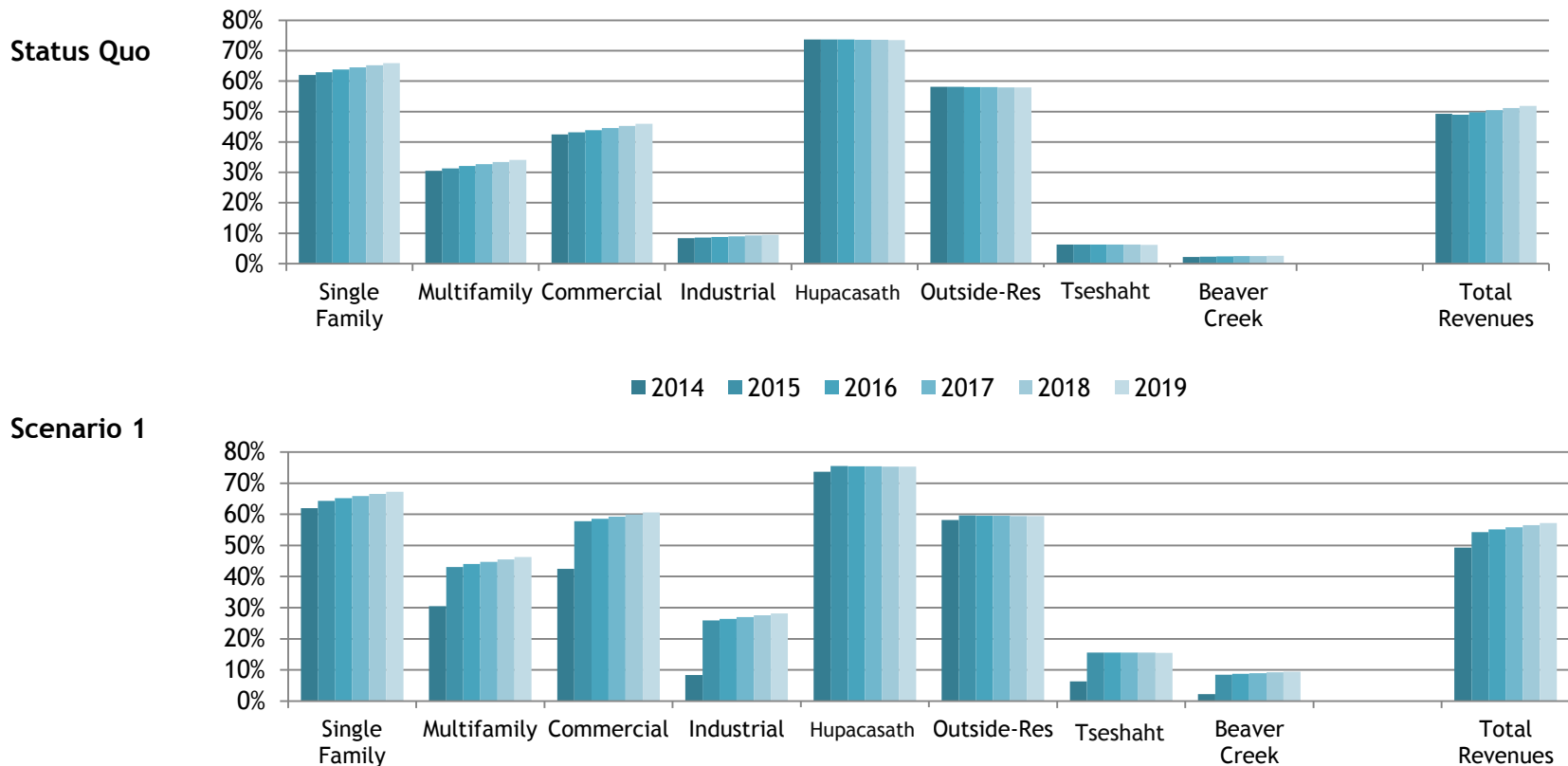


Figure 31: Percent portion of charges that are fixed.

6.0 Rate Structure Scenarios

6.1 Scenario 1

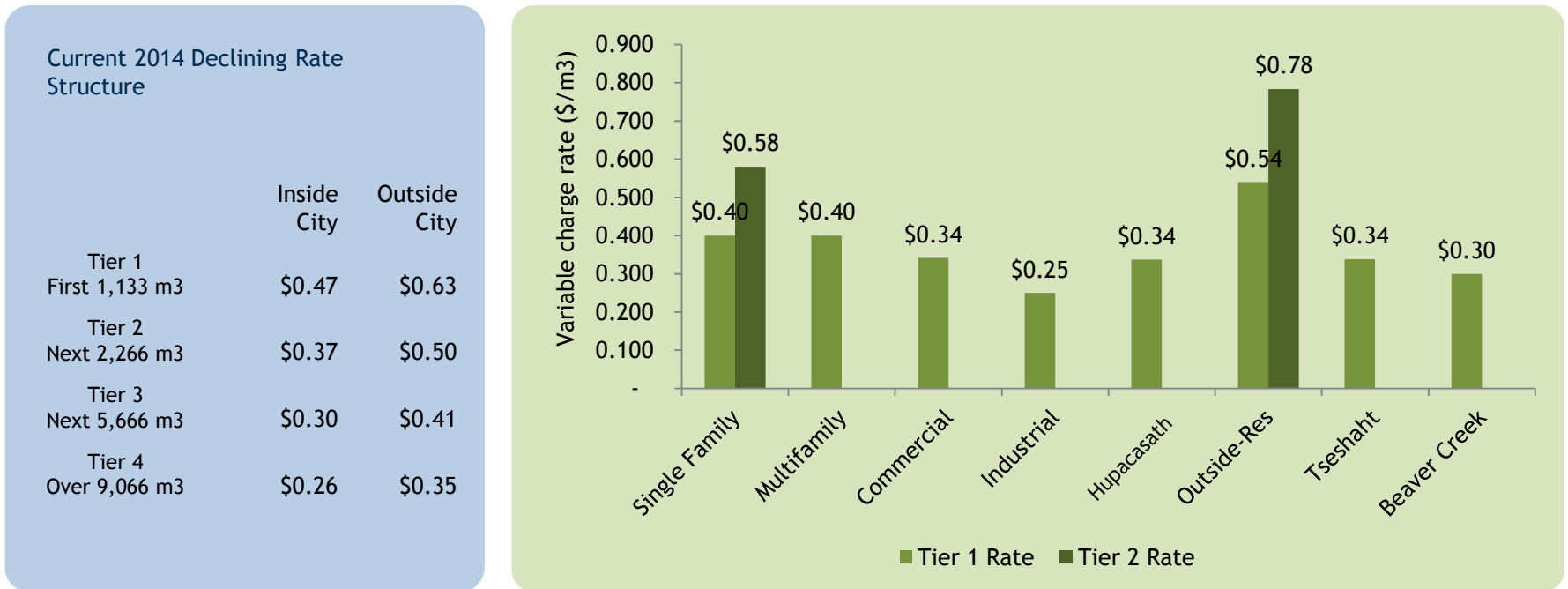
Table 7: Proposed changes to fixed charges

Typical Customers	Meter/ Service Connection Size		# Meters and Services	Water Meter Equivalency (ME) Ratios					
	Imperial	Metric		Current 2014 Charge Rates	Current Implied ME Ratios	CWWA/AWWA Recommended ME Ratios	Proposed ME Ratios	Increase to current charge rate	Proposed 2015 Monthly Charge Rate
Residential Sm.	5/8"	16 mm	794	\$13.31	1.0	1.0	1.0	0%	\$13.31
Multifamily & Sm.	3/4"	19 mm	5592	\$13.31	1.0	1.5	1.5	0%	\$13.31
Commercial	1"	25 mm	86	\$26.98	2.0	2.5	2.4	18%	\$31.84
Sm. Commercial & Multifamily, City	1.5"	38 mm	81	\$32.18	2.4	5.0	3.7	53%	\$49.25
Industrial	2"	50 mm	123	\$39.57	3.0	8.0	5	68%	\$66.55
	3"	75 mm	31	\$59.14	4.4	15.0	10	125%	\$133.00
Industrial & Bulk	4"	100 mm	10	\$78.72	5.9	25.0	15	154%	\$200.00
	6"	150 mm	11	\$123.07	9.2	50.0	30	224%	\$400.00
	8"	200 mm	3	\$167.41	12.6	80.0	46	266%	\$612.00
	10"	250 mm	2	\$211.76	15.9	115.0	66	315%	\$878.00
total			6,731	Existing			Proposed changes to fixed charges rebalances rate equity while bringing ME ratios more in line with industry standard.		

6.0 Rate Structure Scenarios

6.1 Scenario 1

Figure 32: Existing and Proposed Variable Charge Rates



6.1 Scenario 1

6.1.1 Single Family Residential



+2.8%
Revenue Requirements

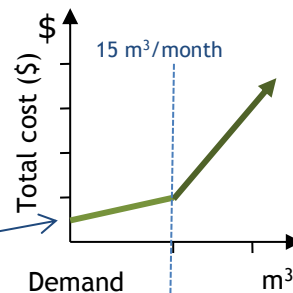
Revenue Requirement		2014	2015
fixed		905,544	966,333
variable		555,500	535,460
		<u>1,461,043</u>	<u>1,501,792</u>
			2.8%

Minimum Charge

There is a minimum fixed charge billed regardless of water use which is based on meter size.

Meter Size	Metric	Services	2015
5/8"	16mm	737	\$13.31
3/4"	19mm	5276	\$13.31
1"	25mm	4	\$31.84
1.5"	38mm	3	\$49.25
2"	50mm	5	\$66.55

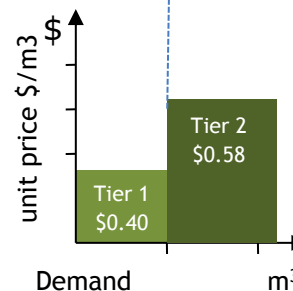
No change to most Single Family customers' fixed monthly charge.



Sample Billing

Sample Triannual Bill (75m ³)		
5/8" Meter	\$13.31 x 4	\$53
Tier 1	60m ³ @\$0.4/m ³	\$24
Tier 2	15m ³ @\$0.58/m ³	\$9
		<u>\$86</u>

Variable Charge



Tier 1 lower than 2014 rate of \$0.471.
Tier 2 not much higher than 2015 status quo rate of \$0.518.

6.1 Scenario 1

6.1.2 Multifamily Residential



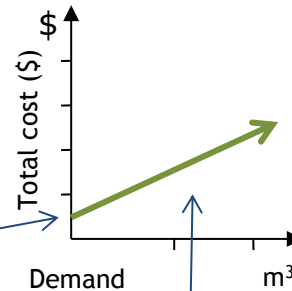
+18%
Revenue Requirements

Revenue Requirement	2014	2015
fixed	52,569	87,703
variable	119,838	115,755
	172,408	203,458
		18.0%

Minimum Charge

There is a minimum fixed charge billed regardless of water use which is based on meter size.

Meter Size	Metric	Services	2015
5/8"	16mm	9	\$13.31
3/4"	19mm	54	\$13.31
1"	25mm	33	\$31.84
1.5"	38mm	21	\$49.25
2"	50mm	38	\$66.55
3"	75mm	8	\$133.10
4"	100mm	2	\$200.00
6"	150mm	1	\$400.00

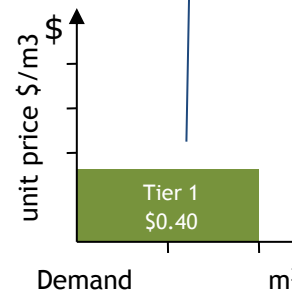


Sample Billing

Sample Triannual Bill (2852m3) - 38 units

2" Meter	\$66.55 x 4	\$266
Tier 1	2,852m3@\$0.4/m3	\$1,141
		\$1,407
	per unit cost	\$37.03

Variable Charge



Tier 1 lower than 2014 rate of \$0.471
No longer have decreasing tiers.

6.1 Scenario 1

6.1.3 Commercial



+19.3%
Revenue Requirements

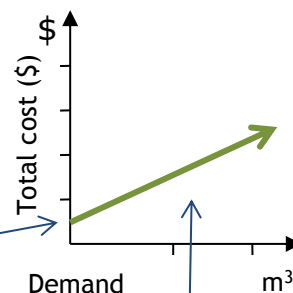
Revenue Requirement	2014	2015
fixed	123,504	200,694
variable	167,260	146,310
	<u>290,764</u>	<u>347,004</u>
		19.3%

Minimum Charge

There is a minimum fixed charge billed regardless of water use which is based on meter size.

Meter Size	Metric	Services	2015
5/8"	16mm	35	\$13.31
3/4"	19mm	228	\$13.31
1"	25mm	45	\$31.84
1.5"	38mm	51	\$49.25
2"	50mm	68	\$66.55
3"	75mm	18	\$133.10
4"	100mm	6	\$200.00
6"	150mm	3	\$400.00

No change to half Commercial customers' fixed monthly charge.

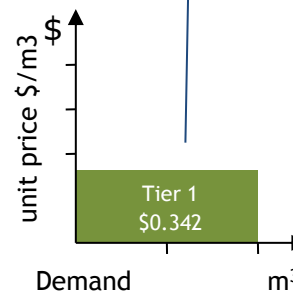


Sample Billing

Sample Triannual Bill (175m³)

1" Meter	\$31.84 x 4	\$127
Tier 1	175m ³ @\$0.342/m ³	\$60
		<u>\$187</u>

Variable Charge



Tier 1 lower than 2014 rate of \$0.471
No longer have decreasing tiers.
Lowest consuming half of Commercial customers will see a decrease in their billing.

6.1 Scenario 1

6.1.4 Industrial



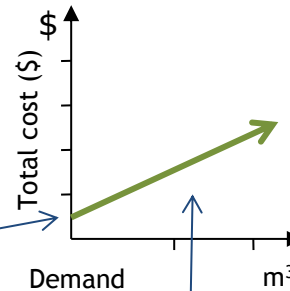
+20.2%
Revenue Requirements

Revenue Requirement		2014	2015
fixed		14,495	54,066
variable		159,441	154,967
		173,936	209,033
			20.2%

Minimum Charge

There is a minimum fixed charge billed regardless of water use which is based on meter size.

Meter Size	Metric	Services	2015
2"	50mm	1	\$66.55
3"	75mm	2	\$133.10
4"	100mm	0	\$200.00
6"	150mm	3	\$400.00
8"	200mm	2	\$613.00
10"	250mm	2	\$878.00

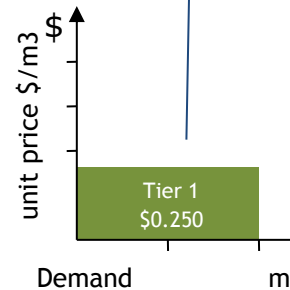


Sample Billing

Sample Triannual Bill (50,000m³)

10" Meter	\$878.00 x 4	\$3,512
Tier 1	50,000m ³ @\$0.25/m ³	\$12,500
		\$16,012

Variable Charge



Tier 1 lower than 2014 lowest tier rate of \$0.262. No longer have decreasing tiers.

6.1 Scenario 1

6.1.5 Hupacasath

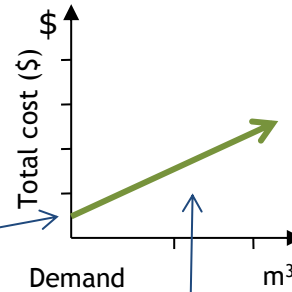


+7.4%
Revenue Requirements

Revenue Requirement		2014	2015
fixed		10,713	11,785
variable		3,819	3,827
		<u>14,533</u>	<u>15,612</u>
			7.4%

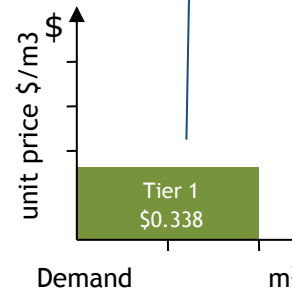
Minimum Charge

No change to special agreement.



Sample Billing

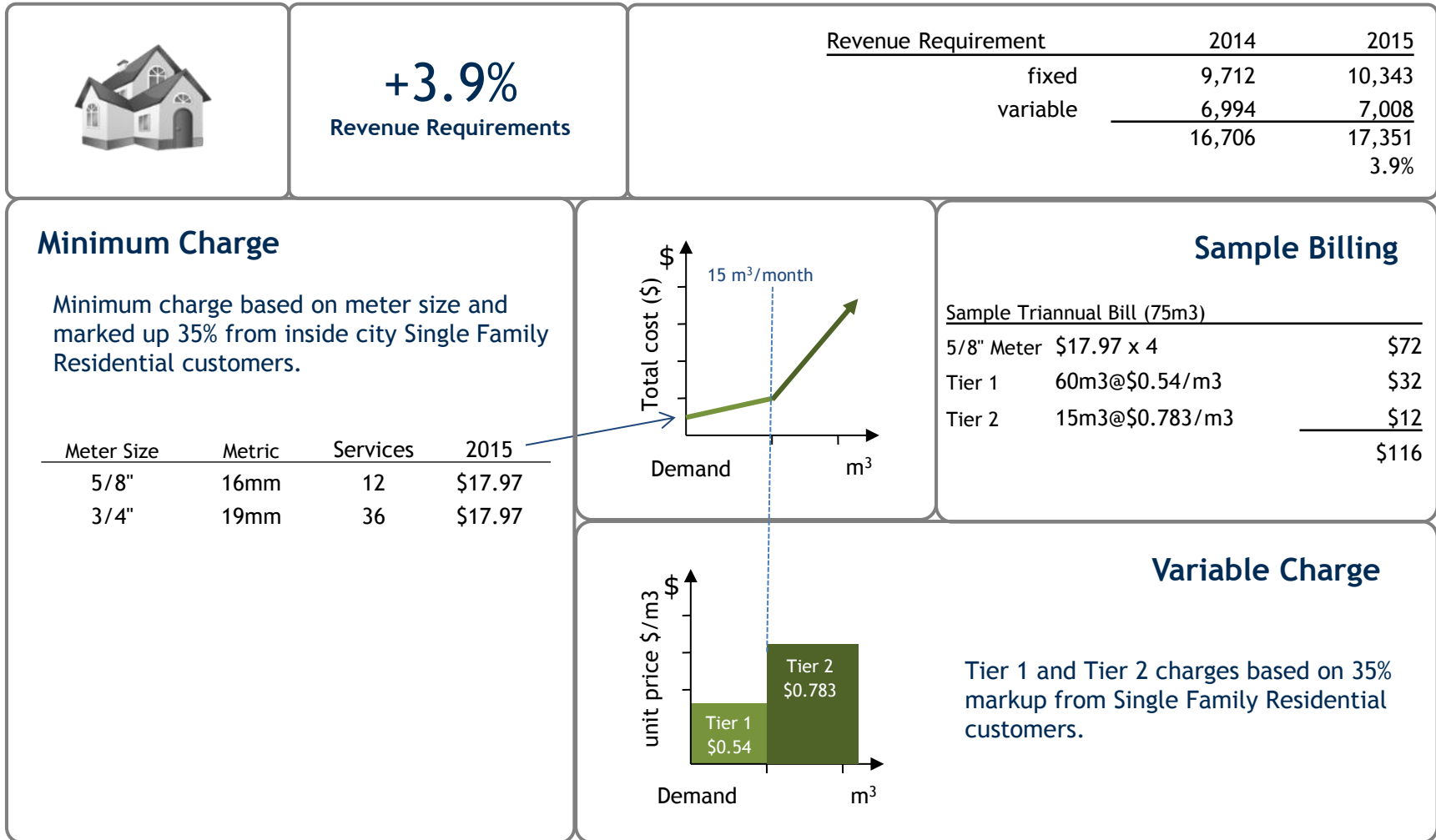
Variable Charge



Variable rate 35% markup from Industrial rate

6.1 Scenario 1

6.1.6 Outside Residential



6.1 Scenario 1

6.1.7 Tseshaht



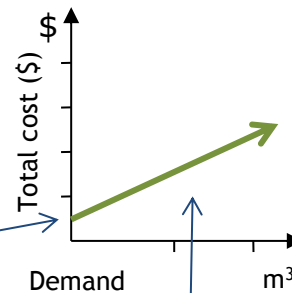
+11.3%
Revenue Requirements

Revenue Requirement	2014	2015
fixed	4,085	11,274
variable	60,822	60,943
	64,907	72,218
		11.3%

Minimum Charge

Based on meter size and marked up 35% from inside city customers.

Meter Size	Metric	Services	2015
1"	25mm	1	\$42.98
2"	50mm	1	\$89.84
4"	100mm	1	\$270.00
6"	150mm	1	\$540.00

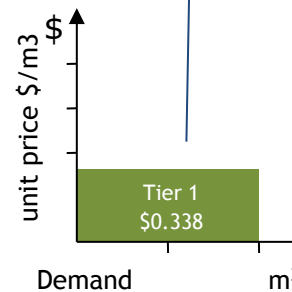


Sample Billing

Sample Triannual Bill (50,000m³)

6" Meter	\$540.00 x 4	\$2,160
Tier 1	50,000m ³ @\$0.338/m ³	\$16,900
		\$19,060

Variable Charge



Variable rate 35% markup from Industrial rate:
 $\$0.25 * 1.35 = \0.338

6.1 Scenario 1

6.1.8 Beaver Creek

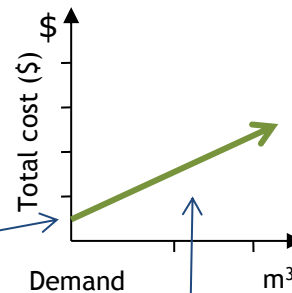


Revenue Requirement	2014	2015
fixed	-	10,500
variable	80,330	113,400
	<u>80,330</u>	<u>123,900</u>

Minimum Charge

Based on meter size and marked up 35% from inside city customers.

Meter Size	Metric	Services	2015
10"	250mm	1	\$878.00



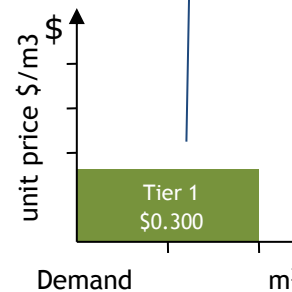
Sample Billing

Sample Triannual Bill (100,000m³)

10" Meter	\$878.00 x 4	\$3,512
Tier 1	100,000m ³ @\$0.3/m ³	\$30,000
		<u>\$33,512</u>

Variable Charge

Variable rate 75% of Single Family
 Tier 1 rate
 75% of \$0.40 = \$0.30/m³



APPENDIX

Indoor Household Efficiency Benchmark



Table 8: Indoor Household Efficiency Benchmark

Category	Per Household Average Monthly Demand*	Per Person (Litres per Capita per day)	Description
Baseline Home	21.6 m ³ /month (@ 3 pph)	240	Existing homes in the general population built prior to 2000.
City of Port Alberni - Proposed Tier 1 threshold	15 m ³ /month (@ 2.33 pph)	215	Average indoor demand for City homes
High Efficiency Home	12.5 m ³ /month (@ 3 pph)	139	Homes meeting the WaterSense New Home specification for fixtures and appliances.

* pph = persons per household

Based on Aquacraft (2011). *Analysis of Water Use in New Single Family Homes*. Prepared for the US EPA and Salt Lake City. Boulder CO.
<http://www.aquacraft.com/sites/default/files/pub/Analysis-of-Water-Use-in-New-Single-Family-Homes.pdf>

Water Use Distribution inside Typical Household

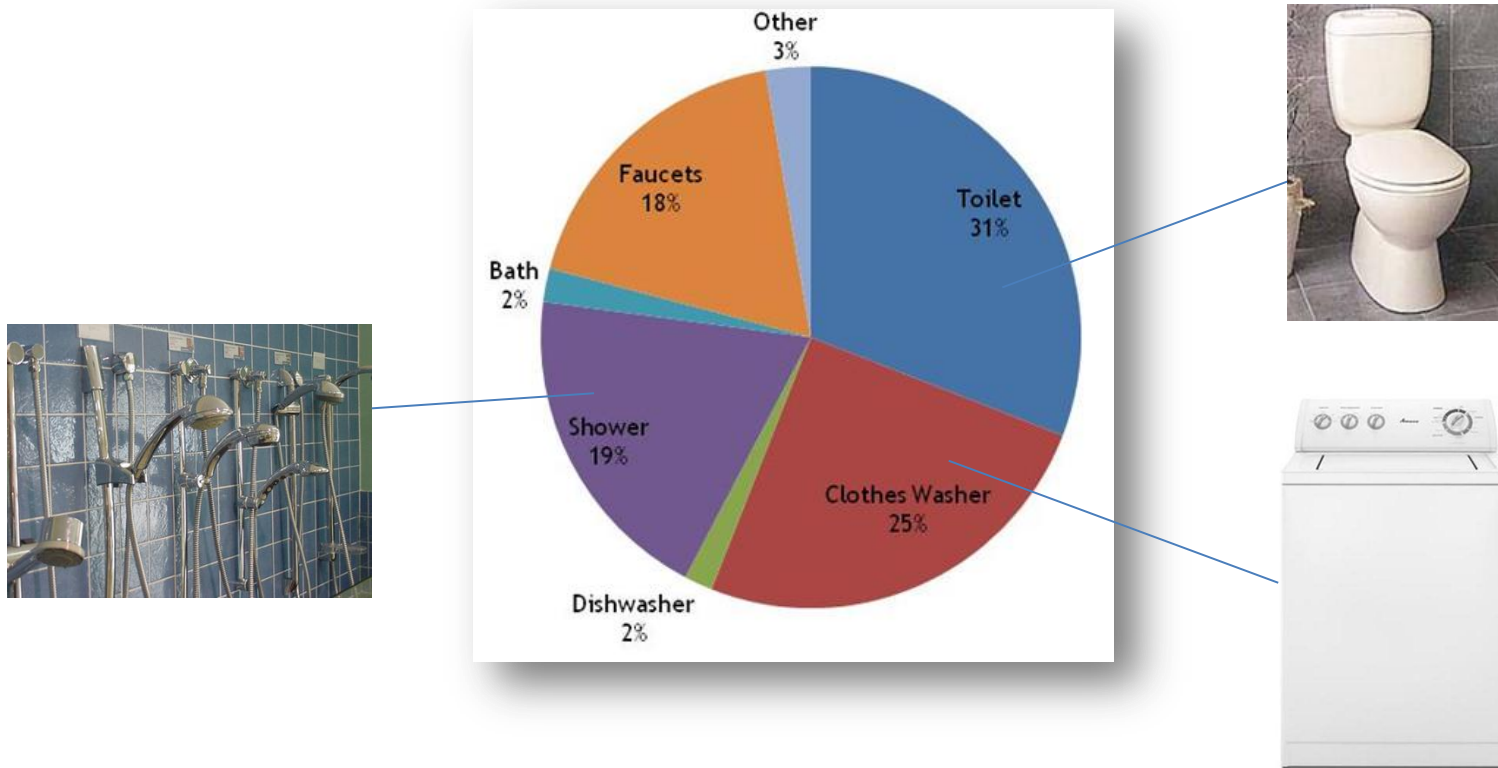
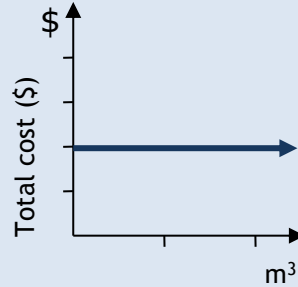
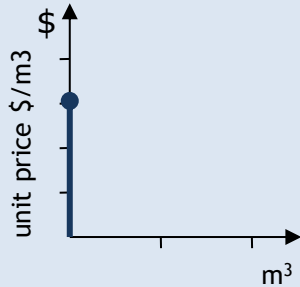


Figure 33: Percent distribution of different end uses within a Single Family household.

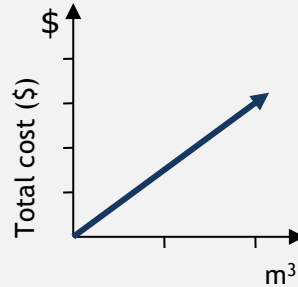
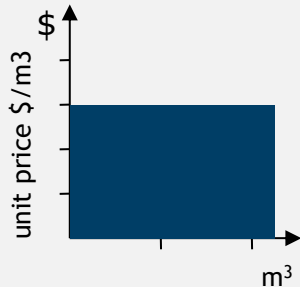
Rate Structures 101

Flat Rate



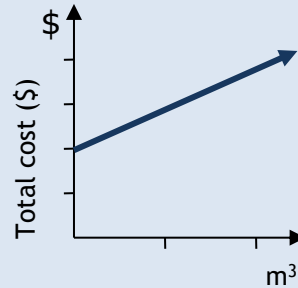
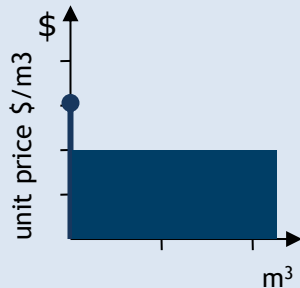
- Fixed price doesn't change with consumption
- 100% reliable revenues
- Does not promote conservation
- Only rate structure available when customers are not metered

Uniform Rate



- No fixed charge
- 100% variable revenues
- Promotes conservation
- Typically used for bulk water service

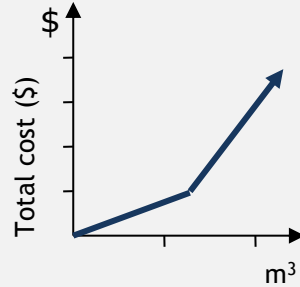
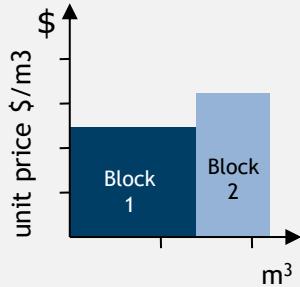
Base Charge + Uniform Rate



- Combines fixed and variable charges
- Promotes conservation
- Balances need for revenue reliability with need to send conservation signal to customers
- Most common rate structure

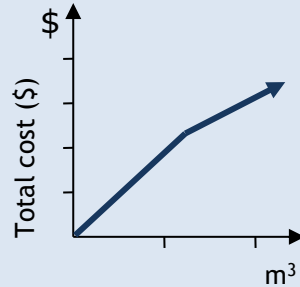
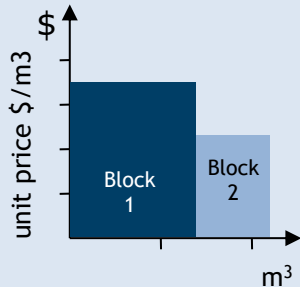
Rate Structures 101

Inclining Block Rate



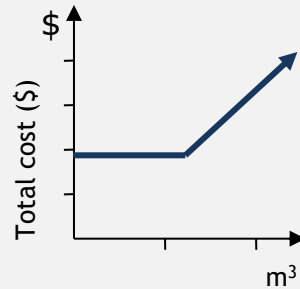
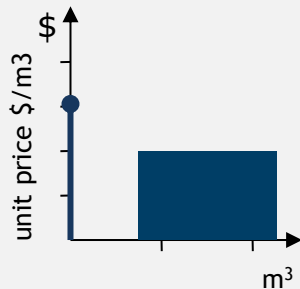
- Unit price of water increases in blocks as customers use more water.
- Sends a strong signal to conserve water
- Typically used with Residential customers
- Can implement more than 2 blocks
- Can also be combined with a fixed charge

Declining Block Rate



- Unit price of water decreases in blocks as customers use more water.
- Does not promote water conservation

Base with Allowance + Uniform Rate



- Can provide customers with a fixed, predictable bill for basic consumption while also promoting conservation at higher uses.
- Can be challenging to communicate, understand and to justify

2.8 Performance - Variable Charge

2.8.1 Residential Consumption

This figure shows the distribution of Residential billings. Each blue bar shows how many bills were issued for the corresponding consumption amount. For example, 274 customers consumed 60 m³ during this billing period.

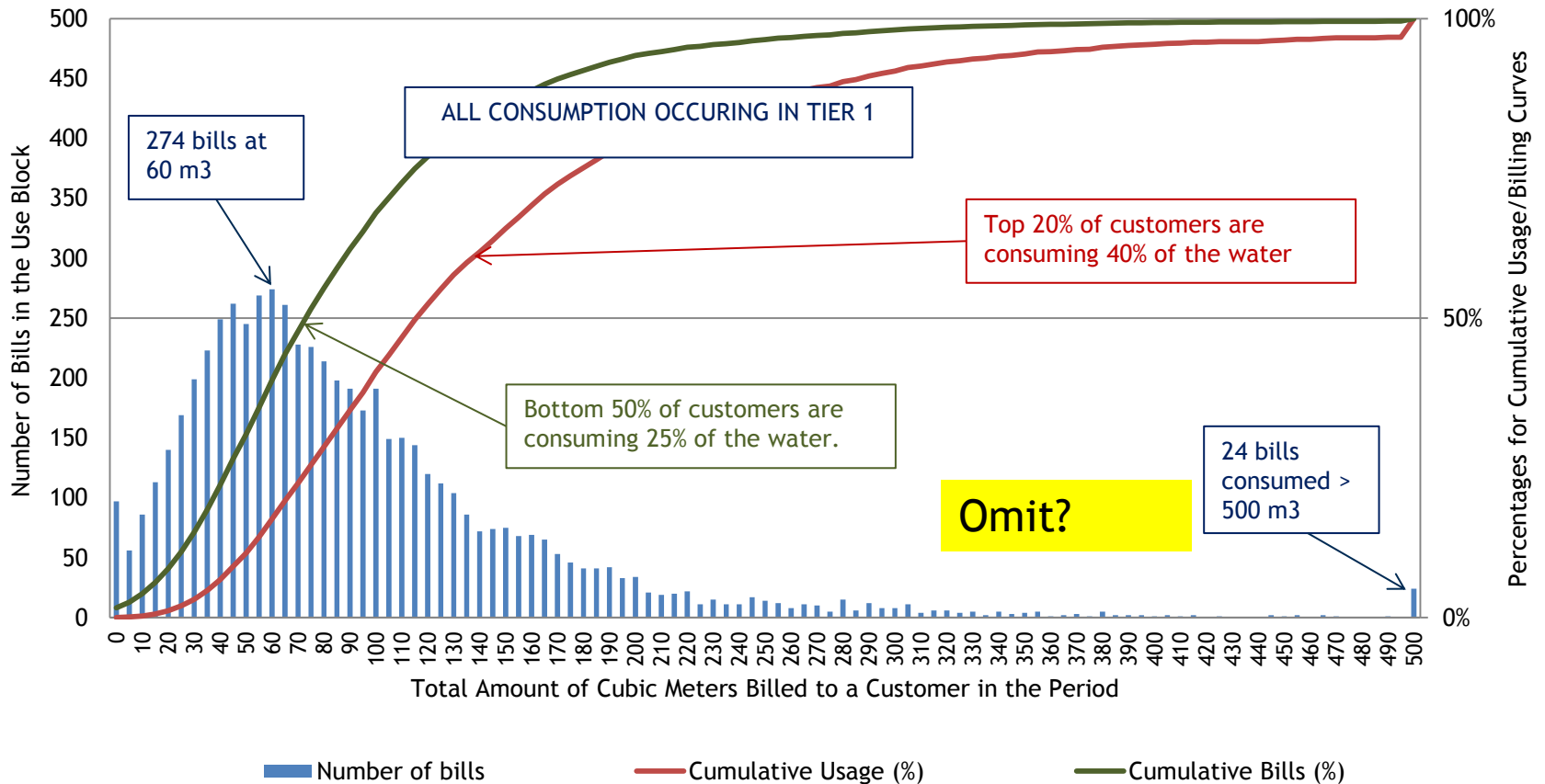


Figure 17: Residential Bill Tabulation - Summer 2013

2.8 Performance - Variable Charge

2.8.1 Commercial Consumption

This figure shows the distribution of Commercial billings.

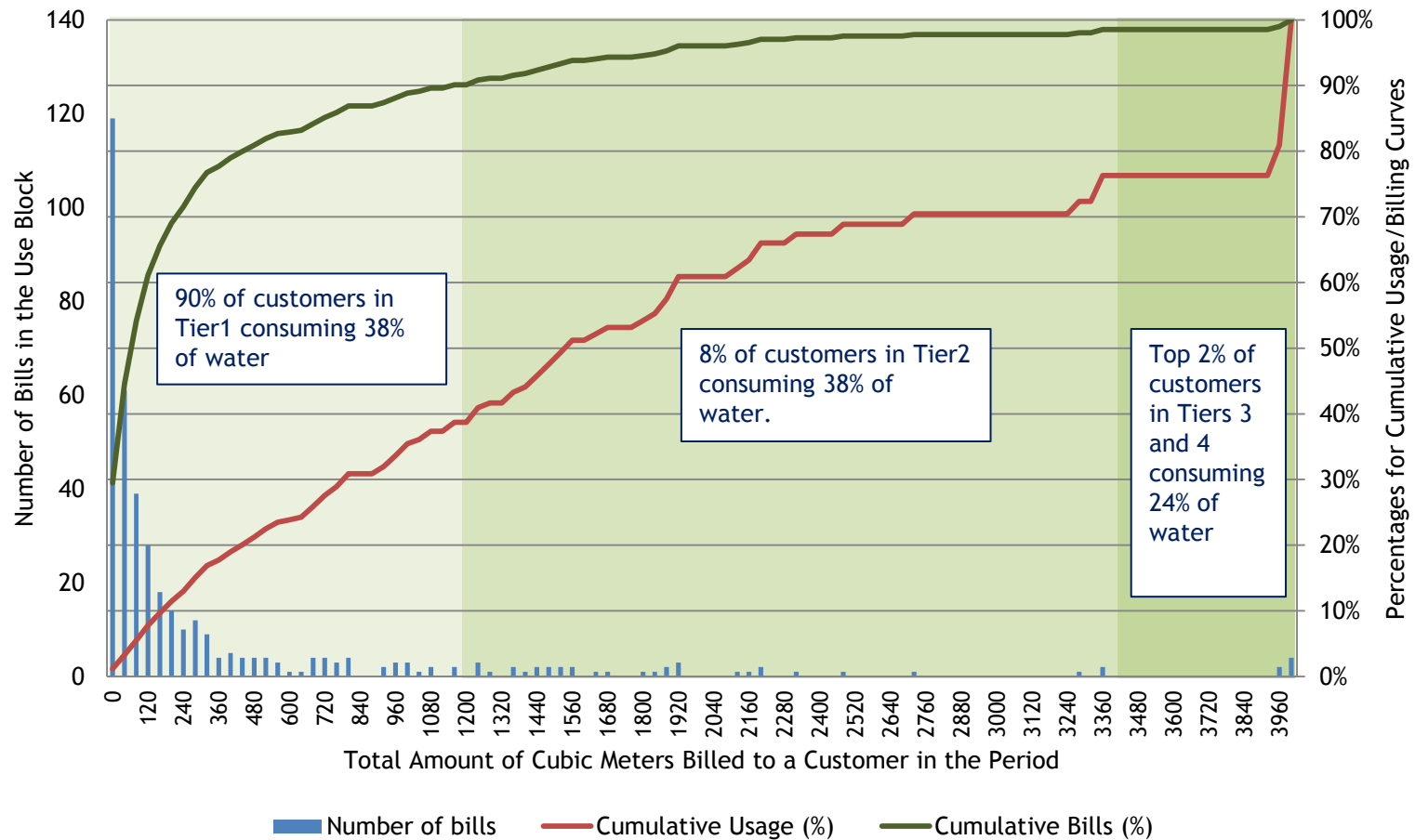


Figure 19: Commercial Bill Tabulation - Summer 2013

2.8 Performance - Variable Charge

2.8.1 Commercial Consumption

This figure shows the distribution of Commercial revenues in each tier, for each billing period, as well as for the whole year.

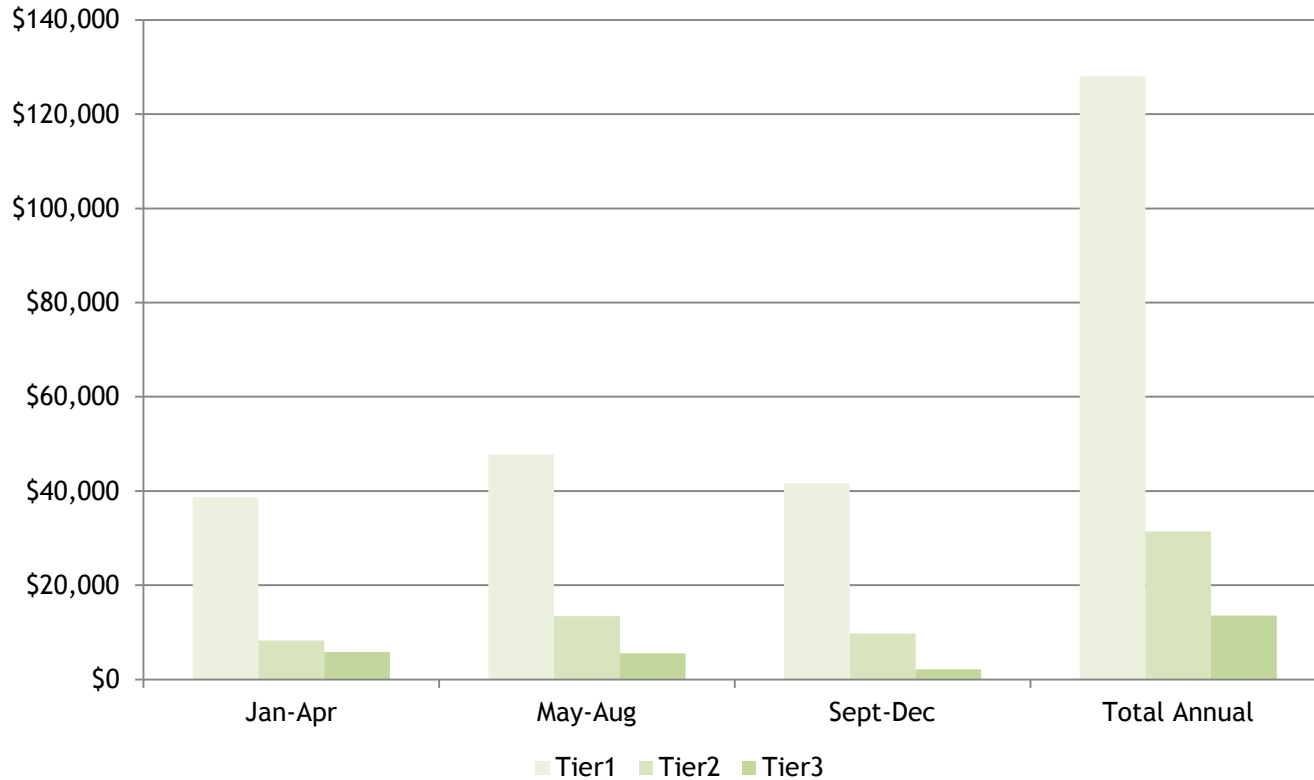


Figure 21: Commercial Customer Revenues in each Tier